

**AN ASSESSMENT OF THE EFFECTIVENESS OF A COMPREHENSIVE
MULTIPLE HEALTH BEHAVIOUR CHANGE INTERVENTION IN THE
WORKPLACE: A MIXED METHODS STUDY**

by

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DEDICATION

It's a great honour to dedicate this dissertation to two people who greatly inspired and shaped my life. The first person is my remarkable grandmother Goldie Haverstock. Among many valuable lessons, Goldie taught me the importance of the pursuit of a formal university education. Losing both her mother from diabetes, and her father and only sibling in World War I by age eight, she was among a handful of women in the 1920s to graduate from university. Goldie's pursuit of knowledge continued throughout her life and she attended university classes well into her eighties. Nanny is forever in my thoughts and prayers.

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ABSTRACT

Declining employee health and increasing work and non-work stress adversely affects organizational performance. Workplace wellness programs, intended to improve employee health, are not supported by strong economic evidence due to serious methodological limitations and the sparse number of intervention studies. A few pioneering scholars and training companies are applying sports science methods in the workplace intending to improve health, increase human energy and improve organizational performance.

The purpose of this study was to assess the effectiveness a comprehensive multiple health behaviour change intervention in a workplace setting over a 16-week period. A mixed methods quasi-experiment design was used to assess the intervention efficacy among Financial Consultants (n=81) employed in a leading Canadian financial services firm. The quantitative component compared treatment (n=44) and control (n=37) group participants on several measures before, immediately following, and three months after the intervention (six months for sales revenue productivity). The qualitative component used observations, two semi-structured interviews (n=8), and weekly journals (n=10) to understand and reconcile participant experiences with the treatment effect. Nine of the 44 treatment group participants were randomly assigned a certified life coach.

Overall, the results from the study showed statistically significant improvements for treatment compared to control participants on self-report measures including thriving, resilience, health, presenteeism, life purpose behaviours, physical activity, and nutrition. Qualitative findings supported these quantitative findings and provided insights on why the treatment was effective. However, findings for engagement improvements were non-significant and may be explained by participants being already engaged before the treatment and thus experiencing a ceiling effect. Sales revenue productivity was non-significant for treatment compared to control participants. However, treatment group sales revenue did not decline, qualitative findings showed many participants spent less time at work, and six-months may not have been an adequate time period to show effect. The quantitative findings for life coaching were inconclusive due to a low sample size. However, the qualitative findings showed life coaching was generally supportive. This study makes an important contribution to the evidence on workplace wellness programs for academics, practitioners, and organizational leaders.

Keywords: Behaviour change techniques, multiple health behaviour change, engagement, resilience, thriving, health intervention, workplace wellness programs, life coaching, Co-Active life coaching, and self-care.

LIST OF ABBREVIATIONS USED

BCT	Behaviour Change Techniques
BASES	British Association of Sport and Exercise Sciences
CALC	Co-Active Life Coach
CAC	Corporate Athlete Course
CALO-RE	Coventry, Aberdeen & London – Refined
CPCC	Certified Professional Co-Active Coaches
DVM	Disconnected Values Model
EAP	Employee Assistance Program
GDP	Gross Domestic Product
JD-R Model	Job Demands and Resources Model
MET	Metabolic Equivalent of Task
MHBC	Multiple Health Behaviour Change
OECD	Organization for Economic Cooperation and Development
P-O Fit	Person-Organization Fit
ROI	Return on Investment
SCB	Self-care Behaviour Change (Model)
WHO	World Health Organization
WWP	Workplace Wellness Programs

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CHAPTER 1 INTRODUCTION

“Our people are our most valued asset.” How often have employees heard these words from their leaders, only to be followed by actions of downsizing, rightsizing, and outsourcing to achieve increasing productivity targets? Frequently, the stressful working conditions that these actions create challenge both leaders and employees in meeting their performance targets. Declining population health (World Health Organization, WHO, 2016), by extension impacting employee health, exasperates this challenge because unfavourable health negatively affects organizational outcomes (Aldana, 2001; Fisher & Sousa-Poza, 2009; Pelletier & Lutz, 1988). Therefore, employee health is increasingly a critical management issue to ensure the long-term success of organizations. Workplace wellness programs (WWPs) began in the 1950s as employer investments in response to employee health concerns (Mattke et al., 2013). The interrelated areas of engagement, resilience, and thriving are all associated with employee health and are of increasing importance to organizational leaders and scholars (Spreitzer, Lam, & Fritz, 2010; Sweetman & Luthans, 2010; Winwood, Colon, & McEwen; 2013). Remarkably, years of scholarly organizational research show inconclusive evidence associated with employee health and related topics (Baicker, Cutler, & Song, 2010; Chapman, 2012; Grossmeier, Terry, Anderson, & Wright, 2012; Lerner, Rodday, Cohen, & Rogers, 2013; Martínez-Lemos, 2015). In the field of elite sports, athlete health is crucial to performance success. Sports leaders have developed a ‘toolbox’ of effective methods to realize and sustain a high level of health in their athletes. As employee health is becoming a more

central issue for organizational leaders, several questions arise. Why couldn't approaches used in sports be adapted effectively in the workplace to achieve higher levels of employee health? How would such a sports intervention be designed to maximize effect? Would the improved employee health lead to improved productivity outcomes?

This interdisciplinary research study drew upon the disciplines of Sports Science and Management Science. The purpose of the study was to examine the effects of applying selected athletic principles to employee health and productivity in a workplace setting. A sports science intervention, called the Corporate Athlete course, was used that targeted employee's physical, emotional, mental, and spiritual health, and ultimately, had a positive effect on their health and productivity outcomes.

1.1 Background of the Problem

Organizations operate within a large, complex web of relationships (i.e. multiple communities and often countries), thus macro-economic factors, as well as organizational factors, are relevant in framing a broader contextual understanding of the issue (Flood, 2010; Werhane, 2008). Canada's collective level of organizational productivity ranks 12th among 17 peer countries (Conference Board of Canada, 2010, 2011a). Productivity is important because it is the only sustainable source of growth for economies and depends heavily on investments in physical and human capital (Conference Board of Canada, 2010). Labour productivity growth represents a key challenge to future economic prosperity and overall competitiveness for Canadians, especially with the country's aging population (Conference Board of Canada, 2011b). To address this

challenge, the Conference Board of Canada (2010) recommended that organizations increase spending on physical capital, specifically machinery and equipment, where Canada lags behind its peers. The rationale is that since Canada has a well-educated, high quality workforce, there is more labour productivity opportunity from these increased investments, as compared to human capital investments. The purpose of this research was to demonstrate, contrary to this view, that there are potential productivity gains in human capital investments.

Overall, worldwide population health is in decline, resulting from an abundant food supply, a sedentary lifestyle from increased mechanization, and time spent in front of screens (i.e., computers, televisions, phones, and video games) (WHO, 2013). These factors have contributed to the increase in the number of obese people who develop chronic diseases, such as diabetes, cardiovascular disease, and cancer. Obesity has become such a problem that the World Health Organization (WHO) declared a global obesity epidemic in 1997. Public and private health care spending is a significant expenditure, representing 17.1% of Gross Domestic Product (GDP) in the US and 10.4% of GDP in Canada in 2014, and a declining population health trend may create upward health spending pressure (World Bank, 2016). People with poor health consume more health services and cost Canadian taxpayers approximately \$10,198 more annually than people in good health (Emery, Fyie, Brunel, & Dutton, 2013). Increasing health costs matter to organizations because it may lead to uncompetitive corporate tax structures and increased costs in private health insurance. Many of people's diseases and injuries are largely avoidable, and there is growing interest that preventative public health measures could be used

to control health care spending (Public Health Agency of Canada, PHAC, 2009). As individuals spend much of their lives at work, there is a logical argument for employers to fulfill a more prominent role in employee health, leading to more preventative health interventions in the workplace. As well, the emerging political interest in measuring wellness in many countries, may provide the impetus for organizations to take a greater interest in employee health and wellness.

While evidence shows population health is declining (WHO, 2013) there is increasing evidence that countries are interested in the wellbeing of their citizens (*Canadian Index of Wellbeing*, 2016; *Gross Happiness Index*, 2016; Organization for Economic Cooperation and Development, OECD, 2015). Improving wellbeing has been shown to lower healthcare costs, increase worker productivity, and organizational and community competitiveness (OECD, 2015). Several wellbeing measures have emerged, driven by the limitations of the traditional measure of GDP. The OECD (2015) created a biannual measure of wellbeing, called *Your Better Life Index*, to measure the quality of lives in OECD countries. The country of Bhutan uses the *Gross Happiness Index* (2016) to measure wellbeing. In the province of Alberta, Canada the *Genuine Progress Indicator* is used to measure sustainable wellbeing (Anielski, 2001; Wilson & Tydemers, 2013). The *Canadian Index of Wellbeing* (2016) measures what matters to Canadians, including health. Initial preventative health intervention evidence shows that it has a positive financial effect (Burnet, 2006; Dalziel & Segal, 2007; Roux et al., 2008). The Pure North S'Energy Foundation in Alberta is a pilot project that pays the preventative health care services for 20,000 people who are vulnerable to poor health. The results of the project included improved participant health and significant health

care cost savings (Emery et al., 2013). These preventative health initiatives validate an emerging public policy interest in creating a preventative health environment that could be leveraged by employers to improve employee health.

The decline in overall population health should be a concern for employers because they recruit employees from these populations to join their organizations and serve their customers. As well, modern organizations in pursuit of productivity can often be adverse work environments for employees where increasing stress has been associated with adverse physiological (e.g., increased blood pressure), psychological (e.g., burnout and anxiety) and organizational effects (e.g., absenteeism, presenteeism, and turnover) (Lamontagne, Keegel & Vallance, 2007; Lamontagne, Keegel, Louie, Ostry, & Landsbergis, 2007). Evidence of employers' interest in the health of their employees has been prevalent for decades with the evolution of WHPs to improve health and reduce health-related costs. WHPs offer disease prevention and health promotion programs, and are prevalent in larger organizations with more than 50 employees (Eakin, Champoux, & MacEachen, 2010).

Engagement, resilience, and thriving are three scholarly areas of interest to organizations that are associated with health. Previous scholars have validated several similarities between the distinct concepts (Spreitzer et al., 2010; Sweetman & Luthans, 2010; Winwood et al., 2013). Engagement is, "A unique positive, fulfilling, work-related state of mind that is characterized by vigour, dedication, and absorption" (Schaufeli, Salanova, González-Romá, & Bakker, 2002, p. 74). Resilience is, "An individual's capacity to manage the everyday stress of work and remain healthy, rebound, and learn from unexpected setbacks

and prepare for future challenges proactively” (Winwood & McEwen, 2014, p. 2). Thriving is the joint experience of a sense of learning and a sense of vitality (Spreitzer, Sutcliffe, Dutton, Grant, & Sonenshein, 2005). Several academic studies in the areas of engagement, resilience, and thriving have shown mixed economic results for interventions and methodological shortcomings (Baicker et al., 2010; Chapman, 2012; Grossmeier et al., 2012; Lerner et al., 2013; Martínez-Lemos, 2015). Methodological limitations included concerns associated with treatment fidelity, context, consistent definitions, pre and post measures, control group, sample size, and objective measures. Nevertheless, studies have shown an association between employee health and strong financial performance, which may contribute to employers’ sustained interest in the WWP area (Aldana, 2001; Pelletier & Lutz, 1988). There are very few intervention studies in the academic literature that show how to improve engagement (Schaufeli & Salanova, 2012) and the relatively new concepts of workplace resilience and thriving also have few rigorous intervention studies within their body of evidence.

There are rare examples in the research literature where Sports Science informs Management Science. For example, studies by Welbourne, Andrews, and Andrews (2005) and Welbourne (2014) used sports science strategies to manage human energy to increase organizational productivity. Cole, Brunch and Vogel (2012) validated that energy influenced organizational effectiveness. Gilmore and Gilson (2007) and Wagstaff, Gilmore, and Thelwell (2016) studied elite sports organizations to further organizational change theory evidence. The British Association of Sport and Exercise Sciences (BASES, 2016) define Sports Science as the study of how the human body performs during exercise to

maximize performance in sport. Canadian universities define Sports Science as sport and exercise studies providing a multidisciplinary approach to the study of sport exercise and health including the application of scientific principles to improve performance, biomechanics, nutrition and diet, the psychology of sport and exercise, and various studies related to the culture of sport and exercise in various cultures (Canadian.universities.net, 2016).

There are literally thousands of health-related interventions available, varying from poor to excellent quality. Arguably, the best health-related interventions are based on the highest quality of Sports Science evidence. The Corporate Athlete Course (CAC), is an example of this type of intervention with a unique focus on managing human energy in four dimensions: Physical, emotional, mental, and spiritual. (Johnson & Johnson Human Performance Institute, 2015a). Although the CAC has been provided to Fortune 500 organizations for the past 30 years, there is limited scholarly evidence on its effectiveness.

Often health-related interventions have a coaching support element to improve overall effect. Life coaching is a growing field that supports people transforming themselves to achieve more fulfillment in their lives (Kimsey-House, Kimsey-House, & Sandahl, 2011). The Coaches Training Institute (CTI) is the world's largest life coaching certification body and they offer the Certified Professional Co-Active Coach (CPCC) designation for coaching certification. The term Co-Active Life Coach (CALC) was used in this study to describe life coaches trained in the Co-Active model who may or may not be CPCC certified. The aims of the CAC and the CALC often intersect for people seeking improved overall health and as a result, both areas are of interest in this study.

In summary, this study focused on the underlying foundation of human capital - a healthy, energetic employee - as a viable strategy to achieve productivity and organizational effectiveness. Indeed, the whole employee including the physical, emotional, mental, and spiritual aspects, as well as the work and non-work areas, are of interest in this study. Using the sports science principles that are embedded in the CAC and support from life coaches, the purpose of the research was to assess the effects of the CAC on the employee and outcomes for the employer, in several areas, including engagement, resilience, and thriving.

1.2 Interdisciplinary Approach

The majority of dissertations study a problem to advance knowledge in a single field or discipline. Sa' (2008) suggests the historical origins of academic research, rooted in individual disciplines and departmental structures, has changed very little over time. Feller (2002) asserts universities have disincentives to depart from the traditional model because PhDs train and hire one another within a single disciplinary framework. This study is a departure from the traditional model and was developed using an interdisciplinary PhD framework. By definition, an interdisciplinary research process integrates the insights from two or more disciplines to address a problem that is too complex to be addressed by a single discipline (Repko, 2008). This study used the insights from the discipline of Sports Science to inform Management Science, relating to employee holistic health and wellness, to highlight an opportunity for more effective organizations.

1.3 Lead Researcher Background

Reflexivity is a research method to improve study validity and rigour where the researcher remains aware of their knowledge and biases throughout all stages in the study (Creswell, 2013). Reflexivity requires the researcher to strive for integrity in the entire research process by considering all influences on the research, including their own biases. The sharing of the researcher background that follows, called bracketing, is used to mitigate bias and facilitate the lead researcher's deeper reflection in the research process (Creswell, 2013).

The lead researcher spent 32 years in the corporate sector, the majority in senior leadership roles within the areas of sales, marketing, finance, and operations. As a male growing up in Canada in the 1970s, he was introduced to the traditions of ice hockey from an early age where he learned how to train and perform competitively. The lead researcher became certified as an athletic coach and coached high performance biathletes in national level competitions. He continued a fitness training regimen throughout his life and began to notice how this routine contributed positively to his role as a leader, even in the face of high levels of stress. He also noticed that employees who took care of their overall health seemed to be more positive and effective in their roles.

In 2004, he attended the CAC, which helped improve his energy levels and ultimately led to him becoming a better leader at work, home, and within the community. As a leader focused on helping his organization transform itself, he has always been interested in how to evoke positive behavioural change. This interest developed into a passion, leading to certification as a CALC from the CTI. He has spent five years supporting clients, mostly corporate leaders, to transform

through more fulfilled work and personal lives. He believes the training and experience as an athlete, an athletic coach, a life coach, a business student, and a corporate leader have worked together to create this study. In summary, a multidisciplinary leader and a multidisciplinary institution collaborated to address a multidisciplinary opportunity, which connected the discipline of Sports Science with the discipline of Management Science.

1.4 Statement of the Problem

To date, there are no known previous controlled studies on the effectiveness of a comprehensive sports science WWP intervention that influences lifestyle behaviour changes, health, engagement, resilience, thriving, and productivity. Although scholars have studied these areas individually, there are no studies that have measured all of these outcomes and addressed the methodological limitations of previous health-related intervention studies. This study was designed to address these limitations, including treatment fidelity, context, pre and post measures, control group, sample size, and triangulated data, using a mixed methods approach with self-report and objective measures.

1.5 Purpose of the Study

The purpose of the study was to assess the effectiveness of a comprehensive WWP course delivered in a workplace setting. The study had two objectives:

1. To assess the effect of a comprehensive WWP treatment on individual and workplace outcomes (quantitative component).
2. To reconcile participant experiences associated with the comprehensive WWP treatment effect (qualitative component).

1.6 Significance of the Study

The broader communities interested in this study are many. Individuals involved in public policy health matters, including elected representatives at all levels of government, public sector organizations, such as PHAC, and provincial Departments of Health, health insurance companies, health care providers with professionals who provide health advice, and non-governmental organizations concerned with preventative health (e.g., Cancer Foundation and the Heart and Stroke Foundation). These groups have mandates that focus on health and disease prevention and are interested in high quality, effective interventions that evoke life style behaviour changes that could lead to better health outcomes, lower healthcare costs, and enhanced productivity, which is critical.

Groups who would be very interested in this study include corporate human resources leaders who are responsible for WWPs and other organizational leaders who require more evidence of a positive outcome in order to invest in health intervention programs. Early adopter organizations may also discover a competitive advantage by focusing on improving the health and wellbeing of their employees. These organizations benefit from having healthy employees who provide superior customer service and attract more loyal customers and better financial outcomes.

The organizations that provide life coach training, such as the CTI, would benefit from evidence that supports their efforts and life coaches might be interested in how a WWP course could expand their coaching practice. The treatment provider (i.e., J&J) has a special interest in this study because third party high quality evidence may be useful in sales and marketing of their WWP

course. The participant company, ABC Co. (pseudonym), joined because their leaders wanted to know if investments in employees provide benefits to the individual and the company.

This research has implication for several academic disciplines. The discipline of Management, including researchers on engagement, resilience, and thriving have indicated that high quality methodological interventions are lacking to further the evidence in these areas. There are several fields in the health area who would be interested in this study including health promotion, recreation management, nursing, mental health and preventative medicine to name a few. The field of Sports Science will be expanded by the application of sports methods outside the sports field. Researchers in the discipline of Psychology, specific to behaviour change associated with health interventions, would be interested in this study. As well, major research funding bodies, such as the Canadian Institutes of Health Research, Healthy Populations Institute, and Social Sciences and Humanities Research Council would find interest in this study. Finally, individuals who are seeking alternate programs that improve their health and overall quality of life would be interested in this study.

1.7 Research Study Overview

The following section briefly presents the research study design, as well as the research questions and hypotheses. These areas are discussed in more detail in Chapter 3: Methods.

1.7.1 Research Study Design

This 16-week mixed methods, quasi-experimental study involved 81 Financial Consultants who were employed by a large Canadian-based financial services company, called ABC Co. for the purposes of this research, with offices located in Atlantic Canada. Participants self-selected and were placed in either treatment or control groups based on the group of their choice. Participants in the treatment group received the Corporate Athlete two and a half day long, instructor-led, classroom course at no charge. Nine of these participants were randomly selected and assigned a life coach. They received 45 to 60-minute long coaching sessions every two weeks for 90 days (six sessions in total). The control group received no treatment and were provided the Corporate Athlete online course at no charge at the end of the study.

The quantitative data collection for self-reported data was completed over three time periods: At baseline before the treatment, immediately following the treatment and three months after the treatment. Eight well-established and valid self-rating survey instruments were used in the study that aligned with the treatment design and expected outcomes. ABC Co., sales credit data was collected for one month before treatment and six months after treatment. The qualitative data collection methods that were used included: observations, weekly journals, and semi-structured interviews. Content analysis, using a categorization framework developed for this study, called the Self-care Behaviour Change (SBC) Model, was used to analyze the qualitative data (Krippendorff, 1980).

1.7.2 Research Questions

The following research questions were the focus of the quantitative component:

1. Does employee participation in the CAC predict increases in productivity?
2. Does employee participation in the CAC predict increases in engagement?
3. Does employee participation in the CAC predict increases in thriving?
4. Does employee participation in the CAC predict increases in resilience?
5. Does employee participation in the CAC predict increases in health?
6. Does employee participation in the CAC predict increases in presenteeism?
7. Does employee participation in the CAC predict increases in life purpose behaviours?
8. Does employee participation in the CAC predict increases in physical activity?
9. Does employee participation in the CAC predict improved nutrition?
10. Does employee participation in the CAC with CALC support predict higher increases in productivity, engagement, resilience, thriving, health, presenteeism, life purpose views, and physical activity, and improved nutrition than employee participation in the CAC without CALC support?

The following research questions were the focus for the qualitative component:

1. What are the experiences of employees who take the CAC?
2. How do the experiences of employees who take the CAC reconcile with the quantitative treatment effect?

1.7.3 Hypotheses

The following hypotheses were the focus for the quantitative component:

1. Employees who participate in the CAC will realize greater improvements in productivity than employees who do not participate in the CAC.
2. Employees who participate in the CAC will realize greater improvements in engagement than employees who do not participate in the CAC.
3. Employees who participate in the CAC will realize greater improvements in thriving than employees who do not participate in the CAC.
4. Employees who participate in the CAC will realize greater improvements in resilience than employees who do not participate in the CAC.
5. Employees who participate in the CAC will realize greater improvements in health than employees who do not participate in the CAC.
6. Employees who participate in the CAC will realize greater improvements in presenteeism than employees who do not participate in the CAC.
7. Employees who participate in the CAC will realize greater improvements in life purpose behaviours than employees who do not participate in the CAC.
8. Employees who participate in the CAC will realize greater improvements physical activity than employees who do not participate in the CAC.
9. Employees who participate in the CAC will realize greater improvements in nutrition than employees who do not participate in the CAC.
10. Employees who participate in the CAC with CALC support will realize greater improvements in productivity, engagement, resilience, thriving, health, presenteeism, life purpose views, physical activity and nutrition than employees who participate in the CAC without CALC support.

1.8 Structure of the Dissertation

This dissertation is structured into five chapters. The first chapter provides an overview of the problem and why it is important to organizations; an overview of the research study, including purpose of the study, the significance of the study, and the research questions and hypotheses. In Chapter 2, a summary of the body of relevant research is presented with an acknowledgment of the gaps in the literature, a review of three theoretical frameworks, and the rationale for this study. In Chapter 3, the research methodology and intervention are described with sufficient detail to replicate the study. Chapter 4 contains the study findings. In Chapter 5, the findings are discussed with consideration of their implications and the chapter is concluded with final thoughts and recommendations.

1.9 Conclusion

The results of this interdisciplinary, mixed methods research study, show that a sports science WWP intervention can not only improve health, resilience, thriving, and subjective productivity, but also improve the overall quality of life for its participants in several areas. The study was developed with methodological rigour and used qualitative methods to reconcile quantitative results and to better understand the health behaviour change experience. The study contributed high quality evidence to the Management Science field by proving the effect of a Sports Science-based intervention and providing organizational leaders with rationale and support for investing in employee holistic health. In terms of next steps, the idea of a broader employee measure, including engagement, resilience, and thriving is proposed.

While more study is required to validate objective productivity outcomes, this study's focus on the health and energy of the employee to achieve organizational effectiveness will hopefully inspire other researchers to focus on this unique area. Finally, this study intended to inspire organizational leaders to look for productivity in a less obvious place, namely through their employee's improved health and energy, and add real meaning to the phrase, "*Our people are our most valued assets.*"

CHAPTER 2 LITERATURE REVIEW

2.1 Introduction

The scholarly evidence on the economic benefits of WWPs is contradictory for organizational decision makers (Baicker et al., 2010; Chapman, 2012; Grossmeier et al., 2012; Lerner et al., 2013; Martínez-Lemos, 2015). While WWP intervention studies are rare, particularly in Canada (Després, Almérasa, & Gauvinc, 2014), most have serious methodological limitations (Cooper & Bevan, 2014; Goetzel et al., 2014), including treatment fidelity (Bellg et al., 2004) and contextual issues (Johns, 1991; 2006), that adversely influenced evidence credibility. Declining population health, due to poor lifestyle choices (PHAC, 2011; WHO, 2016), and increasing stress, from both work and personal areas (Sairanen, Matzanke, & Smeall, 2008), may be an imminent threat to organizational performance. Employers strive to increase employee engagement, however, these efforts usually lack an approach to employee health. In the sport's world, athlete health is vital for success, and sports leaders use the latest advances in Sports Science to push the limits of human potential. What if a similar emphasis by organizational leaders on employee health could create increased human capacity leading to greater success for their organizations? What if the sports science evidence could be applied to employees, not simply to reduce illness, but to create a high level of health and wellness possibly not previously experienced? Perhaps leaders may discover their organization's distinctive competency rests less in their products and services but rather in the holistic health of their employees. A review of the evidence in the fields of Sports Science

and Management Science revealed the need for studies such as this one to validate the feasibility and effectiveness of applying sports science methods in workplace settings to achieve increased organizational success.

This chapter begins with a review of the literature on WWPs. This includes a brief history and review of the current state, best practices, economic benefits, productivity, and ethical considerations of implementing a WWP. This is followed by a section on workplace health and trends in self-care. Next, three prevalent and interrelated management topics associated with employee health, including engagement, resilience, and thriving are examined. Exploration of sub-topics, including definitions, prevalence, benefits, and interventions emerge to inform the effectiveness of WWPs. In the final section, three theoretical frameworks relevant to this study are reviewed: the 'Coventry, Aberdeen & London – Refined' (CALORE) taxonomy; the Disconnected Values Model (DVM); and the CALC. The chapter concludes with highlights of contributions, gaps in understanding, and the rationale that supported this research.

2.1.1 WWPs: A Brief History

WWPs have emerged over several decades as an approach by employers to improve their employees' health and reduce the associated rising health costs. A significant reason behind the growth of WWPs is the long-term evidence confirming that healthy employees are linked with financially healthy organizations (Aldana, 2001; Pelletier & Lutz, 1988). One of the earliest examples of health in the workplace can be found around the First Century, BC, in Greece when disciplined and rigorous physical training methods were used to improve the health of Spartan Army soldiers, who were employees of the state (Cartledge,

2003). One of the first contemporary WWP was introduced in 1879 by the Pullman Coach Car Company (Maiden, 2005). They hired people to manage new services for their workers including medical care, recreation, and housing, which did not exist in the public system. However, the growth of WWPs only began in the late 1950s when the Pepsi Corporation started its physical fitness program and over the next several decades many large organizations invested in WWPs (Martínez-Lemos, 2015). Johnson & Johnsons introduced their WWP, Live for Life, in 1979 with the aim of making their employees the “Healthiest in the world” (Henke, Goetzel, McHugh, & Isaac; 2011). A review of the literature revealed that WWPs are not common in organizations with fewer than 50 employees mainly due to lack of resources for employee health and safety (Eakin & Weir, 1995).

The first WWPs were largely developed in response to labour union pressure and legislation targeting workplace safety and evolved to address broader concerns, such as the rising cost of healthcare for employers and awareness of lifestyle influences on employee health (Wolfe, Parker, & Napier, 1994). Despite the lack of research on the outcomes of WWPs in Canada, the legislative and public policy environment has been a force behind the development of workplace initiatives associated with reducing cardiovascular disease risk factors (Després, Almérasa, & Gauvin, 2014). The Lalonde report (1974) suggested going outside the healthcare system to promote population health and became a catalyst for employers to invest in WWPs. Després et al. (2014) have suggested the health promotion movement and efforts to reduce social inequities in health have encouraged employers to offer stress management and healthy behaviour programs in their workplaces. Furthermore,

reflecting the importance of the prevention and health promotion notion, Canada's Federal/Provincial/Territorial Ministers of Health declared the following in October, 2005, "As a nation, we aspire to a Canada in which every person is as healthy as they can be - physically, mentally, emotionally, and spiritually" (PHAC, 2005).

It became apparent after reviewing the research literature that there is little to no consensus on the definition of WWPs. This is evident from the number of terms used to describe such programs, including: workplace wellness programs, employee fitness programs, employee health management programs, population health management programs, workplace health promotion programs, worksite wellness programs, worksite health management programs, worksite-based health promotion and disease management programs, and health and productivity management programs (Falkenberg, 1987; Wolfe, Ulrich, & Parker, 1987; Hind & Rouse, 2014). For the purpose of this research, the term workplace wellness programs used is as defined by Hind and Rouse (2014). WWPs are "...workplace-based programs that incorporate health promotion and disease prevention activities with the goal of improving the health of employees" (p. 6). This definition addresses two important aspects of wellness: health promotion and disease prevention. Health promotion reflects the process of enabling people to take control of their health within a supportive organizational culture. Disease prevention encompasses measures to protect people from health threats and harmful conditions. Both of these elements are essential elements in achieving better levels of employee health.

2.1.2 WWP: The Current Situation

In the US, about half of all employers with 50 or more employees offer wellness programs (Mattke et al., 2013). RAND identified three types of WWPs, including: Screening activities, to detect health risks, such as weight or blood pressure measurements; Primary prevention interventions, such as lifestyle management (e.g., smoking cessation or weight reduction programs), to target health risks and secondary prevention interventions, such as disease management, that target chronic conditions (e.g., diabetes education); and health promotion activities that encourage healthy lifestyles like offering healthy food choices at work (Mattke et al., 2013). Weight loss and exercise, diet and nutrition, and smoking cessation programs are among the most frequently used interventions (Baicker et al., 2010; Goetzel et al., 2007). In Canada, many larger organizations who employ 50 or more employees offer employee assistance and health promotion programs, including fitness programs and disability management, (Conference Board of Canada, 2010; MacDonald et al., 2006).

The term 'comprehensive' is found in the WWP literature with two meanings. In most contexts, comprehensive refers to the overall organizational WWP approach. To be considered comprehensive, WWPs must contain the following components identified by Healthy People 2010 (2000), including: health education, links to related services, supportive environment for health improvement, integration of health improvement in the organizational culture, and employee screenings with follow-up. In other contexts, comprehensive refers to the intervention itself. It is where a single intervention addresses a single behaviour (e.g., smoking cessation or weight loss) and a comprehensive

intervention targets multiple behaviours (e.g., an intervention addressing stress management, physical activity, nutrition, and mindfulness) (Prochaska & Prochaska, 2008).

It was challenging to find research on the prevalence of WWP in Canada because most of the studies were completed on medium (100 to 499 employees) and large (500 or more employees) organizations. The vast majority of these organizations offer basic WWP, such as employee assistance programs (EAPs) and smoking cessation programs, and only about one-quarter have developed a WWP comprehensive strategy (Conference Board of Canada, 2012). Assuming only medium and larger organizations offer some type of WWP and these organizations employ 6.9 million employees (3.3 million in the private sector and 3.6 million in the public sector), this suggests that 7.7 million small business employees, or over one-half of the total employees in Canada, may not have access to a WWP (Statistics Canada, 2012; 2013; 2014a). As well, a recent Conference Board of Canada (2010) survey reported only 12% of employees used their EAP in a one-year period, suggesting low levels of WWP adoption among Canadian employees.

Bachmann (2000) developed a continuum to help organizations assess their overall position regarding WWP. Compliers meet legislative requirements. Tinkerers introduce programs targeting early detection and minimization of illness or injury. Integrators are proactive with more resources and employee health as part of their business strategy. Finally, community leaders address the various determinants of employee health and look outside the organization for support. After reviewing the available literature on WWP in Canada, most organizations

can be categorized as compliers and tinkerers and the vast majority of Canadian employees do not use WWP. If healthy employees are more productive, then this finding suggests an opportunity may exist for business leaders to invest more, in WWP and for employees to increase their adoption of WWP. It also suggests existing approaches may not be working, and therefore new and different approaches may be needed to address employee health concerns.

2.1.3 WWP: Best Practices

The literature provides examples of several best practices that characterize successful and effective WWP. Hind and Rouse (2014) reviewed 13 high quality WWP articles and concluded that the top seven components of successful programs were: Organizational leadership, health-risk screening, individually tailored programs, supportive workplace environment, comprehensive program design, program champion, and effective communication about the program and successful outcomes to stakeholders. Goetzel et al. (2007) conducted a study that identified seven key success factors associated with WWP: Organizational integration, addressing individual, environmental, policy, and cultural factors affecting health and productivity, targeting several health issues, designed for specific needs, high participation rates, program evaluation, and effective stakeholder communications. A review by Morrison and MacKinnon (2008), that involved feedback from seven Canadian policy experts located mostly in Atlantic Canada, concluded successful WWP should include the following seven elements: Engaging employees, management, unions, healthcare providers, and service providers; high levels of employee participation enticed by incentives and collaborative involvement where employees feel safe to divulge personal health

information; integrating WWP into the organization supported by all levels of management; favourably impacting medical costs over a long-term time horizon; favourably impacting absenteeism, presenteeism, and productivity; improving quality of life and employee satisfaction; and positively influencing clinical outcomes, such as fitness and obesity. Ultimately, comprehensive WWP will require leaders to establish a culture of health within their organizations that support the principles advocated by the Robert Wood Johnson Foundation (2014). These principals are summarized as the ability of individuals and their organizations to make healthy life choices within a social environment that values, provides, and promotes options that are capable of producing health and wellbeing for everyone.

While the three WWP best practice studies reviewed above use different words to describe these practices, there is a high degree of consistency and commonality between the elements and a consensus that effective WWP thrive in a strong health culture in their organizations. The underpinnings of these best practices are similar to elements that can be found in the literature related to change management. Interestingly, only 6.9% of US organizations (Goetzel, & Ozminkowski, 2008; Linnan et al., 2008) and one-quarter of Canadian organizations (Conference Board of Canada, 2012) have adopted these best practices enough to be considered as comprehensive WWP. As a result of this fact, the research for this study explored the idea of evaluating a comprehensive intervention in a less than comprehensive WWP environment. Perhaps there is a plausible explanation for the current state of WWP adoption associated with the

economic benefit evidence. The next section explores the evidence of WWPs economic benefits.

2.1.4 Evidence of the Economic Benefit of WWPs

There is strong evidence in the literature that demonstrates the positive influence of WWP interventions on a number of health-related behaviours (e.g., alcohol, smoking, diet, and exercise) and physiological measures (e.g., blood pressure and cholesterol) (Soler et al., 2010; Mattke et al., 2013). However, very few scientific studies have reviewed the impact of WWPs on organizational outcomes in Canada (Després, Almérasa, & Gauvinc, 2014). While improving health behaviours is important, organizational decision makers require evidence of economic impact in order to direct their limited investment resources. Despite the vast number of academic WWP research studies, the economic benefits are unclear. On one hand, many studies show economic justification for WWPs. Chapman's (2012) meta-analysis of 62 WWP studies supported a 25% reduction in sick leave, health plan costs, worker's compensation, and disability insurance costs. Baicker et al.'s (2010) meta-analysis found medical costs were reduced by \$3.27 and absenteeism costs were reduced by \$2.73 for every dollar spent on WWPs over a three-year period. A more rigorous review by Grossmeier et al. (2012) of five studies meeting their strict criteria including: published after 2004, a quasi-experimental or randomized control study design, program comprehensiveness and detailed benefit-to-cost ratio calculations found a positive return on investment (ROI) of \$1.73 for every dollar spent. Their review also concluded that the returns would be substantially lower after the first and second year of implementing the program.

Conversely, studies suggest WWPs are not economically justified.

Martínez-Lemos (2015) reviewed a number of European randomized control studies and concluded that the economic impacts were mostly negative. Lerner et al. (2013) studied 44 WWP interventions that reported economic benefits and found limited and inconsistent evidence on those impacts. Their analysis concluded that roughly three-quarters of the studies reported favourable results while one-quarter reported unfavourable, mixed, or null results. Overall, only 10 of the 44 studies met their standards for evidence. Of the 10 rigorous studies, most included only a one-year follow-up on the impact of the WWP, and not one included a long-term longitudinal follow-up. The least studied outcome in all of the studies was at-work performance and productivity loss. Based on the mixed results of these scholarly reviews, it may be concluded that decision makers do not have the clear evidence to justify investments in WWPs and that more rigorous research is needed to demonstrate the economic value of WWPs for organizations.

Many scholars argue that economic results in WWP ROI studies are faulty because the study methodologies lack scientific rigour that has been influenced by real world workplace factors (Dimoff, Kelloway, & MacLellan, 2014; Goetzel et al., 2014). Examples of methodological deficiencies that have affected these studies include: self-selection rather than random assignment of participants, the lack of control groups, high attrition rates resulting in the lack of statistical power to show effect, incomplete financial analysis, non-normally distributed data, reliance on questionable outcome measures, poorly articulated logic (i.e. inadequate articulation of how a given outcome translates into organizational

performance), and narrow focus (e.g., focusing on single conditions, outcomes, or types of organizations).

In addition to the methodological limitations described above, there are two more noteworthy limitations of WWP interventions found in the literature. First, a lack of treatment fidelity has been discussed in health-related studies as a significant methodology limitation that raises questions about study results (Hutchison, Breckon, & Johnston, 2009). Bellg et al. (2004), members of the Behaviour Change Consortium, define treatment fidelity as the methodological strategies that researchers use to monitor and enhance the reliability and validity of behavioural interventions. The Behaviour Change Consortium, a multinational health group that evaluates population health interventions, recommends that researchers focus on five areas to address treatment fidelity issues: study design, training providers, delivery of treatment, receipt of treatment, enactment of treatment skills. Secondly, the literature on organizational behaviour suggests that researchers infrequently explore the context of their intervention studies. This literature recommends researchers better understand and report on the context of studies because context may have subtle and powerful effects on the research results (Johns, 1991; 2006). Johns (2006) defines context as “Situational opportunities and constraints that affect the occurrence and meaning of organizational behaviour, as well as functional relationships between variables” (p. 386). As a result, Johns urges researchers to collect and report on qualitative data in primarily quantitative studies to address context effects. Design considerations that explore context include doing cross-level or comparative

studies, studying processes and events, collecting qualitative data, measuring multiple dependent variables, and using a good taxonomy (Johns, 2006).

While the economic evidence of WWP's may be largely inconclusive, there is increasing evidence that health interventions addressing multiple health behaviour changes (MHBCs) result in the most significant effect on health outcomes. Accordingly, Soderlund, Fisher, and Johansson (2009) found treatments combining aerobic training, behaviour therapy, and diet produced the most weight loss results for overweight and obese individuals. Lippke, Nigg, and Maddock (2011) found that health interventions that showed success in changing one behaviour may lead to changes in other behaviours. Toolbert, Barrera, and King (2011) found that targeting MHBCs for diabetes patients showed significant impact on multiple behaviour changes. Hendrie et al. (2012) found that obesity prevention intervention effectiveness and the number of behaviour change techniques were positively correlated. Indeed, the recent positive effect evidence supporting MHBC interventions suggests that they should be strongly considered in WWP interventions.

In summary, evidence supports the fact that WWP's influence health behaviours and that MHBC interventions are the most effective interventions; however, the economic evidence in support of WWP's is mixed and inconclusive, primarily due to methodological limitations. Treatment fidelity and context are important research design considerations to improve behaviour change validity and reliability. The evolution of WWP's should be linked to high quality management-based evidence to support sustained and additional WWP investments. The importance of human productivity, associated with healthy

employees and positive economic outcomes in organizations, is essential to understand and is reviewed in the following section.

2.2 Productivity

Human capital productivity, often expressed with the term labour, is the central focus of this study. Evans, Schneider, and Barer (2010) define productivity as, “A relationship between one or more inputs to a production process and one or more outputs from that process... [inputs include] physical capital (buildings and equipment of various forms) or human capital (skills and knowledge learned and possessed by individuals or groups)... [to create outputs] that are of value to individuals or groups” (p. 4). This definition is consistent with other definitions of productivity, however, it overlooks the energy component within human capital, which is central to this study and will be expanded upon later. Global labour productivity is measured as output per person employed and grows, on average, at 3% per year (2.8% in 2010 in the US). Productivity growth was 2.5% in Canada in 2014 (Statistics Canada, 2014b) and 0.7% annually from 2007 to 2012 for Nova Scotia (Statistics Canada, 2013). From 2000 to 2010, more than half of global growth was due to increased productivity, and the remainder came from employment growth (Conference Board, 2011b). Labour productivity is imperative for a healthy economy and is estimated to represent up to 80% of Canada’s economic growth over the next 20 years (Arsenault & Sharpe, 2008). As previously stated, Canada’s collective organizational productivity ranks 12th among 17 peer countries (Conference Board of Canada, 2010, 2011b) threatening the future economic prosperity and overall competitiveness of Canada and because of this, productivity should be a priority for organizations.

The measuring, tracking, and reporting of productivity in organizations is a complex endeavor and pursuing improvements typically takes a lot of the executive capacity of organizations. Contributing to the complexity, the healthcare costs that are borne by Canadian and American employers are significantly different. This means that the results of US-based ROI studies are not as relevant to Canadian decision makers. The ROI calculations of health interventions generally include: direct and indirect cost savings from absenteeism, turnover, recruiting, short-term and long-term disability, medical and pharmacy claims and costs, presenteeism, and work performance (Grossmeier et al., 2012; Lerner et al., 2013). Presenteeism is defined as the loss of productivity for employees who attend work and perform below standard due to health problems and/or other distracting issues (Hummer, Sherman, & Quinn, 2002; Whitehouse, 2005). Presenteeism is essentially a hidden cost to employers as it is hard to calculate. However, the area is attracting more interest from employers because of studies by Stewart, Ricci, Chee, Morganstein, & Lipton (2003) that found presenteeism explained 77% of all lost productivity and Goetzel et al., (2004) found 18 to 61% of employers' total medical costs were attributable to presenteeism.

Work performance productivity is measured by the improved outputs from the role performed by an employee. This can be difficult to determine because productivity is not always measured for all of the roles in an organization. One of the roles where work performance is almost always measured is in Sales. Sales people are primarily accountable for revenue generation and since their compensation is usually determined by their sales performance, rigorous and timely measurement is vital. If a health intervention led to improved health for

sales people, then the outcome may be expected to be improved sales performance and top-line revenue for the organization. This research focuses primarily on the sales role because of the availability of high quality performance measures and the importance of revenue growth to organizations.

2.3 Ethical Considerations of Implementing WWPs

While an employer's interest in the health and wellbeing of their employees is seemingly positive, there are ethical considerations when implementing WWP. Employers using coercive, or 'stick,' approaches to recruiting employees may cause negative feelings for some employees. Obese employees participating in negative health behaviours, such as smoking and consuming excessive alcohol, may resent Managers who suggest or 'force' them to participate in wellness programs. Furthermore, employees may be concerned about their employers having access to medical information, which may cause embarrassment and discrimination (Cavico & Mujtaba, 2013).

The above examples and other ethical considerations often arise when the employer and employee values are misaligned. A theoretical construct illustrating this idea is person-organization fit (P-O fit). The P-O fit is defined as the congruence of norms and values between organizations and persons (Chatman, 1989; Kristof, 1996) and P-O fit has been shown to correlate strongly with job satisfaction and organizational commitment (Kristof-Brown, Zimmerman, & Johnson, 2005). Achieving a high degree of P-O fit becomes desirable, especially in tight labour markets, where talented employees have more choices for employers (Ng & Burke, 2005). The importance of achieving a high degree of P-O fit in the design and implementation of WWP is an important management

consideration, otherwise, employees may have their satisfaction and commitment negatively impacted, or worse, they may leave or not ever join the organization.

2.4 State of Workplace Health

What is health? Health is defined by the WHO as, “A state of complete physical, mental, and social wellbeing and not just the absence of sickness or frailty” (WHO, 1946). The population health approach recognizes that health is a capacity or resource, rather than a state, and is defined as, "The capacity of people to adapt to, respond to, or control life's challenges and changes" (Frankish, Green, Ratner, Chomik, & Larsen, 1996, p. 6). Indeed, it would seem desirable that employers would want to have their employees' health meeting these high standards of health states and capacities. Some leaders have adopted a non-traditional way of thinking about their employees as human energy resources that require management.

‘Managing human energy’, connected to health, recently emerged as a concept from Sports Science that is now used in Management Science research and among practitioners (Cole, Bruch & Vogel, 2011; Johnson & Johnson Human Performance Institute, 2015b; Welbourne et al., 2005). Welbourne (2014) defines human energy as, “The internal force available for an employee to exert at work (ability to work)” (p. 181). Human energy (versus tiredness) and tension (versus calmness) within individuals may be changed by mood regulating behaviours (Thayer, Newman, & McClain, 1994). Vitality refers to having significant energetic resources and feeling enthusiastic, energetic and alive, alert, energized, and spirited (Bostic, Rubio, & Hood, 2000; Peterson & Seligman, 2004; Ryan & Frederick, 1997; Spreitzer et al., 2005). Welbourne et al. (2005) showed that

employee energy predicted performance, including turnover and job satisfaction, and they recommended that leaders should direct more attention to managing their employees' energy. While the concept of managing human energy at work is not a standard management practice, a study by Welbourne (2014) of 300 firms concluded that employee energy was the only statistically significant factor that predicted long-term performance defined by stock price growth and survival. The notion of increasing human productivity through a focus on human energy is central to this study.

Employees who work in environments with increasing stress risk short- and long-term health consequences (Lamontagne et al., 2007). Long-term adverse health consequences including physiological (e.g., hypertension), psychological (e.g., depression) and behavioural (e.g., smoking) conditions can result from short-term responses to workplace stress. These short-term responses can be physiological (e.g., elevated blood pressure), psychological (e.g., anxiety), or behavioural (alcohol consumption). The most common physical symptoms of stress include: irritability, fatigue and lack of energy or motivation (American Psychological Association, 2010). In Canada, mental health conditions account for 30-40% of short-term disability insurance claims and 30% of long-term disability insurance claims (Sairanen, Matzanke, & Smeall, 2008). When employees have problems in their lives outside of work, these invariably impact their work lives and elevate their stress levels further. Indeed, employee stress, no matter where it originates (at work or outside of work), should be a matter of concern for organizations.

Employee health is further affected by the global obesity epidemic. In 2014, there were 1.9 billion adults (18 years and older) who were classified as overweight and 600 million adults categorized as obese (13% of the world's population) (WHO, 2016). These levels of obesity were attributable to 58% of diabetes, 21% of ischemic heart disease, and 8 to 42% of certain cancers. At the time of the last Statistics Canada report in 2013, 13.9 million Canadians (53.6% of the total population) and 427.4 thousand (61%) Nova Scotians over the age of 18 were overweight or obese (Statistics Canada, 2014c). The rate of diabetes in Canada increased by 70% over a 10-year period (1999 to 2009) to 6.8% of the population (PHAC, 2011). As of 2013, the rate of diabetes in Nova Scotia was 9.9% (Canadian Diabetes Association, 2013), which is relevant to this study because the participants predominantly lived in Nova Scotia. Furthermore, healthcare systems that primarily focus on the outputs of procedures or services are not as motivated to improve population or employee health (Evans et al., 2010). Research on the cause of weight gain and obesity largely attributes it to increased consumption of energy-dense foods, that are high in fat content, and reduced levels of physical activity due to human's increasingly sedentary lifestyle (WHO, 2016). This suggests that chronic conditions may be preventable for many people as 80% of type 2 diabetes and heart disease cases and 40% of cancer cases are linked to poor lifestyle behaviours (Kenneth, 2008; Loeppke, 2008).

2.5 Self-care

A health-centric approach that is aligned with WWP's is self-care. To achieve an optimum level of health and wellness requires that individuals adopt a self-care approach. Self-care is an important approach to the management of

long-term health conditions and in preventing disease by living a healthy lifestyle (Lucock et al., 2011; McGarrigle & Walsh, 2011). Self-care, often labeled incorrectly as self-management in the literature, may be considered on a scale ranging from complete independence in managing one's health to complete dependence on medical care (Wilkinson & Whitehead, 2009). Self-care is defined as a preventive approach by individuals to adopt attitudes and behaviours that contribute to wellbeing and holistic health, where holistic health includes physical, mental, emotional, and spiritual components (Wilkinson & Whitehead, 2009). Self-care is what people do for themselves to establish and maintain health, prevent and deal with illness, and is a factor to improve and build personal resilience (WHO, 1998). All of the above definitions are relevant to this study because they contain important elements including: prevention, holistic health, resilience, and personal responsibility.

The self-care approach has historically received minimal attention in scholarly publications because many health professionals and scientists believed that laypersons were not qualified to provide their own healthcare and that this approach would cause more harm than good (Parsons & Fox, 1952). More recently, the self-care approach is becoming more prevalent in the literature and among healthcare professionals, especially in nursing research and scholarly publications. Levin and Idler (1983) identify three principle trends contributing to this shift. The first is the shift in disease patterns from acute to chronic illnesses, which places more emphasis on preventative health activities using self-care strategies. The second is the rising cost of healthcare and the inability of governments and society to continue to pay more every year for healthcare.

Thirdly, improved technology and access to information has allowed individuals to take control of their health destiny. Scholars have identified several benefits of self-care including: lower risk of complications and healthcare costs, improved patient satisfaction, quality of life, sense of control, symptom control, and enhanced coping and recovery from surgery or illness (Leenerts, Teel, & Pendelton, 2002; Richards & Shea, 2011; Schnell-Hoehn, Naimark, & Tate, 2009; Song, 2010). These trends towards increased self-care, where people take more personal responsibility for their health, is an important insight for leaders seeking to increase their employee's productivity through WWPs.

2.6 Workplace Concepts Related to WWPs

There are three related management concepts in the literature that are associated with employee health and relevant to the topic of WWPs. These concepts are engagement, resilience, and thriving. They are important to this study because they are interrelated and health is a common aspect of each concept (Boston Consulting Group, 2008; Fischer & Sousa-Poza, 2009; Spreitzer et al., 2010; Sweetman & Luthans, 2010; Winwood et al., 2013). A study by Pfeffer (2010) found that the health status of the workforce influences the human dimension in building sustainable organizations. Aspects within the areas of engagement, resilience, and thriving areas are shown to influence human sustainability by creating human resource capacity rather than depleting human resource capacity (Spreitzer, Porath, & Gibson, 2012). Furthermore, organizations are expending significant resources in measuring and managing these areas. Since healthy employees are shown to have higher levels of engagement, resilience, and thriving, effective WWPs must have an understanding of the

importance of each. The next section explores the prevalence, importance, and interventions in these three areas.

2.6.1 Engagement

A popular measure used by organizations to assess their human resources is engagement and this refers to work and employee engagement (Shaufeli, 2013). Engagement has received significant attention in scholarly research with almost 400 peer-reviewed, academic papers on work engagement and employee engagement published from October 2013 to June 2014. The concept of engagement first appeared in academic articles in 1990 and from 2000 to 2013, over 1,600 scholarly papers were published (Shaufeli, 2013). Common meanings of engagement included: involvement, commitment, passion, enthusiasm, absorption, focused effort, zeal, dedication, and energy (Shaufeli, 2013). A challenge in the field is the large international business consulting companies, such as BlessingWhite, Gallup, Aon Hewitt, Sirota, Towers Watson, and Valera, who have developed their own proprietary definitions, measures, and processes for engagement that have not been validated through a scholarly peer-review process (Attridge, 2009).

An extensive review of the business-related literature by Attridge (2009), including Gallup (Fleming, Coffman, & Harter, 2005), Towers Perrin (2003, 2006, 2008), Towers Watson (2012), BlessingWhite (2008), and the Corporate Leadership Council (2002) concluded that the distribution of engagement levels across all employees was categorized into three groups. Actively disengaged employees represent about 20% of employees and undermine what their more engaged coworkers try to accomplish. Highly engaged employees comprise about

20% of employees at the top of the distribution and they work with passion, feel a profound connection to their company, drive innovation, and move the organization forward. The remaining 60% of employees are classified as moderately engaged. Interestingly, these engagement results approximate a normal distribution. A meta-analysis by Harter, Schmidt, and Keyes (2002) found that engagement was shown to reduce turnover and improve customer satisfaction, profit, and productivity.

Employers direct their efforts towards factors that contribute to engagement that occur both at the personal level and the organizational level (e.g., work processes) (Attridge, Bennett, Frame, & Quick, 2009). The Job Demands and Resources Model (JD-R Model) is often cited in the Management Science literature to conceptualize engagement (Schaufeli & Bakker, 2004a). The research for this thesis did not use the full JD-R Model but focused on its personal resources component. Personal resources are the individual employee health and wellbeing attributes that have an influence on engagement and include resilience. Despite the vast number of scholarly studies on engagement, intervention studies with a focus on improving engagement are sparse in the academic literature (Bakker & Demerouti, 2008; Schaufeli & Salanova, 2012). The majority of the literature on engagement addresses the factors that influence or explain engagement, and virtually none of the literature explores interventions on how to improve engagement (Bakker & Demerouti, 2008).

There are some recent positive developments in the literature on engagement that support the approach that employee health is a precondition to higher levels of organizational success. The link between employee engagement

and wellness is emerging in both academic and consulting business literature, with the rationale that, “Wellness is a condition necessary for engagement to flourish and without which discretionary effort is at best difficult to attain” (Conference Board, 2011c, p. 5). The evidence cited includes the increasing desire for work-life balance driven by an aging workforce (Boston Consulting Group, 2008), a positive relationship between job satisfaction (A concept closely aligned with some engagement definitions), and self-reported health (Fischer & Sousa-Poza, 2009). Disengaged employees are more likely to indicate that they feel stress and health problems than engaged employees (Gallup, 2010). The emergence of employee health and wellbeing as antecedents to engagement is an important finding. To improve engagement suggests that employee health should be considered a joint accountability between employer and employee. Employees own the decision whether or not to pursue health; however, management can also provide an important supportive and enabling role in creating a healthy, organizational culture at work. The absence of scholarly intervention research is a major gap, given the importance of the topic, and requires further academic study.

2.6.2 Resilience

Resilience as a concept began in the 1800s and continues today with the area of resiliency in the workplace still being in its infancy (Luthans, Youssef, & Avolio, 2007). Giordano (1997) lists the qualities associated with resilient people including: resourcefulness, problem-solving ability, self-confidence, curious, self-disciplined, level-headedness, adaptability, and emotional stamina. According to Coutu (2002), the three common characteristics of resilient people are an

unwavering acceptance of reality, strongly held values rooted in a belief that life is meaningful, and an uncanny ability to improvise. Coutu (2002) asserts all three of these characteristics are required to be resilient and recover from an adverse event.

A review of online Google searches that included the term 'resilience' showed a steady increase with interest peaking in 2013 at almost twice the level compared with 2005 (Robertson & Cooper, 2013). Electronic searches in several relevant management and science databases (ABI Inform Global, Business Source Complete, Web of Science, Science Direct, and Google Scholar) also showed an increase in interest on resilience at work. In total, 431 academic publications had 'work' or 'workplace and resilience' or 'resiliency' in the title starting from 1993 with two publications and growing to 62 publications in 2014 by September 30. Cooper, Flint-Taylor, and Pearn (2013) suggest the drivers behind the current interest in employee wellbeing are the challenging economic and environmental conditions, the number of resilience training programs, and interest by companies to measure and improve employee engagement that has led to a greater focus on employee morale and mental health.

The literature contains several examples of the benefits of resilience to organizations but only one article gave an example of productivity (Proudfoot, Corr, Guest, & Dunn, 2009). Previous studies have identified the benefit of resilience for teachers (Gu & Day, 2006), mental health clinicians (Edward, 2005), workers on long-term disability due to stress or burnout (Steensma, Den Heijer, & Stallen, 2007), and nurses (McGee, 2006). Sood, Prasad, Schroeder, and Varkey (2011) showed benefits in areas of perceived stress, anxiety, and overall quality

of life from resilience training for physicians. Optimism is shown to be associated with resilience in the literature. Researchers have shown optimists adapt better to negative events, learn from setbacks, are not in denial, face reality and do not give up quickly, are more likely to engage in healthy living, have better health, and are more productive at work (Cooper et al., 2013; Forgeard, & Seligman, 2012). Developing the PsyCap (Acronym for psychological capital, which is a term originating from the positive psychology movement) components of confidence, hope, optimism, and resilience have been found to improve individual and organizational performance (Luthans, Luthans, & Luthans, 2004).

In contrast to engagement, there are several examples of interventions in the literature on resilience. While all of the interventions reviewed in the literature showed positive effects on resilience, the vast majority had not been monetized in productivity terms. Several interventions where employees adopted changes to develop increased resilience capacity were found in the literature. For example, the building of nurturing professional relationships and networks increased individual resilience (Dutton & Workman, 2011; Fredrickson, 2004; Tugade & Fredrickson, 2004). Several researchers found that building and maintaining positive emotions helped develop psychological strengths, good mental habits, social connections, and physical health that helped people deal with adversities and setbacks (Cooper et al., 2013; Fredrickson, 2004; Tugade & Fredrickson, 2004). Frederickson (2004) suggested there is a critical three to one ratio of positive to negative emotions. When the ratio is below three to one (positive versus negative), this indicates a person has not had a good day, whereas a good day would be above the three to one ratio. Positive emotions help a person

manage stress and strengthen them to cope with life's future challenges and setbacks (Cooper et al., 2013).

Additional activities that increase resilience include: spending time thinking about what matters, setting and pursuing meaningful goals, practicing mindfulness, being physically active, including increasing the amount and intensity of exercise, sleep, and healthy eating (Cooper et al., 2013). Expressing gratitude has been shown to help people cope with stress, recover more quickly, increase resilience, enjoy better physical health, and achieve higher levels of happiness (Emmons & Stern, 2013). Several emotional intelligence strategies including self-awareness, self-management, and social skills have been shown to lead to improved stress management and increased resilience (Cooper et al., 2013; Giordano, 1997). Journaling and self-reflection strategies have also been shown to develop emotional insight through clarifying understandings of experiences and new insights that can be used in subsequent situations (Jackson, Firtko, & Edenborough, 2007; McGee, 2006; Giordano, 1997). Keeping a journal is an effective method for reducing anxiety and managing stress as it builds self-assessment and self-reflection skills to help identify the causes and cures for stress (Cooper et al., 2013). For example, life coaches regularly request their clients to journal responses to provocative questions to clarify thinking and feelings in support of their personal growth (Kimsey-House et al., 2011). Hodges, Keeley, and Grier (2005) advocate that nurses engage in reflective journal writing about their successes and accomplishments to create feelings of pride that support their resilience, while others have found that people who regularly

practiced journaling had reduced anxiety, improved wellbeing, and a 50% drop in visits to the doctor (Cooper et al., 2013).

Mindfulness-based practices are shown to induce relaxation, positive emotions, and improve stress management, especially for those suffering from chronic clinical problems, like anxiety, chronic pain, panic disorders, and depression (Baer, 2003; Bohlmeijer, Prenger, Taal, & Cuijpers, 2010; Fjorback, Arendt, Ornbol, Fink, & Walach, 2011) and contribute to building resilience (Grafton, Gillespie, & Henderson, 2010). An example is mindfulness meditation that encourages participants to focus on their experiences in the present moment. A common practice for sports coaches is to instruct athletes to practice short (Five to 10 minute) breathing meditation exercises that help the athletes manage anxiety and improve focus during competitions (Loehr & Schwartz, 2003). Jackson et al. (2007) suggest that it is important to engage in a range of healthy activities outside of one's professional life to increase resilience. Grant, Curtayne, and Burton (2009) found that executive coaching is an effective method to build personal resilience, increase goal attainment, decrease depression and stress, and increase workplace wellbeing.

In sum, the evidence reviewed above shows a strong association between the concepts of health and resilience. In contrast to engagement, the literature on resilience has many examples of interventions that built resilience. However, there are very few studies showing specific workplace productivity outcomes. As well, resilience, as a concept of value in the workforce, is in its infancy and given its correlation with engagement, may provide important ideas to leaders struggling with improving engagement. Interestingly, many of the interventions that increase

resilience relate to MHBCs and address all areas of health, including physical, mental, emotional, and spiritual. Several of the resilience building techniques described in the literature are used by life coaches to support clients' pursuit of more fulfilling work and non-work lives. Further study is required by academics to combine several of these resilience building strategies and determine their collective impact on organizational productivity.

2.6.3 Thriving

The concept of thriving began to appear in the academic literature with Maslow (1943) and Alderfer (1972), and has only recently been studied in the workplace (Porath, Spreitzer, Gibson, & Garnett, 2012). People who are thriving are not just surviving or getting by but are growing or are experiencing an upward life trajectory (Benson & Scales, 2009; Calhoun & Tedeschi, 1998; Carver, 1998; Ickovics & Park, 1998)Hall et al., 2009; Thomas & Hall, 2008). The literature on thriving at work has grown from one peer-reviewed article in 2000 to 32 by September 2014 found with thriving and workplace or work in the title from electronic searches in Academic Search Premier, Business Source Complete, CINAHL, Library Literature & Information Science, PsycARTICLES, and PsycINFO databases.

There were a few studies that calculated specific productivity evidence on thriving and several studies showed a positive effect. When individuals are thriving, they are less likely to be anxious and depressed and more likely to be mentally healthy (Keyes, 2002); less susceptible to stress, burnout, or strain; have healthier lifestyle behaviours, and much better overall health (Porath et al., 2012; Spreitzer, et al., 2012). Spreitzer et al. (2012) reviewed the past decade of

literature on thriving and found several notable business outcomes for thriving employees, including a 74% reduction in days absent from work, employees rating their thriving leaders 17% more highly compared to their less thriving counterparts, 46% were more satisfied with their job, and 125% less burned out. Thriving predicts individual job performance above and beyond common attitudinal variables (e.g., job satisfaction) and predicts whether employees engage in self-development activities (Paterson, Luthans, & Jeung, 2014; Porath et al., 2012; Spreitzer et al., 2012). Thriving at work has been shown to stimulate innovation and the generation of creative ideas (Carmeli & Spreitzer, 2009; Wallace, Butts, Johnson, Stevens, & Smith, 2016), and it has been linked to thriving outside of work (i.e., personal life) and human sustainability (Spreitzer et al., 2012).

There are a few examples of activities in the studies that were reviewed by Spreitzer, Porath, and Gibson (2012) that employees can do to enhance their thriving. They include taking breaks for exercise or getting sleep to rejuvenate, which improved team performance at Boeing; energy-renewal techniques for physical, emotional, mental, and spiritual dimensions resulted in a 13% increase in loan revenue and a 20% increase in deposit revenue at Wachovia; seeking ways to make work more meaningful and impactful shown in a study of non-profit workers collaborating across borders to create a sense of global identity; and looking for opportunities to innovate and learn something new through mentoring or tuition reimbursement programs offered by many organizations. Interestingly, these examples are similar to actions that increased resilience. Examples of organizational interventions that increase thriving include: enabling employee

decision-making discretion shown at Best Buy to improve productivity by 35%; South West Airlines providing information to employees about the organization and its strategy, which allows employees to act like owners; Cisco minimized incivility with their Global Workplace Civility program that resulted in a more positive environment; providing performance feedback that keeps employees' activities directed toward personal and organizational goals; and creating a climate that promotes diversity, such as equal opportunity policies and family-friendly practices that contribute to a positive diversity climate (Spreitzer et al., 2012).

Overall, the evidence on thriving in the workplace is associated with overall health and appears to be a favourable strategy for managers to improve overall organizational effectiveness.

2.6.4 Engagement, Resilience, and Thriving Relationships

Previous scholars have studied the relationships between the distinct concepts of engagement, resilience, and thriving; however, there are no studies that explore the interconnectedness of all three concurrently. Sweetman and Luthans (2010) suggest resilience relates directly to all three components of engagement; namely vigour, dedication, and absorption. Winwood et al. (2013) conducted an exploratory and confirmatory factor analysis study that validated the Resilience at Work Scale and found that resilience and engagement were highly correlated with a .53 Pearson-r correlation. This finding suggests that individuals who are highly engaged in their job are more likely to be resilient. However, individuals who are resilient are not necessarily highly engaged in their work because the development of engagement has many other contributing

components, such as absorption, which is associated with employees being engrossed in their work.

There are similarities and differences between the concepts of thriving and engagement (Spreitzer et al., 2010). A key similarity includes that both are focused on the human energy dimension (i.e., vigour and vitality). The most prominent difference is that engagement's dimension of vigour is broader than thriving's dimension of vitality. Vigour includes notions of resilience and persistence while vitality is strictly about energy. Another difference is that the dedication and absorption dimensions of engagement are different than the learning dimension of thriving. Although no empirical studies comparing the concept of thriving and engagement exist, Spreitzer et al. (2010) suggested that engagement is more about the present state and thriving is the future state of growing and developing. If individuals are engaged they are likely to be thriving; however, it is possible for individuals to be engaged but not thriving and vice versa (Paterson et al., 2014). A study by Paterson et al. (2014) empirically linked the two concepts by showing behaviours from resilience that contribute to thriving and that both are positive psychological states.

In summary, the concepts of engagement, resilience, and thriving have been validated by scholars as closely aligned and complementary concepts. While engagement is prevalent in organizations and business consulting practices, the concepts of resilience and thriving are only now beginning to become more widely known in these areas. All three concepts have a health component and as a result, effective WWP interventions should influence improvements to the engagement, resilience, and thriving of employees.

Furthermore, there are several examples in the literature of the positive effect of these concepts (Harter et al., 2002; Luthans et al., 2004; Spreitzer et al., 2012) and therefore, they should be used to inform the design of effective WWP interventions. Interestingly, the evidence on resilience and thriving shows that they are effective in improving engagement and that more research should be done to further validate this idea. Scholars are consistent in their recommendations for more interventions in these areas to better understand how to make improvements and to determine productivity effects. This study seeks to address this gap in the literature by demonstrating that an increased focus by organizations on employee health results in higher levels of engagement, resilience, and thriving and ultimately leads to increased organizational effectiveness.

2.7 Theoretical Frameworks

A vital aspect of effective WWP interventions are the Behaviour Change Techniques (BCTs). Abraham and Michie (2008) define a BCT as a theory-based method for changing behaviour in health interventions, which includes specific techniques (e.g., provide information on consequences) or theoretical frameworks (e.g., theory of reasoned action) that contains various techniques. In order to adopt healthy lifestyle changes and replace deeply engrained dysfunctional behaviours with new more constructive behaviours, interventions should be designed with effective BCTs. Furthermore, these BCTs should be easily categorized to be tested and validated by researchers (Abraham & Michie, 2008). There have been recent theoretical and practical evolutionary improvements that favourably contribute to the effective categorization of BCTs. As well, improved

categorization addresses the methodological shortcomings associated with context and fidelity limitations in the WWP health-related intervention literature.

This research utilized three frameworks, including a taxonomy of standardized behaviour change definitions, known as the CALO-RE taxonomy; a framework focused on values in behaviour change interventions, known as the DVM; and a practitioner framework validated by scholars and utilized by life coaches to evoke personal transformation, known as Co-Active Life Coaching (CALC). In the following section, more detail is provided on each framework and how each was used to guide this research.

2.7.1 CALO-RE Taxonomy

The CALO-RE taxonomy is a recent advancement in behaviour change associated with physical activity and healthy eating interventions. The lack of standardization in behaviour change interventions and the problem of replicability in empirical studies was addressed by the creation of a taxonomy of 26 BCTs by Abraham and Michie (2008). The CALO-RE taxonomy, a refinement to the original taxonomy developed by Abraham and Michie (2008), provides standardized definitions of 40 techniques associated with behaviour change interventions that were validated against theoretical frameworks, including the theory of reasoned action, theory of planned behaviour, social-cognitive theory, and control theory (Abraham & Michie, 2008; Michie et al., 2011). The taxonomy was a breakthrough when it was released and established a common terminology that allowed intervention content to be described and compared across interventions in order to better understand the anatomy and effectiveness of these interventions. A study by Michie et al., (2011) suggests that the taxonomy

requires more work to identify additional BCTs, subdivisions within current BCTs, and clusters to facilitate effective statistical analysis.

There are limitations of the CALO-RE taxonomy. A recent review of the peer reviewed literature showed only eight studies used the CALO-RE taxonomy and seven were systematic reviews of existing studies where researchers did not personally observe and verify the BCTs were delivered as intended. Several studies reported low levels of inter-rater reliability, which may have resulted from incorrect interpretations of the CALO-RE definitions. Perhaps the fact only one study used the CALO-RE taxonomy in an intervention suggests the 40 item taxonomy may not facilitate practical application in real world behavioural interventions. The notion of coding intervention behavioural aspects into 40 categories may not be pragmatic and may be preventing adoption by researchers in health interventions. Nevertheless, the CALO-RE taxonomy represents a positive contribution to better understanding and researching health interventions.

2.7.2 Disconnected Values Model (DVM)

Anshel (2010) has suggested that the idea of values has been ignored by most health behaviour researchers and outlines the criticality of including values in the DVM framework. The explicit focus on an individual's values and life purpose recognizes the importance of these elements in the behaviour change process. The role of values identification, a key component of social cognitive theory (Schunk & Usher, 2012) has been shown to have a positive effect in exercise interventions (Brinthaup, Minsoo, & Anshel, 2010; Anshel & Kang, 2007). Anshel (2010) asserts that behaviour change is more likely to be permanent when the client concludes that life satisfaction is linked to behaving in

alignment with their values. In the DVM, clients are provided with a list of values to rank in order of priority and identify disconnects between their values and the way they are living their lives. A study of university faculty and staff who used DVM to influence exercise showed that the intervention increased their fitness levels, changed their perceptions of personal values, and participants reported reductions in their perceived barriers to exercise (Brinthaupt et al., 2010). A yearlong study of 275 healthy women found that participants who used values-based goals to improve their quality of life exercised 34% more than those with weight or appearance-based goals (Segar, Eccles, & Richardson, 2011). Overall, this DVM evidence is compelling and supports the importance of including values as a BCT to improve health intervention efficacy.

2.7.3 Co-Active Life Coaching (CALC)

A profession that applies BCTs in support of individuals seeking improvements in their life is life coaching. Life coaching is becoming increasingly an option for individuals to support making life style changes related to their personal and professional lives, as well as dealing with health problems, including: diabetes, obesity, mental health, depression, and cardiovascular health (Newnham-Kanas, Gorczynski, Morrow, & Irwin, 2009; Newnham-Kanas, Irwin, Morrow, & Battram, 2011). Life coaching is a profession supported by a code of ethics and there are several institutions providing life coaching certification, the largest being the CTI. This research utilized the CALC certification offered by CTI. Although the underpinnings of CALC's were founded on practice, the evidence suggests that CALC has been validated against several behaviour change theories, including: social cognitive theory (Bandura, 1986), the theory of

reasoned action (Fishbein & Ajzen, 1975), self-determination theory, (Ryan & Deci, 2000) and the theory of planned behaviour (Ajzen, 1991) and evidence suggests CALC may be supportive of health interventions (Gorczynski, Morrow, & Irwin, 2008; Irwin & Morrow, 2005; Mantler, Irwin, Morrow, Hall, & Mandich, 2015; Newnham-Kanas, Irwin, & Morrow, 2008; Pearson, 2012; Pearson, Irwin, Morrow, Battram, & Melling, 2013; van Zandvoort, Irwin, & Morrow, 2008).

Kimsey-House et al., (2011) define the CALC model as having four cornerstones, three core principles, and five contexts. The four cornerstones consist of: people are naturally creative, resourceful, and whole; focus on the whole person; dance in the moment; and evoke transformation. The three core principles are: fulfilment coaching, exploring what it means for each client to live true to their values; balance coaching, used to provide alternative perspectives on recurring issues (i.e., ones where the client feels stuck or overwhelmed) and to develop potential, planned, and alternative courses of action to which a client can commit; and process coaching, that addresses the internal emotional experience of the client as they experience life at a particular moment in time (Newnham-Kansas, 2011). The five contexts of the model are: listening, intuition, curiosity, forward and deepen, and self-management. The heart of the model is the relationship between the coach and client, which CTI calls a 'designed alliance,' where the power is in the relationship and not just with the coach. The relationship is built on trust, confidentiality, and openness and is most effective when coach and client create a safe and courageous space for the work. Coaching is usually delivered regularly over a period of months or years and can be provided face-to-face or over the telephone. While it is beyond the scope of this study to provide an

expansive review of the CALC model, it is important to know the basics of the CALC model. This model, when followed by a trained and certified life coach, is ultimately used to evoke change for clients towards their desired life in any area. For many clients, this frequently involves the area of self-care that is associated with health (Kimsey-House et al., 2011).

The practice of life coaching works for self-care because it helps build awareness and confidence, as well as teaching people how to set achievable goals that make changes and impact their health (Schneider et al., 2011). Life coaching has been shown to be effective in supporting obese people to lose weight, decrease waist circumference, and increase self-esteem (Newnham-Kanas et al., 2008; Pearson, 2012; Pearson et al., 2013). Furthermore, life coaching has been used effectively by diabetics to make lifestyle changes in the area of exercise and nutrition to achieve significant reductions in A1C levels, cholesterol levels, and weight (Frates, Moore, Lopez, & McMahon, 2011). The success of life coaching as a BCT is attributed to the fact that coaching helps people explore options, problem-solve, prioritize, anticipate and manage stumbling blocks, and make appropriate decisions that fit within their lives. It also provides a whole-person approach to developing skills that can be applied to all areas of a person's life (Schneider et al., 2011). CALC is a practical BCT that has been validated by scholars, and has been shown to be effective in supporting individuals seeking health behaviour change.

In summary, the CALO-RE taxonomy, DVM, and CALC are complementary and validated BCT frameworks associated with health-related behaviour change interventions. Given the need for higher quality WWP intervention evidence that

addresses methodological concerns, including fidelity and contextual issues in the current literature, there is a need to design intervention studies that address these serious limitations. The three foundational frameworks were used in this study to address fidelity and context concerns, as well as provide overall guidance to interpret and analyze the study's findings. The next section showed how these frameworks were used in the study.

2.7.4 Framework Integration and Use in the Study

This study integrated the best aspects of each framework to develop a practical approach to categorize the qualitative findings to enhance interpretation and address treatment fidelity and contextual issues. The CALO-RE taxonomy, as stated earlier, has excellent descriptions of the elements within a health behaviour change intervention. However, there are at least three limitations that detract from using the taxonomy without modification. First, there are too many categories to reasonably code an intervention and the categories are not summarized to facilitate ease of use by researchers. Second, the taxonomy does not appear to have a values component, which is critical in a behaviour change intervention. Third, the category descriptions do not include more detailed descriptions for more in-depth understanding of category meaning. The DVM framework is exclusively associated with values and life purpose and their importance in behaviour change; however, the framework does not address any other important BCTs and thus, is limited in assessing multiple health behaviour change interventions. CALC, although validated in well-known behaviour change theories, is a life coaching methodology and was not designed as a tool to validate qualitative research findings. The strength of CALC is that behaviour change

techniques and processes are well described as they are imbedded in the framework documents. A certified CPCC would thus be able to use the CALC framework to outline the steps within a behaviour change engagement that would be used for their clients.

How do these frameworks integrate into a cohesive framework for this study? The CALC framework is connected to both the CALO-RE taxonomy and DVM in the following ways. First, CALO-RE taxonomy elements may be found within CALC. For example, the CALO-RE taxonomy elements of goal setting, barrier identification/problem solving, prompt use of imagery, and prompt practice are part of CALC's balance coaching principle. Further, other CALO-RE taxonomy elements, such as fear arousal, prompt anticipated regret, and general communications skills training are part of CALC's process coaching principle. A review of all 40 BCTs, by the lead researcher who is a CPCC, suggests that all 40 techniques could be used within the CALC framework. The DVM is also found within CALC because values, resonance, and dissonance are part of CALC's fulfillment coaching principle.

The combined strengths of these three frameworks resulted in a categorization or analysis framework, which is described in Chapter 3. The categories were assigned to the qualitative data from interviews and journals to help understand and interpret the findings. Although the observation data were not categorized using this model, the model was useful in assessing the BCT's observed in the treatment course. Overall, the categorization model was used to assess the five treatment fidelity areas reviewed earlier in the following ways. First, the observations were used to assess the treatment effect, including the

treatment design, the trainers, how the treatment was delivered and received by participants. Second, the categorization of interview and journal data was used to assess the on-going post-treatment period to see evidence of the enactment of treatment skills and to better understand the participant experience. The qualitative findings, facilitated by the categorization framework, was used to further understand, interpret, and report on contextual issues. For example, the observation data identified that some participants did not complete their 360-degree surveys, which detracted from their classroom experience and potentially the treatment effect.

In summary, the CALO-RE taxonomy, DVM, and CALC frameworks are rooted in well-established behaviour change theories including the theory of reasoned action, theory of planned behaviour, social-cognitive theory, control theory, social cognitive theory, and self-determination theory. These three frameworks integrated key aspects of their individual components to create a study framework to categorize the quantitative findings in a practical and intuitive manner. The quantitative findings were used to further the assessment of treatment fidelity, contextual issues, treatment participant experiences, and to reconcile the treatment experience with the quantitative findings.

2.8 Systems Approach

It is evident from a review of the literature that workplace health-related comprehensive interventions targeting behaviour change are complicated endeavors. People are complex beings; organizations are complex entities, and the communities where both operate are a complex web of relationships. A system's thinking perspective accepts that our thoughts, experiences, practices,

and institutions are interrelated and interconnected. This idea emerged in the twentieth century as a criticism of reductionism (Flood, 2010; Werhane, 2008). Reductionists study cause and effect relationships by breaking down a phenomenon into individual parts. System's thinkers, in comparison, accept that a phenomenon cannot be fully understood by its individual parts. The scope of this study primarily focused on the individual employee and then, secondarily, the organization within which they worked. While the broader community where the individual employee and the organization reside and function are relevant to understanding the intervention, inclusion of the broader community was beyond the scope of this study.

2.9 Literature Review Summary

The literature review for this study helped to confirm several important aspects regarding employee health. Population health is declining and this trend inevitably affects organizations with more employees reporting poor health. Employees with poor health who face increasingly stressful work environments, work-life balance challenges, and are challenged to sustain high performance often end up burned-out. A decrease in the overall health of employees may result in productivity declines from unfavourable absenteeism, presenteeism, turnover, and customer service outcomes. Canada's already unfavourable productivity ranking as 12th of 17 OECD countries may drop even further; in turn, affecting the country's competitiveness and overall quality of life. Conversely, countries and employers who have stopped or reversed their declining population health rates may find favourable productivity gains and a competitive advantage. Interestingly, countries are reporting favourable financial outcomes from their

preventative health initiatives and they are starting to balance economic measures (e.g., GDP) with measures of wellbeing. Declining population health threatens social and organizational economic performance and therefore public policy and organizational decision makers should be motivated to seek alternatives to reverse this trend.

Many employees in Canada do not have access to WHPs and those with access are not widely using them. As well, the vast majority of organizations who have WHPs are providing only the basic services and not investing in comprehensive WHP approaches. This lack of investment in WHPs may be because business leaders have not been convinced that further investments would result in increased value to their organizations. Scholarly studies on the financial impacts of WHPs show mixed results, often lack scientific rigour, and real world workplace interventions are rare. A major gap exists in the research area for decision makers who lack compelling evidence on the economic benefits of WHPs that can only be derived from high quality scientific intervention studies addressing treatment fidelity, context, and methodological limitations.

A common workplace employee measure associated with health and productivity is engagement. Employers are regularly challenged with identifying specific actions to improve low engagement scores and often focus on job resources, rather than personal resources (i.e., their employees) in the JD-R Model. Recent work by Cole, Bruch, and Vogel (2011) and Welbourne et al. (2005) emphasizes the personal resources aspect and suggests managing employee energy is a viable strategy to achieve organizational effectiveness. The Corporate Athlete Course (CAC), a comprehensive WHP targeting MHBCs, is a

program with a focus on managing energy for organizational success.

Interventions targeting MHBCs are shown in the literature to be more effective (Lippke et al., 2011; Soderlund et al., 2009; Toolbert et al., 2011). As well, life coaching is emerging as an effective method to support personal transformation.

The trend towards individuals taking more responsibility for their health through self-care strategies may be an opportunity for employers to achieve higher levels of employee adoption of WWP. Resilience and thriving, are interrelated concepts that are becoming more commonplace in the management literature and, similar to the concept of engagement, are associated with health and productivity.

Evidence is lacking in the academic literature on interventions that could improve engagement, resilience, and thriving. As a result, more interventions are needed to advance the evidence in these areas. While researchers have compared the constructs within each topic, there were no studies found that addressed all three topics at once. There are many valid theoretical frameworks associated with health-related behaviour change. The three reviewed and used in this research were the CALO-RE taxonomy, DVM, and CALC frameworks and they were found to be complementary and relevant. These frameworks, in combination with the system's approach, formed the underpinnings for understanding and interpreting the qualitative data in this study.

2.10 Rationale for the Study

This research contributes to the WWP evidence in the following ways. First, a workplace health-related intervention with a strong study methodology provides higher quality evidence that has been lacking in the literature. Second, an intervention study with a comprehensive methodology, using a mixed-methods

design, addressing physical activity and nutrition, health outcomes, engagement, resilience, thriving, presenteeism, and productivity would be a unique contribution to several academic and practitioner areas. The emergence of a proposed model may become a noteworthy contribution to the health-related behaviour change field. An effective health-related intervention in a work environment that was lacking WWP best practices would be of interest to organizations without WWP, especially small and medium-sized organizations. Third, the well-renowned CAC has not previously been validated in controlled scholarly studies. As well, a study with life coaching associated with a health-related intervention would further evidence in the life coaching area. There are very few scholarly studies on the concept of managing employee energy and no intervention studies showing how to improve energy were found in the literature. Perhaps a focus on the personal resources of the JD-R Model will prove to be an effective approach in achieving organizational success. Finally, a workplace health intervention shown to positively influence productivity would be highly valued by leaders in organizations, health policy, and governments.

2.11 Conclusion

In conclusion, the critical review of the sports science and management science literature convincingly suggests a methodologically strong workplace health intervention study will contribute new high quality evidence for numerous academic and practitioner researchers, and public and private sector decision makers.

For this study, a mixed methods, comprehensive workplace intervention was used with a quasi-experiment design and pre/mid/post measures of health

behaviour compliance, health, engagement, resilience, thriving, presenteeism, and productivity. Qualitative data was collected by observation, semi-structured interviews, and weekly journals. This data was categorized and reported using content analysis to ensure treatment fidelity, an increased contextual understanding, and an understanding of the self-care experience.

CHAPTER 3 METHODS

3.1 Introduction

Within the following chapter, the mixed methods design that was used in the research is detailed. This type of design is defined as “Research in which the lead researcher collects and analyses data, integrates the findings, and draws inferences using both qualitative and quantitative approaches or methods in a single study or program of inquiry” (Tashakkori & Creswell, 2007, p.4). The use of multiple approaches is beneficial in evaluating complex health interventions because they involve social and behavioural processes that are challenging to investigate by only quantitative or qualitative methods (Campbell et al., 2000). A mixed methods design known as the intervention mixed-methods framework (Fetters, Curry, & Creswell, 2013) was chosen for this study primarily to enhance the interpretation of the results of a complex intervention. More simply stated, a quantitative component determines the intervention effects, whereas a qualitative component explores the why of the effects.

Enhanced interpretations from qualitative data may occur both during and after a complex health intervention (Lewin, Glenton, & Oxman, 2009). During the intervention, qualitative data can be collected to confirm the fidelity of the intervention to determine whether it was correctly implemented, to describe the intervention as delivered, and to explore deliverers’ and participants’ responses to the intervention. After the intervention is delivered, qualitative data can be used to explore reasons for the findings and variations in the sampling effects. Moreover, qualitative data can be used for intervention clarification to help better understand

the experiences and feelings of the participants during the intervention (Polit & Beck, 2012; Sandelowski, 1993). The literature on organizational behaviour largely recommends that researchers better understand and report on the context of studies because context often has subtle and powerful effects on research results (Johns, 1991; 2006). Johns (2006) defines context as “Situational opportunities and constraints that affect the occurrence and meaning of organizational behaviour, as well as functional relationships between variables” (p. 386) and urges researchers to collect and report on qualitative data in quantitative studies for two reasons. First, to be sensitive to the complete range of separate contextual factors affecting the behaviour of study participants. Secondly, to be sensitive to the complete range of behaviours and attitudes that context effects in order to make inferences about a situation.

In summary, quantitative research involves the collection and analysis of numerical information to examine causal effects, whereas qualitative research is ‘An inquiry process of understanding’ where the researcher develops a “...complex, holistic picture, analyzes words, reports detailed views of informants, and conducts the study in a natural setting” (Creswell, 1998, p. 15). For the purpose of this study, the quantitative data that was collected focused on the effects of the health intervention on the individual and their health and productivity. In comparison, the qualitative data that was collected provided a more nuanced interpretation of what was experienced by the participants during both the intervention and the following time frame.

3.2 Objectives

The purpose of the study was to assess the effectiveness of a comprehensive WWP course (i.e., CAC) delivered in a workplace setting. The study had two objectives:

1. To assess the effect of a comprehensive WWP treatment on individual and workplace outcomes (quantitative component).
2. To reconcile participant experiences associated with the comprehensive WWP treatment effect (qualitative component).

3.3 Intervention

The purpose of this research was to examine the effectiveness of a comprehensive WWP intervention treatment, called the CAC. The CAC was selected for the study based upon several criteria: (1) Longevity and credibility. Johnson & Johnson Human Performance Institute, the CAC provider, was co-founded in 1991 by renowned performance psychologist, Dr. Jim Loehr and Dr. Jack Groppe, who was an internationally recognized authority on human performance, fitness, and nutrition, (2) The comprehensive design of the course in addressing physical, emotional, mental, and spiritual energy elements, (3) The course foundational underpinnings in Sports Psychology and Physiology Science, (4) Since its inception, over 250,000 people have taken the course, including high profile athletes, Olympic gold medalists, 17 athletes with first place world standings, and Fortune 500 companies (Johnson & Johnson Human Performance Institute, 2015b), and (5) The lack of a controlled study and third party evidence associated with course effect on individual and business outcomes.

The study also explored the effect of the CAC when supported with Co-Active Life Coaching (CALC). Qualitative analysis of the CALC treatment was provided. However, participant attrition reduced the statistical power of the quantitative findings and prevented rigorous analysis and conclusions. The CALC treatment was selected for the study for several reasons: (1) CTI is the world's largest and oldest life coaching training company providing courses in 20 countries with over 50,000 coaches trained (CTI, 2016), (2) CTI grants Certified Professional Co-Active Coach (CPCC) certification training and was the first school accredited by the International Coach Federation as meeting standards for international certification, and (3) CALC has met the rigorous assessment of scholars when compared with valid models and theories in academic literature (Newnham-Kanas et al., 2011).

3.4 The Corporate Athlete Course Treatment

The CAC is a two and a half day long course designed to increase participant's energy capacity in the areas of physical, emotional, mental, and spiritual energy. The CAC agenda (Appendix B, used with permission) was delivered by experts trained in sports physiology, nutrition, and psychology. Topics included movement, nutrition, defining a purpose, storytelling, blood chemistry and body composition analysis, recovery, and developing a 90-day training plan. The CAC is rooted in scientific research and several scientific studies are referenced in the course by instructors to support the material (Johnson & Johnson Human Performance Institute, 2015a). The course is a mix of classroom delivery and hands-on exercising in a fitness centre. In the following section, the CAC intervention that was used in this study, is described from the

lead researcher's observations during five days of CAC course. A more in-depth critical analysis of the course is presented in Chapter 4.

3.4.1 Setting

Forty-five ABC Co. employees attended the CAC session. It was delivered in two consecutive two and a half day sessions from September 28th to September 30th, 2015 (Group 1, 19 attendees) and September 30th to October 2nd, 2015 (Group 2, 26 attendees), in a multi-purpose sports facility in Halifax, Nova Scotia. Two employees from the sports facility attended the training as a benefit of having facility space donated for the study. The room was set for approximately 25 participants who were seated in groups of two to three behind rectangular tables. Flip charts, a white board, and an area partitioned off where self-serve food was provided. Participants were provided name tags, a course workbook, journal, and pre-assigned seating. Group 1 ate breakfast immediately after the fasting blood test and prior to the course commencing. Group 2 began the course immediately after lunch and were given fasting blood tests on the morning of the second day of the course. All of the meals and snacks were provided by a local caterer and required to meet strict nutritional standards that were specified by Johnson & Johnson's Human Performance Institute, in order to demonstrate healthy nutrition to participants during the course. Special dietary requirements were provided where needed and all meals and snacks were provided complimentary to those taking the course.

3.4.2 Instructors

The three CAC instructors had university degrees at the Masters and PhD level and many years of experience in the areas of exercise physiology, nutrition,

fitness, wellness, and training. Based upon the lead researcher's extensive presentation training and experience, all of the instructors demonstrated excellent communications skills, a concrete understanding of the course material, and created a positive, engaging, and fun learning environment. Throughout the course, instructors shared personal stories of vulnerability about being overweight, multitasking, and interrupting (e.g., finishing people's sentences and not listening) relevant to their course content. Two additional support staff, with exercise and fitness training expertise, provided course logistics and supported participants during the exercise training activities in the fitness centre. Mean scores for the instructors were provided through the CAC feedback survey that was completed by CAC participants at the end of the course. These responses were collected and analyzed by the Human Performance Institute and are shown in Table 1 on the following page. Participant feedback to open-ended questions in the CAC feedback survey provided commentary consistent with the favourable ratings:

"Professional staff who present in a skillful way, so it flows well and doesn't feel like learning, but it is." (CAC Participant)

"Excellent presenters and content. It is just what I need." (CAC Participant)

Table 1 Means for instructor feedback by CAC participants.

Rating items	Instructor – Energy Management Technology	Instructor– Nutrition	Instructor– Movement
Actively engaged program participants.	4.9	4.7	4.9
Built an effective rapport and... (Created an emotional connection ¹ ; 'connected' with participants ^{2, 3}).	4.8	4.8	4.8
Ensured that I left with a meaningful, actionable 90-day training mission.	4.8	NA	NA
Provided me with clear instructions as to how to utilize my 360 assessment results.	4.6	NA	NA
Motivated me to make changes in my... (Life ¹ ; nutrition ² ; fitness ³).	4.8	4.9	4.8
Had a comprehensive knowledge of... (Nutrition science ² ; exercise science ³).	NA	4.9	5.0
Provided me with knowledge, tools and tips that will empower me to implement... (Meaningful changes in my nutrition ¹ ; a movement and exercise plan ²).	NA	4.8	4.9
Overall, I would enthusiastically recommend this Performance Coach to other program participants.	4.8	4.8	4.9

¹ Item for Instructor - Energy Management Technology; ² item for Instructor – Nutrition; ³ item for Instructor – Movement; Note: 5-point rating scale: 1-Strongly Disagree, 2-Disagree, 3-Neutral, 4-Agree, 5-Strongly Agree

3.4.3 Content Structure

The approximately 18.25 hours of CAC content in each course (excluding breaks and meal times) was broken into the following topic areas: Behaviour modification techniques (8.6 hours, 47%), Nutrition (4.5 hours, 25%), and Movement (5.1 hours, 28%). Participants spent approximately 85% of their total time in the classroom and the remaining 15% in the fitness centre performing exercise activities. Participants were encouraged to spend one to two hours each night doing homework assignments that were provided at the end of each day.

3.4.4 Pre-Course Activities

Prior to attending the CAC, participants completed a self-assessment survey and had five to seven co-workers, family, and friends complete a 360-degree survey about them. Both survey instruments assessed various aspects of participants' physical, emotional, mental, and spiritual energy. Several participants registered late and did not complete the survey in time for the course, which detracted from their classroom experience during the survey results review. When participants initially arrived in the classroom, there was upbeat music playing to create a positive energy environment and they were greeted by one of the five CAC staff and then directed to either the blood testing or body composition area. The blood testing was conducted in a private area outside of the classroom by registered nurses. They used the finger prick method and tested for high-density lipoproteins, low-density lipoproteins, triglycerides, and fasting glucose. The body composition testing was performed by a CAC fitness instructor and recorded height, weight, and percent body fat. Participants received individual results from both tests in document form with minimal interpretation and were advised that detailed interpretation would be provided in the course. There were no additional records created for either test in order to comply with ethics confidentiality requirements.

3.4.5 Behaviour Modification Techniques Content

Behaviour modification techniques were delivered through the course in a section called energy management technology and its sub-sections, including defining a purpose, facing the truth, skillful storytelling, and taking action. Storytelling and metaphor were the primary teaching methods used to transfer

key concepts to participants. For example, one story (aka, the wild boar test) told at the start of the course, by the energy management technology instructor, contrasts a group of football players with a group of Special Forces agents. Each group was given a simple mission of running three kilometers to touch a white picket fence through a swampy area known to have wild boar and alligators. The unprepared football players, upon hearing what they believed to be a threatening animal, immediately stopped and ran back to the start and did not complete the mission. The Special Forces agents prepared to face the threatening animal (who was really an employee of the Human Performance Institute disguised as a wild boar) and carried on to complete the mission. The point of the story is that preparation, planning, and commitment, as demonstrated by the Special Forces agents, are the keys to success in any mission, including the ultimate mission in life. The white picket fence is a metaphor for life's peoples' life purpose or ultimate mission. The wild boar and alligator in the story are metaphors for the obstacles that prevent people from living a fulfilled life. The term 'mission' as used in a military context, conveys that the actions are very important. For this reason, it was applied to participants when they created their ultimate mission and training mission during the course. This analogy is discussed often during the CAC and when participants finish, they are presented with a wristband inscribed with 'Touch the white fence' and 'Complete the mission' and a medallion engraved with a wild boar in front of a picket fence and the words 'Complete the mission.' There were several stories with a similar positive impact that were woven throughout the course to emphasize key points.

The idea of managing energy in the four dimensions of physical, emotional, mental, and spiritual is foundational because the areas are interconnected and can be trained to achieve full engagement. The rationale behind managing energy is to achieve your life's purpose or ultimate mission, which participants developed throughout the course and were encouraged to re-write several times over 60 days from memory. In facing the truth, the instructor facilitated a review of the 360-degree feedback, and self-survey and encouraged participants to be courageous and embrace feeling uncomfortable. Storytelling was explored as a method for participants to identify the barriers preventing them from their ultimate mission. For example, not having enough time is a common story people tell themselves to avoid exercising and rationalize violating their value of health. Participants developed their 'old' stories based on the way they did things and were instructed to rewrite new stories that better aligned with their values and ultimate mission. The 90-day training plan was finalized during the last day of the course with one-on-one feedback from the instructors. Participants were provided with journals and told about the importance of journaling their thoughts and ideas throughout the course.

3.4.6 Nutrition Content

The nutrition content of the course taught participants how to manage their nutrition and fuel for energy management as a lifestyle compared to dieting, weight loss, or counting calories. Key principles were reviewed and validated with frequent verbal references to unidentified scientific studies, including matching energy supply with energy demands to minimize low energy; the 80/20 rule, which says 80% of foods consumed should be 'need' foods (nutritious) and 20% should

be 'want' foods (low nutrition); the glucose story, which shows the effect that food choices have on glucose levels and overall energy in the body; combining protein, carbohydrates, and fats in every meal and snack to stabilize glucose release; portion sizing for meals, using the palm of the hand to estimate protein, two handfuls of grains and two handfuls of fruits and vegetables; not skipping breakfast to trigger burning glucose rather than muscle as an energy source; eating light and eating often (every three to four hours) to stabilize glucose; planning meals and preparing food to avoid poor food choices at work or on the road; and the hunger scale to avoid over-eating. Participants worked in groups to learn and practice how to select meals from various fictitious restaurant menus (i.e., Italian, Chinese, hamburger fast food, and seafood) using the principles learned in the course.

Blood chemistry results were reviewed to identify gaps between the participant and optimal lipids and glucose levels. Furthermore, a detailed overview of fats, including low-density lipoproteins, high-density lipoproteins, triglycerides, trans fats, saturated fats, and omega fats, were provided that showed the food sources for each fat type and effects on the body's lipid profile. Glucose was reviewed with an emphasis on the importance of exercise in managing optimal glucose levels in the body. Participants were provided sufficient detail to interpret their blood chemistry results and shown how to improve them through better food choices and exercise. Snacks and meals served during the course demonstrated healthy choices, including roasted vegetables, salads, whole grain bread, light mayo, sliced cheeses, lean sliced turkey, low fat dressings, boiled eggs, cottage cheese, hummus, oatmeal, peanut butter, fresh juices, coffee, and water.

3.4.7 Movement Content

The movement content in the course introduced participants to the importance of moving their body more often because humans tends to move less in the modern era. To illustrate and practice the importance of movement to create energy, a timer beeped every 45 minutes during the course and a different participant led the class each time in a one-minute movement exercise.

Participants were presented with scientific studies that demonstrated the link between sitting and mortality, where sitting six hours daily leads to a 35% increase in mortality, no matter the level of exercise; that humans are moving 6 miles less now than in the 1980s; and that muscle loss occurs at a rate of 2% annually and this rate quadruples during menopause. By a raise of hands, participants estimated that they sat between 10 and 15 hours daily. This led to a highly motivated group exercise in brainstorming ideas to move more at work.

Ideas from participants included: drinking more water and more trips to the bathroom, a centrally located trash bin, not emailing colleagues that are in a close proximity, walking around while on conference calls, riding a stationary bike, using dumbbells or resistance bands, taking a midday walk break, having a movement buddy, putting movement breaks on meeting agendas, and going to the bathroom on another floor. Recovery methods, including deep breathing and sleeping, were reviewed as a way to recharge energy and reduce stress. Triggers to look for in order to know recovery is needed, include: fatigue, fear, hunger, health issues, cynicism, impatience, less smiling, and sadness. Deep breathing exercises were performed by participants to demonstrate an effective method to becoming relaxed during a stressful day. The four stages of sleep and effective sleep

strategies were reviewed to demonstrate the importance of achieving quality, as well as the appropriate amount of sleep.

Participants learned about the importance of exercise in the classroom and also spent approximately three hours in the fitness centre, spread over the two and a half days, as the instructors demonstrated proper technique and gave participants feedback on interval training on treadmills, elliptical, and stepper machines; resistance training with free weights, machines, and dynabands; and flexibility training. Heart rate monitors, and instructions on proper use, were given to participants to ensure that they achieved the target of 90% of maximum heart rate intensity during their interval exercises.

3.4.8 Homework

Participants were encouraged to spend one to two hours each of the two nights to complete homework assignments. The lead researcher observed several participants who stated that they had spent time completing their homework assignments. However, it was impossible to know exactly how many participants did the activity and for how long. It was evident that a few participants in each group did not do the homework assignment as they did not refer to the workbook pages during the review of the homework in the classroom.

The assignment for the first night was for participants to write their ultimate mission statement and the instructor posed the following questions: *“If you were about to be the recipient of a lifetime achievement award, what would you want them to say about you? What is your legacy?”* The assignment for the second night asked participants to deepen their ultimate mission by ensuring values alignment; finalizing the training mission, and choosing an area for course

correction and an area for change. They were asked to write their old story that included mindset, attitude, and beliefs and their new story with deepened engagement that supported the success of their missions. Participants were directed to sections in the workbook to facilitate the process.

3.5 The Co-Active Life Coach Treatment

CPCCs were recruited through the lead researcher's personal network in the Halifax region and the Co-Active Network between April 2014 and April 2015. The Co-Active Network is a website affiliated with the CTI that connects CALCs for information exchange and professional development. CTI is the world's largest and oldest life coaching training company with over 50,000 coaches, trainers, and managers trained (CTI, 2016). CTI grants CPCC certification training and is recognized by the International Coach Federation as meeting standards for international certification. Individuals were required to meet the following eligibility criteria for study involvement: English speaker, CPCC certified, within two time zones of Atlantic Time, and able to commit to coaching at least three to four participants, pro bono, over the duration of the study. There were 25 life coaches who expressed interest in the study and were emailed a life coach's letter of information (Appendix C) that further detailed their involvement in the study. Several life coaches followed up on the letter with questions through email and telephone. Ultimately, 12 life coaches signed and returned the information letter to the lead researcher. Reasons given for not volunteering included: lack of time, too busy, and being located outside of Atlantic time zones. As a benefit to volunteering with the study and to closely experience what participants were learning in the CAC, life coaches were provided free access to the online version

of the CAC (valued at \$290 US) for four months. Initially, life coaches were offered the benefit of the CAC classroom training with the participants; however, this option was dropped due to scheduling conflicts, CAC constraints, and the impracticalities for CPCCs to travel to take the course. Life coaches were required to complete the online CAC before the coaching commenced to become familiar with the participant's CAC experience and course terminology to fast-track the coaching process. Nine CPCCs were randomly assigned CAC participants and as of October 15, 2015 (before most of the coaching sessions commenced), six CPCCs completed the online CAC and the three remaining CPCCs completed 74%, 61%, and 50% respectively. To further support the life coaches' interaction with CAC participants, a 90-minute live webinar was hosted by a Johnson & Johnson Human Performance Institute trainer for the CPCCs, and a recording was provided to CPCCs who could not attend the webinar.

3.5.1 The CALC Intervention

In total, there were nine participants who were randomly assigned to the CALC intervention group and CPCCs. Each CALC coached only one participant. Six participants received all six planned coaching sessions, two participants received five coaching sessions (one less than planned) and one participant received three coaching sessions (three sessions less than planned) with sessions lasting between 30 to 60 minutes. The 30 to 60-minute coaching duration is an industry norm and was provided as a guide for the life coaches. CPCCs were primarily instructed to provide life coaching services to support their client's 90-day training plan developed in the CAC; however, they were also instructed they could coach on any topic brought to the coaching sessions by the

client. The coaches reported coaching on a wide scope of areas, both directly and indirectly, associated with the 90-day training plan. Sessions were completed mostly over the telephone; however, a small number of sessions were completed in person. Life coaches and CAC participants were introduced through email (Appendix D) at the completion of the CAC and all coaching was delivered between October 7, 2015, and January 27, 2016.

3.6 Participants

The population targeted in this study were Financial Consultants who were employed by a large Canadian-based financial services company called ABC Co. (pseudonym). This company was established in the early 1900s and had offices in Atlantic Canada. Financial Consultants were selected based on the availability of individual sales productivity measures and role homogeneity, thus controlling for bias and inconsistencies. ABC Co. was chosen as the participating company because a senior leader in ABC Co. was a relative of the lead researcher and provided support and sponsorship for the project (referred to as 'project champion' throughout this document). Another reason ABC Co. was chosen was because they had shown evidence of support for WWPs, both internally and externally. Internally, ABC Co. provided basic WWP services to their employees through an EAP. This program offered services related to: wellbeing, health, nutrition, and relationship services, through a third party provider. Furthermore, the local offices of ABC Co. had established Health and Safety Committees and the scope and activities of these committees varied by location. More active Health and Safety Committees met frequently and sourced expert speakers on nutrition, weight loss, stress management, and other health-related topics. Less

active committees met only once or twice a year and focused on safety compliance issues.

Externally, ABC Co. provided financial and employee support for WWPs in the community through their investments in support of hundreds of organizations including: the Canadian Cancer Society, the Canadian Arthritis Society, and the Coaching Association of Canada. In 2005, ABC Co. invested approximately \$7 million to over 1,600 organizations with about 30% going to health and amateur sport (no reference is provided to protect the anonymity of the company). These efforts by ABC Co. showed that they had an established WWP, a track record for supporting sport and health, and were a good candidate for this study. A single company was chosen because of the practicalities of coordinating a complex intervention with one company compared to many companies, the consistency of the productivity measures for effective comparisons, and to streamline the study coordination and logistical challenges.

3.6.1 Inclusion and Exclusion Criteria

The inclusion criteria for participants included: English speaking males and females, 25 to 70 years of age, employed with ABC Co. for a minimum of two months, with individual productivity measures, and possessing any level of physical fitness. The primary roles recruited from within ABC Co. included Consultants and Division Directors. However, Associates, assigned to individual Consultants and without individual productivity measures, were selected if their Consultant did not participate in the study. The exclusion criteria included: employees on performance treatment programs (e.g. unsatisfactory job performance), employees who could not be individually measured for productivity

performance, Associates supporting Consultants participating in the study, and Regional Directors. Unless otherwise noted, the term 'Financial Consultant' will be used throughout the document when referring to study participants. The ABC Co. senior leader and project champion attended the CAC in Group 2 but was excluded from the research findings.

3.6.2 Setting

The setting for this study was Atlantic Canada and employees were located in the following ABC Co. office locations: Nova Scotia (Bedford, Halifax, Dartmouth, Sydney, Yarmouth, New Minas, Truro, and New Glasgow), New Brunswick (Saint John, Moncton, and Fredericton), Newfoundland (Corner Brook and St. John's), and Prince Edward Island (Charlottetown). The treatment course was delivered at a major public multi-use facility with classrooms and fitness facilities in the Halifax region in Nova Scotia.

3.6.3 Recruitment

During the recruiting planning phase, discussions with ABC Co. senior leaders revealed that it would not be feasible for the lead researcher to randomize treatment and control groups. ABC Co. leaders predicted that few employees would volunteer for the study with the random possibility of being selected for either group. Due to the significant time commitment required to take the CAC (two and a half days, plus travel time) and the research study requirements, it was decided that a randomized design would not reach the required sample size primarily because of the limited size of the ABC Co. employee population in Atlantic Canada. Furthermore, the Financial Consultants across many offices from the four Atlantic Canadian provinces were deemed by the ABC Co. senior leaders

to possess significantly common attributes, therefore, minimizing the internal validity selection threat. Participants were permitted to self-select for either control or treatment group, with the understanding that the assignment to either the life coached or non-life coached treatment groups would be randomized.

Weekly coordination sessions were held between Johnson & Johnson's Human Performance Institute, ABC Co., and the lead researcher to plan and implement recruiting strategies. Ethical approval for the study (Appendix E & Appendix F) was obtained through the Dalhousie Health Sciences Research Ethics Board prior to recruiting commencing. All participants provided signed written consent (Appendix G) prior to the study beginning. Approximately 360 Financial Consultants were invited through a series of recruitment emails sent from an ABC Co. leader (Appendix H) to attend one of seven 60-minute teleconference sessions held between December 2014 and August 2015. In the email, it was emphasized that study participants were eligible to receive a leading WWP course valued at \$5.2K (US dollars) and life coaching valued at \$1.2K as a benefit of their participation in the research. In two ABC Co. offices, the recruitment email was forwarded to employees by their immediate senior leader at their request. Additionally, paper flyers were sent by mail delivery to approximately 70% of the Financial Consultants to increase awareness beyond the email approach. Employees interested in attending the recruiting sessions were requested to advise the research study ABC Co. Administrator. The ABC Co. Administrator, who signed a confidentiality agreement for the study (Appendix I), sent electronic calendar invitations containing the teleconference details, electronic copies of presentations, and the study consent form to employees who

confirmed their attendance to the recruitment presentations. In total, 137 Financial Consultants provided confirmation indicating their intention to attend a recruiting session. However, attendance at the multisite teleconference sessions, which included single participant locations, was not recorded in order to protect the participant anonymity, therefore, it was not known exactly how many employees attended the sessions.

At each session, participants were provided with a 20 to 30-minute overview of the CAC by a representative from Johnson & Johnson's Human Performance Institute. The lead researcher intentionally spoke minimally about the CAC at recruiting presentations to maintain objectivity and a clear separation between the course and the study in accordance with ethics board instructions. Next, a 15 to 20-minute presentation (Appendix J) of the research study was provided by the lead researcher that included the purpose, significance, time commitment, participation expectations, voluntary nature, potential harms, and benefits of the study, as well as assurances of confidentiality and anonymity. The lead researcher, who was a CTI certified life coach, then provided a three to five-minute overview of life coaching for participants. Consistent with ethics approval conditions, caution was exercised in the recruiting sessions to ensure participants understood the differences between the research study (e.g., surveys, interviews, journals) and the treatment (the CAC and life coaching) and that the course and life coaching were being provided free as a benefit for participation in the study.

Employees were provided with the opportunity to ask questions and seek clarification during each session and several people emailed or telephoned the lead researcher after the sessions to seek clarification on the study requirements.

A total of 98 individuals emailed their signed consent forms (Appendix G) directly to the lead researcher or the ABC Co. Administrator. Two individuals sent their consent form by post mail and one individual hand delivered their consent form to the lead researcher's residence indicating their interest in either the treatment or control groups. Email confirmation of receipt was provided by the lead researcher to each participant that thanked them for volunteering and encouraged them to recruit colleagues. The lead researcher collaborated with the ABC Co.

Administrator to verify the eligibility of those who signed consent forms against the inclusion and exclusion criteria. The informed consent process for the CAC and life coaching were not part of the research study and consequently, will not be reviewed. Additional recruiting was conducted for the control group through direct requests by the ABC Co. Administrator and the project champion and a recruiting teleconference meeting was held with the ABC Co. leaders and employees in Newfoundland during mid-September of 2015.

The two training CAC sessions, initially scheduled for March 2nd to the 6th, 2015, were deferred to finalize the contractual agreement between the lead researcher, Dalhousie University, and Johnson & Johnson Health and Wellness Solutions, Inc. The ABC Co. project champion sent an email to participants on the CAC postponement and rationale (Appendix K) to address their concerns and provide reasonable assurances that the study would eventually proceed. A contract was signed between Human Performance Institute's parent company, Johnson & Johnson Health and Wellness, Inc. and Dalhousie University on August 14, 2015. This contract outlined the lead researcher's commitment to complete a research study in exchange for training from the Human Performance

Institute for up to 80 ABC Co. employees at no charge. This agreement allowed the CAC and the research study to proceed and two CAC sessions were delivered between September, 28 and October 2, 2015. The effect of the delay caused some participants (n=5), who had confirmed the initial March course dates, to drop out of the study. However, this attrition was offset by the recruitment of new participants who signed up for the finalized course dates.

3.7 Mixed Methods Design

Mixed method designs in research have been evolving over the past two decades and the study design for this research was informed by the following considerations: sequencing, prioritization, and integration (Creswell & Plano Clarke, 2007). Study sequencing was used through a concurrent design with quantitative and qualitative data collected at approximately the same time. Study priority was given to the quantitative component since the treatment effects on individual and organizational outcomes were deemed the most important research questions, whereas the qualitative component was secondarily important. The integration of the quantitative and qualitative data is evident in Chapters 4 and 5, on the findings and discussion of the research. Creswell and Plano Clarke (2007) proposed an embedded experimental model in their mixed method topology used to test interventions that are quantitative dominant. Embedded designs are considered a more practical approach when resources are limited and there is a requirement to focus more effort on one strand (Creswell & Plano Clarke, 2007). This study followed an embedded experimental model, involving: a quantitative pre-test before the intervention and a post-test after the intervention; qualitative data collected during the intervention to aid in interpreting intervention fidelity and

contextual factors; and qualitative data collected after the intervention to explore effects. Furthermore, as previously mentioned, qualitative data was collected and reported to better understand the study's contextual factors and their influence on the quantitative findings. The notation for the study reflecting these design considerations is QUAN (qual) qual (Morse, 1991). The remainder of this chapter will be structured in two parts: a review of the quantitative (QUAN) core methods component, and a review of the qualitative (qual) supplemental methods component.

3.7.1 Quantitative Core Component (QUAN)

The study had 12 research questions in total. Ten research questions and 10 hypotheses were associated with the quantitative component, and two research questions were associated with the qualitative component. They are as follows:

3.7.2 Research Questions (QUAN)

1. Does employee participation in the CAC predict increases in productivity?
2. Does employee participation in the CAC predict increases in engagement?
3. Does employee participation in the CAC predict increases in thriving?
4. Does employee participation in the CAC predict increases in resilience?
5. Does employee participation in the CAC predict increases in health?
6. Does employee participation in the CAC predict increases in presenteeism?
7. Does employee participation in the CAC predict increases in life purpose behaviours?

8. Does employee participation in the CAC predict increases in physical activity?
9. Does employee participation in the CAC predict improved nutrition?
10. Does employee participation in the CAC with CALC support predict higher increases in productivity, engagement, resilience, thriving, health, presenteeism, life purpose views, physical activity and improved nutrition than employee participation in the CAC without CALC support?

The following research questions were the focal point for the qualitative component:

1. What are the experiences of employees who take the CAC?
2. How do the experiences of employees who take the CAC reconcile with the quantitative treatment effect?

3.7.3 Hypotheses (QUAN)

1. Employees who participate in the CAC will realize greater improvements in productivity than employees who do not participate in the CAC.
2. Employees who participate in the CAC will realize greater improvements in engagement than employees who do not participate in the CAC.
3. Employees who participate in the CAC will realize greater improvements in thriving than employees who do not participate in the CAC.
4. Employees who participate in the CAC will realize greater improvements in resilience than employees who do not participate in the CAC.
5. Employees who participate in the CAC will realize greater improvements in health than employees who do not participate in the CAC.

6. Employees who participate in the CAC will realize greater improvements in presenteeism than employees who do not participate in the CAC.
7. Employees who participate in the CAC will realize greater improvements in life purpose behaviours than employees who do not participate in the CAC.
8. Employees who participate in the CAC will realize greater improvements physical activity than employees who do not participate in the CAC.
9. Employees who participate in the CAC will realize greater improvements in nutrition than employees who do not participate in the CAC.
10. Employees who participate in the CAC with CALC support will realize greater improvements in productivity, engagement, resilience, thriving, health, presenteeism, life purpose views, physical activity and nutrition than employees who participate in the CAC without CALC support.

3.7.4 Sample Size (QUAN)

This study used a quasi-experiment non-equivalent control group pre-test, mid-test, post-test design to measure the primary outcome measures of the treatment and control groups at baseline and all subsequent assessment time points. An a priori sample size calculation was performed using the G*Power Software Program (MacUpdate, 2015) and Cohen's (1992) four variables involved in statistical inference, including: sample size (n), significance criteria (alpha), population effect size, and statistical power. The sample size was a derived calculation based upon the other three settings (alpha, effect size, and power). The significance criteria (alpha) is the risk of mistakenly rejecting the null hypothesis and thus, committing a Type I error. Alpha was set at .05 ($p < .05$) suggesting that if there is no effect between variables, the effect size would be

seen in only 5% of studies. The statistical power is the ability to detect a significant effect if a real difference exists and is a Type II error, the probability of rejecting a false null hypothesis. A .80 (80%) is considered an acceptable balance between a feasible sample size and probability of Type II error. A .90 will provide a greater ability to detect an effect but often the sample size required is too large. The effect size refers to the magnitude of effect between variables and is defined as small, medium, or large effect size, depending on the statistical test. The values for small, medium, and large effect sizes by statistical tests are shown in Table 2.

Table 2 Small, medium, and large effect sizes by statistical tests.

Effect Size	Small	Medium	Large	Test
R	0.10	0.30	0.50	Pearson r
R	0.01	0.09	0.25	Pearson r
Eta-squared	0.01	0.06	0.14	ANOVA
R	0.01	0.06	0.14	Linear/multiple regression
Cohen's d	0.20	0.50	0.80	t-test
Phi	0.10	0.30	0.50	Chi-square (2X2)
Cramer's V	0.10	0.30	0.50	Chi Square >(2X2)
Cohen's f ²	0.02	0.15	0.35	Linear/multiple regression
Odds ratio	1.44	2.47	4.25	Logistic regression

Source: Bannon, Jr., 2013

Most research studies usually include one power analysis, even if many tests are completed in the study, based solely on the final multivariate model. For this study, an a priori sample size of 66 was deemed sufficient based upon the calculation for ANOVA repeated measures, within and between interaction,

number of measures = 8, number of groups = 3, power = 0.90; alpha = 0.05; effect size = 0.15, with a sample size of 66.

3.7.5 Measures (QUAN)

The self-report survey measures were administered for the treatment (CALC and no CALC) and control groups at baseline (Time 1; September 17 to 25, 2015) before the CAC, immediately following the CAC but before the life coaching commenced (Time 2; October 2 to 9, 2015), and approximately three months after the CAC was completed (Time 3; December 28, 2015 to January 8, 2016) and are illustrated in the research study overview (Appendix L). Baseline measures were conducted blinded to life coaching treatment. The following discrete and validated surveys were combined into a single survey using the online survey application software tool, Opinio 7.1.2: Demographic and general Information, Utrecht Work Engagement Scale, Thriving at Work Scale, Resilience at Work Scale, RAND SF-36 Health Survey, Work Limitations Questionnaire, Ryff Purpose in Life Survey, International Physical Activity Questionnaire - Short Form, and the Nutrition Survey. Permissions were obtained for use of all proprietary surveys. Questions and scales were not modified to maintain reliability and validity norms with the exception of the following minor edits:

1. Work Limitations Questionnaire: The question order was modified to streamline the scales, reduce repetition, and ultimately, reduce the survey completion time and burden on the participant.
2. RAND SF-36 Health Survey: There were 15 subscale questions chosen from the RAND SF-36 survey, which included four Vitality subscale questions and 12 subscale questions used in the SF-12 Health survey.

3. Instructions were modified on all surveys to facilitate its flow and online collection method and this may have resulted in minor reliability and validity impacts.

A local Advisory Committee that consisted of four people who were familiar with the financial consulting population was used to test the final survey. The testing resulted in minor changes to improve clarification on the invitation and survey instructions and a few typo corrections. A mislabelled scale was discovered and corrected in the baseline Resilience at Work Scale four days after the Time 1 survey was sent out to participants. The 'agree' and 'strongly agree' scale labels were incorrectly reversed, which potentially affected 10 participants in the control group. An analysis was conducted excluding these 10 participants and no significant differences were observed when compared to the analysis that included these participants. These 10 control group participants were included in the study to increase effect size.

The monthly sales productivity measures, used for treatment and control groups, were collected at baseline before the CAC (September 2015) and for each of the following six months after the CAC (March 2016). The six-month time period was determined, in consultation with the ABC Co. project champion, to be enough time to complete the sales cycle and show a treatment effect.

Demographic and General Information. The 10 item demographic and general information questions (Appendix M) were used to enable cross-tabulation and subgroup responses that varied between these groups and included: Name, telephone number, marital status, office location, job classification, years

employed with ABC Co., age in years, highest level of education attained, and whether the participant possessed a professional financial industry designation/s.

Utrecht Work Engagement Scale (UWES). The UWES (Appendix N) is a validated and well-established 17 item self-report survey that measures three subscales of work engagement, including: Vigour (Six items), Dedication (Five items), and Absorption (Six items) (Schaufeli, et al., 2002; Schaufeli & Bakker, 2004b). The UWES uses a seven-point scale ranging from zero (never) to six (always/everyday) and the Cronbach's α is $>$ or equal to 0.93, indicating high internal consistency. Decades of scholarly study on engagement identify three areas of interest for this study: (1) Higher engagement levels are associated with improved business outcomes (Attridge, 2009; Harter et al., 2002), (2) Healthy employees are associated with higher levels of engagement (Fisher & Sousa-Poza, 2009), and (3) Intervention studies to improve engagement are sparse in the academic literature (Schaufeli & Salanova, 2012).

Thriving at Work (THAW) Scale. The THAW Scale (Appendix O) is a validated 10 item self-report survey measuring two subscales of thriving comprised of: a feeling of vitality (Five items), and a sense that one is learning or getting better (Five items) (Porath et al., 2012). The THAW scale uses a seven-point scale ranging from one (strongly disagree) to seven (strongly agree) and has a Cronbach's $\alpha = 0.94$ indicating high internal consistency. Thriving, a relatively recent topic in the Management Science literature, is connected to more positive health, higher job performance, and improved business outcomes (Spreitzer et al., 2012), which were a primary focus of this study.

Resilience at Work (Resilience at Work) Scale. The RAW (Appendix P) is a validated 20 item self-report survey with seven subscales using a seven point Likert response (Zero to six) from 'strongly disagree' to 'strongly agree' and is a relatively recent measure of workplace resilience (Winwood & McEwen, 2014; Winwood et al., 2013). The seven subscale items are: Living Authentically (Three items), Finding One's Calling (Four items), Maintaining Perspective (Three items), Managing Stress (Four items), Interacting Cooperatively (Two items), Staying Healthy (Two items), and Building Networks (Two items). The RAW Scale correlates highly and negatively with maladaptive outcomes of work pressure, such as chronic fatigue, poor sleep, and physical and emotional health problems (Winwood & McEwen, 2014). The RAW Scale also correlates highly and positively with recovery, health, and the UWES engagement measure and has a Cronbach's $\alpha = 0.84$, indicating high internal consistency (Winwood et al., 2013).

RAND SF-36 Health Survey (modified). The RAND 36 item Health Survey (SF-36; Appendix Q), is a validated 36 item self-report survey and measures functional health and wellbeing from the patient's point of view (Farivar, Cunningham, & Hays, 2007). The SF-36, modified for this study with four questions from the SF-36 Vitality subscale and 12 items found in the SF-12 Health survey, had 15 items measuring eight health subscales: Physical Functioning, Bodily Pain, Role Limitations due to Physical Health Problems, Role Limitations due to Personal and Emotional Problems, Emotional Wellbeing, Social Functioning, Energy/fatigue, and General Health Perceptions. The SF-12 Health Survey is a practical, reliable, and valid measure of physical and mental health and has a Cronbach's α that ranges from 0.76 to 0.90 (Khana et. al, 2015). The

SF-36 was of interest in this study to determine the treatment effect on overall health.

Work Limitations Questionnaire (WLQ). The short form WLQ (Appendix R) is a validated eight item self-report survey that measures the degree to which health problems interfere with the ability to perform job roles. The WLQ indicates the degree to which health problems interfere with specific aspects of job performance (Called, 'on-the-job disability' or 'presenteeism'), and the productivity impact of these work limitations (Lerner, Rogers, & Chang, 2009). The WLQ subscales include: Time Management (Two items), Physical Demands (Two items), Mental-interpersonal Demands (Two items), and Output Demands (Two items). The WLQ is a valid and reliable measure (Lerner et al., 2009). The questions used in the short form are the same as those used in the longer version with 35 items and the Cronbach's α for over 700,000 records are as follows: Time Management scale: 0.8030, Physical Demands scale: 0.8886, Mental-interpersonal Demands scale: 0.6739, and Output Demands scale: 0.8453, thus indicating high internal consistency.

Ryff Purpose in Life Survey (PIL). The PIL Survey (Appendix S) is a nine item self-report survey (Ryff, 1989). People with high scores have goals in life and a sense of directedness; feel there is meaning to present and past life; hold beliefs that give life purpose; and have aims and objectives for living. People with low scores lack a sense of meaning in life; have few goals or aims, lack a sense of direction; do not see a purpose of past life; and have no outlook or beliefs that give life meaning. All nine individual questions were considered subscales for analysis purposes. The PIL Survey has a Cronbach's $\alpha = 0.88$, indicating high

internal consistency (Ryff, 1989). The treatment effect focuses attention on life purpose and values, thus the interest in PIL for this study.

International Physical Activity Questionnaire - Short Form (IPAQ-SF).

The IPAQ-SF (Appendix T) is a validated seven item self-report survey that assesses the amount of time doing multiple types of physical activity over a seven day period (Craig et al., 2003) converted to a common Metabolic Equivalent of Task (MET) score. The subscales are: Vigorous MET, Moderate MET, Walking MET, Total Physical Activity MET, and Sitting Hours, where MET is a weighted factor of physical activity (IPAQ, 2005). Although the IPAQ-SF has been shown to have limitations associated with accuracy in calculating relative or absolute physical activity, one of the purposes of this research was to explore the change in physical activity associated with treatments and therefore, the IPAQ-SF was considered acceptable for this study (Lee, Macfarlane, Lam, & Stewart, 2011). A question was added to this section of the questionnaire that asked participants to report their number of hours of sleep. The treatment trained participants in movement, including vigorous interval training, and recovery, including sleep, thus, the interest in the IPAQ-SF instrument for this study.

Nutrition Survey (NUTS). The NUTS (Appendix U) is an eight item self-report survey (American Medical Association, 2003). Although these questions are not validated in academic literature, they have been used previously by researchers and tested with the Advisory Committee for this dissertation and thus, have face validity. A scoring method for the eight items, developed in collaboration with a nutrition academic expert, used the Canada Food Guide servings as a guide (Health Canada, 2011). Measuring changes in nutrition was

important to determine the overall intervention effect because one of the components of the CAC was healthy eating strategies.

ABC Co. Productivity. The ABC Co. Productivity (Appendix V) is called Business Credits and is an index measure of all sales related productivity metrics for Financial Consultants. The composite measure includes three subscales: Sales Credits, Qualified Managed Asset Credits, and Client Service Credits. Sales Credits are calculated based on prescribed rates for new business transactions, including load mutual fund and no-load mutual fund investment amounts, insurance policy face value amounts, and investment loan amounts. Qualified Managed Asset Credits are calculated based on prescribed rates for mutual funds retained under management from a prior activity. Client Service Credits are calculated based upon client survey feedback on the Financial Consultant's service performance and are converted to business credit amounts depending on the survey results. Only the sales credits were analyzed in this research because they were associated with new business activity and deemed most likely to be influenced by the treatment effect when compared to the other two measures.

3.7.6 Data Analysis (QUAN)

Statistical analysis was performed using IBM SPSS version 22.0. Data was automatically formatted from Opinio into SPSS format and variable names were modified to reflect more intuitive descriptions. The individual treatment (n=143) and control (n=117) SPSS files were merged into a single file (n=260) and then restructured from a long format (Three cases per participant) into a wide format (One case per participant) file (n=81) to facilitate repeated measures analysis. Nine participants did not complete all three surveys and had to be excluded from

the analysis. Participant identifiers, including: name, telephone number, and email address were removed from the dataset and replaced with participant identifier codes to protect participant anonymity. One hundred series codes (101 to 199) were used to identify treatment participants and two hundred series codes (201 to 299) were used to identify control participants.

Data coding included data cleaning, scoring, reverse coding, algorithms, new variable calculations, handling outliers, and it was performed using the specified scoring guidelines and instructions for each individual survey. Data cleaning was performed to detect, correct, or remove incorrect, inconsistent, or inaccurate values that are referred to as dirty data (Bannon, 2013). The first step in data cleaning was performed by examining the variables using a frequency analysis procedure for each variable that showed the values entered for each item to identify inappropriate or invalid responses. Violations in logic were analyzed to identify participant inconsistencies. Reverse coded questions were correctly coded from these surveys: THAW (Two questions), SF-36 (Five questions), PIL (Three questions), and NUTS (Eight questions). Missing data analysis was conducted with the following results: UWES – 10 cases missing (0 to 2.5%); THAW – three cases missing (0 to 1.2%); RAW – 33 cases missing (0 to 2.4%); SF-36 – 20 cases missing (0 to 2.4%); WLQ – six cases missing (0 to 1.2%); PIL – 11 cases missing (0 to 1.2%); IPAQ – 638 cases missing (0 to 84%); Sleeping – two cases missing (0 to 2.4%); and NUTS – 13 cases missing (0 to 2.4%). The extreme number of IPAQ surveys that were missing data was not unusual due to the survey using open-ended formatted questions. The Little's MCAR test result was not significant, meaning missing data occurred at random. Missing data was

replaced using the estimated means method, except for the WLQ and IPAQ, where missing data instructions specific to these instruments were used.

Composite variables were calculated for engagement, resilience, thriving, physical health, mental health, productivity loss index, purpose in life, physical activity METs, and nutrition consumption. Subscale variables were calculated for each composite variable, including UWES: Vigour, Dedication, and Absorption; THAW: Vitality and Learning; RAW: Living Authentically, Finding your Calling, Maintaining Perspective, Managing Stress, Interacting Cooperatively, Keeping Healthy, and Building Networks; SF-36: Physical Functioning, Role Limitations due to Physical Health Problems, Bodily Pain, General Health Perceptions, Energy/Fatigue, Social Functioning, and Role Limitations due to Emotional and Mental Health Problems; WLQ: Time Management, Physical Demands, Mental-interpersonal Demands, and Output Demands; IPAQ: Vigorous MET, Moderate MET, Walking MET, Total Physical Activity MET, Sitting Hours, and Sleeping; and NUTS: Starch, Fruits, Vegetables, Dairy, Meat and fish, Fat, Sweets, and Water. Categorical variables were created for age and years employed at the participant company to facilitate improved analysis. The SPSS data file with the complete self-report calculations contained 81 cases and 910 variables. The lead researcher methodically checked and re-checked all calculations as they were performed to reduce calculation errors. Additionally, a statistics expert performed an independent verification on approximately 75% of the variable calculations and no calculation errors were discovered. Given the high cost associated with this verification and the absence of any errors in the first 75%, the lead researcher

and the academic supervisor decided to exclude the remaining 25% of variables from verification.

There were two methods used to identify and address outliers. First, because the risk of extreme outliers existed for the IPAQ, due to its open-ended questions, the IPAQ outlier coding instruction recommendations were adopted and resulted in adjustments to recode weekly minutes to a 180-minute weekly maximum for Vigorous minutes (12 cases), Moderate minutes (13 cases), and Walking minutes (Five cases). IPAQ instructions further recommended that cases with total minutes exceeding 980 minutes per day be excluded (0 cases). Second, the Mahalanobis Distance Test was conducted with all composite variables and a Chi-Square Test showed no outlier cases of significance ($p < .001$), indicating the data were considered multivariate normal. The observed Cook's Distance scores, measuring the impact of an individual case on the overall analysis, ranged from .00 to .33, which was within the acceptable < 1.0 level.

In most quantitative studies, researchers are concerned with multicollinearity and homoscedasticity. Multicollinearity occurs when there is a strong correlation between two or more predictor variables in a regression model where each predictor variable is explaining the same variance in the dependent variable (Bannon, 2013). The risk of multicollinearity is that variables are erroneously shown as not significant when they are significant. Homoscedasticity suggests equal levels of variability regarding a continuous dependent variable across levels of predictor variables. The absence of homoscedasticity is referred to as heteroscedasticity and can weaken a study (Tabachnick & Fidell, 1996). For this dissertation, multicollinearity, and homoscedasticity were not considered

relevant because the treatment effect depended on repeated measures of highly correlated variables.

To examine the training effects of the CAC on the combination of all dependent variables, an omnibus mixed-design 2 (Groups: Treatment and Control) X 3 (Times: Baseline, post CAC, and at three months) doubly multivariate repeated measures ANOVA was conducted that included composite scales for each dependent variable and covariates. To determine the key drivers of significant effects for the composite scales, separate 2 X 3 repeated measures ANOVAs were conducted using the subscales for each composite scale. Post hoc analysis using a Bonferroni confidence interval adjustment was conducted. The number of study participants in each response category within the categorical variable included in the ANOVA were verified to be a minimum of 30 participants per cell to ensure statistical power (Cohen, 1992). Statistical power calculations were validated and reported in the findings.

The productivity data analysis differed from the self-report data in the following ways. First, it was determined through conversations with the project champion that the subscale sales credits measure was a more valid measure because it represented more current sales activity of the Financial Consultant and therefore, should be more sensitive to the treatment effect. The remaining measures were excluded from the study, namely Business Credits, Qualified Managed Asset Credits, and Client Service Credits measure historical sales activity and were deemed less relevant and may have biased the results. Second, the Associates (n=10) were removed from the data analysis because their role, while being important contributors to the sales team, was not primarily

accountable for sales results. Third, outliers were addressed using two methods for comparative analysis. The first method, removed extreme outliers over one million dollars in any month, resulting in the removal of five participants from the analysis. The one-million-dollar limit was selected because it was an extreme amount and minimized the unfavourable impact to sample size. The second method transformed the data into logarithmic data. To examine the training effects of the comprehensive WWP course on the dependent sales credit variable, an omnibus mixed-design 2 (Groups: Treatment and control) X 7 (Times: Baseline: September, and six consecutive monthly measures: October to March) doubly multivariate repeated measures ANOVA was conducted on the sales credit dependent variable. A t-test analysis was performed to validate the treatment and control group sales credit means.

After 360 consent forms were emailed to ABC Co. employees who confirmed attendance for a study recruiting session, 102 consent forms were signed and returned (28.3%). Sixty individuals enrolled for the CAC; however, only 44 completed the course. The 16 individuals who were enrolled but did not attend the CAC training cited the following reasons for not attending the course: Too busy/schedule conflicts (n=8), cost/distance of travel (n=4), privacy concerns (n=3), and they had left the company (n=1) however several (n=9) individuals who did not attend the CAC course agreed to participate in the control group. Forty-six individuals volunteered for the control group; however, only 37 were included in the study. Nine people dropped out of the control group for the following reasons: No longer working at the company (n=4), did not complete all three surveys (n=4), and unknown reasons (n=1). To examine the impact of the

treatment condition on the dependent variables over time, only participants who completed surveys for all three time periods were included in the study (N=81). After data was cleaned, 44 treatment participants (54.3%) and 37 control participants (45.7%) were included in the study. For a detailed depiction of participant flow and attrition, refer to the following diagram:

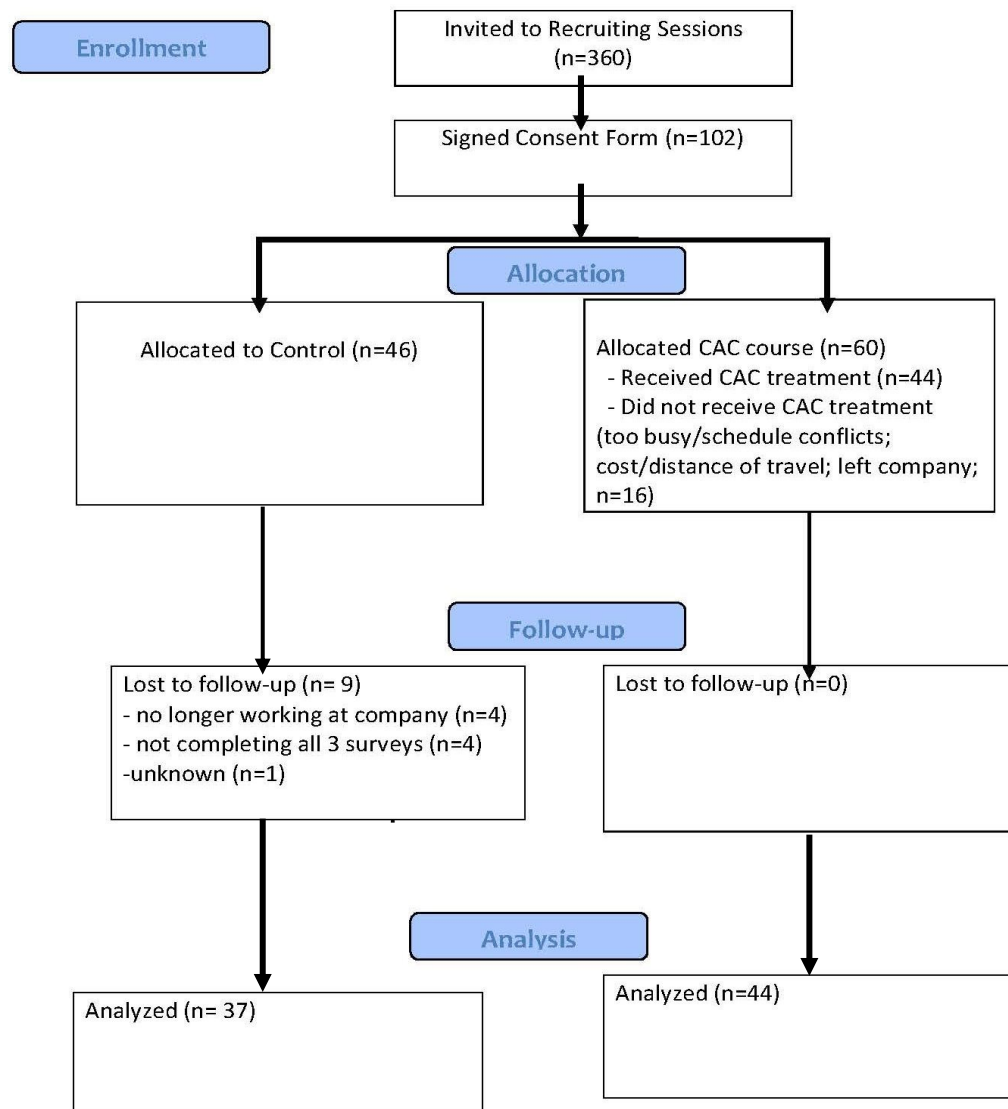


Figure 1 CONSORT flow diagram.

3.7.7 Qualitative Supplemental Component (qual)

Most scholarly qualitative studies are analyzed using philosophical assumptions and interpretative frameworks, such as phenomenology, narrative inquiry, ethnography, and grounded theory (Creswell, 2013). In these studies, the researcher analyzes the data in a rigorous manner resulting in comprehensive summaries of a phenomenon or event (Sandelowski, 2000). The qual supplemental component of the QUAN(qual) qual mixed methods design for this research was intended to provide more understanding and meaning than just the quantitative core alone (Morse & Niehaus, 2009). The qual component alone was incomplete and only had meaning when combined with the QUAN component. The qual component was an incomplete method and data was collected until there was certainty about the information versus saturation in a complete method project (Morse & Niehaus, 2009).

The purpose of the qual analysis was to further understand the experiences of employees who took the CAC and to enhance the interpretation of the quantitative findings. This research was not rooted in any particular philosophical methodological approach and was primarily concerned with straightforward descriptions of the intervention and intervention effects. Studies of this type are referred to in the academic literature as qualitative descriptive studies (Sandelowski, 2000) or more recently they have evolved to be called interpretive description studies (Thorne, Kirkham, & O'Flynn-Magee, 2004). This research used the interpretive descriptive approach because it allowed the researcher to go beyond surface-level descriptions and use inductive techniques to explore meanings and explanations that yield practical implications.

3.8 Research Questions

The following research questions were the focal point for the qualitative data analysis:

1. What are the experiences of employees who take the CAC?
2. How do the experiences of employees who take the CAC reconcile with the quantitative treatment effect?

3.9 Data Collection

Qualitative data collection methods consisted of observations, repeat semi-structured interviews, and weekly electronic journals (e-journals). Qual data was collected from the treatment group but not the control group because they did not participate in either treatment. Data collected using qualitative methods was used to provide preliminary themes associated with the effect on both treatment groups. Qual data collection methods used in the study are described as follows:

Observations. In total, the lead researcher observed the delivery of two CACs, each lasting two and a half days, over a five-day period and captured 19 double-spaced pages and over 19,100 words of data. An observation protocol was prepared in advance to ensure the process was top-of-mind for the lead researcher. Observations included: Aspects of the CAC, such as the physical setting, course content, and trainers, participant and researcher reactions, personal reflections, insights, ideas, and hunches. The lead researcher initially participated passively in the training sessions and became more actively engaged in the one-on-ones with participants and by making comments in the classroom

as the course progressed. Observation data was captured electronically on a laptop computer during the course and at the end of each day.

Semi-Structured Interviews. Each of the eight interview participants were interviewed twice. Two semi-structured, open-ended interviews were conducted by the lead researcher at six and 13 weeks after the CAC with eight purposefully sampled participants who were from both treatment groups (four from each Group 1 and 2). Sixteen interviews were completed (100% response). Interviews took approximately 30 to 45 minutes to complete and were conducted over the telephone with the exception of one face-to-face interview that was completed in a suitable location that was suggested by the participant. To facilitate comprehensive data analysis, all interviews were recorded using Smart Voice Recorder, a smartphone application, and were transcribed verbatim by a professional transcriptionist within two-weeks of the interviews. Good interviewing procedures were followed, including: Being on time, building rapport and comfort with the participant, being respectful and courteous, being a good listener and limiting speaking, allowing adequate reflection time for participants to respond, and reminding participants of the confidentiality of their responses. The lead researcher had previously established a connection with participants during the CAC and this had the effect of helping to build rapport and trust quickly during the interview process. An interview guide (Appendix Z) was used and the lead researcher pilot tested and refined questions with the local Advisory Committee, the academic supervisor, and colleagues before use. Brief notes were taken throughout the interview related to body language (in-person interviews), and other visual and verbal data and personal reflections were made in the field notes

immediately following each interview. The same eight participants were interviewed in the second interview and the lead researcher validated findings from the initial interview with participants as appropriate.

E-Journals. Twelve e-journals were collected weekly from 10 purposely sampled participants from both treatment groups (Five from each Group 1 and 2) using a guided introspection technique and self-reflection. One hundred and two responses were received out of 120 possible responses (85% response rate) resulting in 43 double-spaced pages and approximately 15,600 words of data. The practice of obtaining frequent and repeated assessments of participant experiences and behaviours, called ecological momentary assessment, aims to minimize recall bias found in methods that rely on longer recall memory (Shiffman, Stone & Hufford, 2008). A weekly electronic journal was used in this study to understand, on a deeper level, the daily and weekly participant experiences associated with their 90-day training plan and the context of their real-world lives.

The weekly journaling technique used questions that encouraged participants to explore their feelings and emotions as they experienced their self-care journey. For example, one question asked of participants was, 'Describe any pivotal or 'aha' moments from the CAC where you realized you may need to make lifestyle change(s)?' Participant responses provided authentic insights into the inner experiences that could not be collected using other methods. These types of reflective thoughts may not come up in an interview but could be critical in understanding people's motivations to behave in certain ways (Couper & Stinson, 1999). The extent of participant responses varied by participant as some

participants provided elaborate and lengthy responses while others provided responses of only a few words.

Participants were requested in an email (Appendix W) on a weekly basis to visit the Opinio confidential email box and answer four questions based on their reflections and feelings of self-care related experiences throughout the week. The first three questions were identical every week for ease of identifying changes, whereas the fourth question was different each week to probe for relevant thoughts and feelings of interest (Appendix X). A personalized reminder email (Appendix Y) was sent to participants every Thursday during the study and a second reminder email sent every Sunday to increase response rate (Mehta & Sivadas, 1995). The e-journaling process was intended to be top-of-mind and the instructions to participants requested only a few sentences, thus reducing the burden to participants. Participants were encouraged to send responses even if they had nothing new to report as this data was relevant to the study. No e-journal participants dropped out of the study.

3.10 Data Analysis (qual)

There are several approaches for analyzing qualitative data. This study used a combination of two similar and complementary methods, namely: interpretive description and content analysis. An interpretive description goes beyond mere description to examine the anatomy of an intervention in the health and wellness domain (Thorne et al., 2004). Content analysis is a research method for making replicable and valid inferences from data with the outcome of

describing concepts or categories associated with the phenomenon (Krippendorff, 1980) and informed the following steps in the data analysis process:

Transcription of interviews. Audio recordings of interviews were transcribed by a professional transcriptionist within seven to 10 days of the interview in order to ensure maximum recall of emotions and feelings that were expressed during the interviews. The lead researcher also listened to sections of the audio recordings to complete transcripts where the transcriptionist experienced difficulty understanding the recording.

Read the entire text through. Individual interview transcripts and e-journals were read in their entirety to gain a sense of the whole story while referring to the field notes from interviews. Each line of text was numbered in the master files to provide a method for follow-up text location.

Developed a coding approach. A coding approach was developed, based upon the theoretical frameworks described in Chapter 2 that included the following descriptive categories: Self-care inventory, values and purpose, dissonance and resonance exploration, barrier identification, options brainstorming and action planning, skills acquisition, monitoring and support, and individual outcomes. Sub-categories were developed for each category. The descriptive categories are defined below:

1. **Self-care inventory.** The self-care inventory is defined as evidence associated with a person's current state of physical, emotional, mental, and spiritual health.

2. **Values and purpose.** Values and purpose are the process of discovery that helps a person to become more consciously aware of what is important to them and ultimately uncovering the purpose of their life.
3. **Dissonance and resonance.** Dissonance and resonance are defined as a person's feelings of tension and discord (e.g., dissonance) when their values are being dishonoured or a person's feelings of aliveness or power (e.g., resonance) when their values are being honoured.
4. **Barrier identification.** Barrier identification is defined as anything that gets in the way of a person living in alignment with their values, life purpose, and self-care goals.
5. **Options brainstorming and action planning.** Options brainstorming and action planning are defined as establishing priorities and goals in order to create a plan that moves a person towards the end state that they desire (e.g., improved self-care).
6. **Skills acquisition.** Skills acquisition is defined as learning and mastering the necessary competencies and abilities required to achieve desired self-care goals.
7. **Monitoring and support.** Monitoring is defined as the tracking and evaluation of progress against self-care goals. Support is defined as the person or thing that supports a person towards achieving their self-care goals. Monitoring and support can be used for both short-term (days and weeks) and long-term (months and years) self-care goals. Monitoring and support may be provided through the services of a life coach, as well as through self-monitoring and/or self-supporting.

8. **Individual outcomes.** Individual outcomes are defined as the specific achievements a person attains from their goals.

Established inter-rater reliability. The coding categories were validated through independent coding of select interview and e-journal texts by the lead researcher and the lead researcher's supervisor. This step helped to demonstrate that both raters categorized the data similarly and confirmed the inter-rater reliability of the coding categories.

Re-read the entire text and selected text examples. The lead researcher reviewed the interview transcripts and e-journal text for a second time and highlighted text that related to the descriptive codes. During this step, sub-categories were developed that provided a more in depth description of the main category. Margin notes were made within each electronic document indicating the descriptive categories and sub-categories associated with the highlighted text. Highlighted text was copied and pasted to a separate electronic document, called a code book, which was sorted by descriptive category and sub-category to facilitate further analysis. The locator line number was added to each selected text. A total of 150 unique e-journal text responses and 226 unique interview responses were selected for further analysis.

Final review and text selection. The final step was to re-read the code book several times and select the text for each descriptive category that was reported in the findings. Care was taken to ensure the selected text included: Common examples of coding that was varied and representative of the participant's experiences in their 90-day training plan. Excerpts published in Chapter 4 (Findings) were emailed to respective participants for verification and

approval to publish in accordance with the consent form. One participant made minor grammatical corrections to their quotes while the remaining participants provided email consent to publish all of their quotes.

3.11 Validity (qual)

Morse, Barrett, Myers, Olson, and Spiers (2002) suggest qualitative researchers use verification strategies throughout the research process to minimize validity threats. In this section, the steps taken in the qualitative research process to verify the findings are reviewed. This research drew largely from validity criteria suggested by Lincoln and Guba (1985) and Polkinghorne (2007).

Lincoln and Guba (1985) proposed four criteria, including: credibility, confirmability, dependability, and transferability. Credibility refers to confidence in the truth of the data and interpretations. The lead researcher's background training and experience as both a life coach and a sports coach supported the credibility criteria. Furthermore, the lead researcher had previously attended the CAC and experienced a similar 90-day training plan. With this depth and understanding, the lead researcher had insight into the participant's experience with the course. For example, the lead researcher's training and experience in interview techniques resulted in asking good questions, careful listening, using intuition, and checking with participants between questions and at the end of each interview to ensure the researchers correctly understood the responses from participants. Confirmability refers to objectivity and that the interpretation of the data was not invented by the lead researcher. To achieve confirmability, the following steps were taken: The coding method, developed from the work of

previous scholars, was independently validated and confirmed inter-rater reliability; participants verified the accuracy of all of their published quotes; and the qualitative data findings aligned with the quantitative data findings.

Dependability refers to the stability of data over time and conditions.

Dependability was achieved through collecting data from 18 convenience sampled participants using both interviews and e-journals over a three-month period. Transferability refers to the potential for extrapolation of the findings to other groups and settings. The qualitative data collected in this study was extensively documented and included observations, interviews, and e-journals.

This contributed to the detailed findings documented in the next chapter. As well, Chapter 3 contains detailed documentation of the quantitative and qualitative processes that were used in this study. These detailed accounts of the research study enable readers to determine whether results are transferable to other groups and settings.

Polkinghorne (2007) proposed four threats to validity in qualitative research and mitigation strategies in these areas: Limits of language, limits of reflection, the resistance of people, and the interviewer's impact on the participant. Limits of language were addressed through interview techniques designed to enhance participant's communications. To capture the complexity and depth of experienced meaning, participants were encouraged to use metaphors and figurative expression in their responses to questions. Limits of reflection refer to the concerns participants are able to describe the layers of meaning that are present outside of awareness. The lead researcher used focused listening, long pauses, and probing questions to provide participants more time to reflect and

reveal the deeper meaning that was outside their awareness. Interviewees had a second interview that provided time for them to reflect between interviews, and as well, received questions for the second interview in advance. The e-journal participants answered the same three questions every week and this provided adequate time for them to reflect on their responses. The resistance of people refers to interview participants who did not reveal the full complexity of their felt meanings due to social or cultural reasons. To mitigate against resistance, the lead researcher had several exposures with participants in the classroom, over the phone, and through email during recruiting and the intervention to increase participants' comfort and familiarity with the lead researcher. The connection between the lead researcher and participants established a trust bond that resulted in participants feeling at ease and open to sharing their innermost thoughts. The extensive responses to both interview and e-journal questions, which included private and personal details about participant's health and relationships, provided support that participants felt minimal or no resistance barriers in their responses. Interviewer's impact on the participant refers to the affect the interviewer may have on participant responses based on gender, clothing, vocal tone, and body movements. The lead researcher used mirroring techniques to minimize negative impacts of these concerns.

Reflexivity is a method to improve study validity and rigour where the researcher remains cognizant of his/her knowledge and biases throughout all stages of the study (Creswell, 2013). Reflexivity requires the researcher to strive for integrity in the entire research process by considering all influences on the research. Researchers share their biases with readers by a method called

bracketing. The lead researcher used bracketing to carefully and credibly interpret all decisions made in interpretation data in this study. Chapter 1 has a section on the lead researcher's experience and background to provide readers' with this important information.

3.12 Summary

This study applied an intervention mixed methods framework to assess the effectiveness of a comprehensive WWP treatment (The CAC). Participants were Financial Consultants who were employed by a large Canadian-based financial services company and recruited from their offices in Atlantic Canada. The quantitative component used a quasi-experiment, non-equivalent control group, pre-test, mid-test, post-test design to test 10 hypotheses. The qualitative component used an interpretive descriptive approach and content analysis to understand the participants' experiences during their 90-day training plan, and to enhance the interpretation of the quantitative findings. Qualitative data collection methods included: Observations, semi-structured interviews, and weekly diaries. A content analysis method, informed by the CALO-RE taxonomy, DVM, and CALC, was used to analyze the qualitative data.

CHAPTER 4 FINDINGS

In this chapter, the findings for this study are presented in three sections. In the first section, the quantitative findings from the self-report surveys and the ABC Co. sales revenue reports are presented. The following section details the qualitative findings, initially from the CAC observations, and then from interviews and weekly diaries collected from participants during the 90-day training plan period. In the final section, the findings from integrating quantitative and qualitative findings for select treatment participant groupings are outlined.

4.1 Quantitative Findings

This section covers the general and demographic characteristics of study participants, the self-report survey findings, and the sales revenue report findings.

4.1.1 General and Demographic Characteristics

The general and demographic characteristics of the 81 study participants are compared in Table 4 on the following page. A chi-square test of goodness-of-fit was performed to compare attributes of the treatment and control groups. Findings confirmed no statistically significant differences except for Office Location [$\chi^2(8, n=81) = 28.952, p = .000$] where participants from ABC Co. offices in the province of Newfoundland ($n=13$) were included in the control group to increase sample size and excluded from the treatment group due to long travel distance. The age of study participants ranged from 26 to 68, with the average being 47 years old ($M=46.89, SD=11.32$). The amount of time that the participant was employed by ABC Co. ranged from three months to 29 years with an average of seven years ($M=7.08, SD=7.57$).

Table 3 Participant general and demographic characteristics.

Variable	All Participants (n=81)	%	Treatment (n=44)	Control (n=37)
Gender				
Male	55	67.9	28	27
Female	26	32.1	16	10
Marital Status				
Married	59	72.8	31	28
Single	13	16.0	8	5
Divorced	4	4.9	3	1
Separated	3	3.7	1	2
Widowed	2	2.5	1	1
Age (Years)				
25-29	6	7.4	4	2
30-39	18	22.2	7	11
40-49	19	23.5	11	8
50-59	27	33.3	14	13
60-69	11	13.6	8	3
Years ABC Co. Employed				
<1	10	12.3	4	6
1-5	39	48.1	22	17
6-10	12	14.8	6	6
11-20	14	17.3	9	5
21-30	6	7.4	3	3
Education				
No High School	1	1.2	0	1
High School	12	14.8	7	5
Comm. College	16	19.8	10	6
Undergrad Degree	35	43.2	19	16
Graduate Degree	17	21.0	8	9
Professional Designation	24	100.0	12	12
Office Location				
Nova Scotia	55	67.9	33	22
New Brunswick	13	16.0	11	2
Newfoundland	13	16.0	0	13
Job Classification				
Consultant	65	80.2	35	30
Division Director	6	7.4	3	3
Associate	10	12.3	6	4

4.1.2 Self-reported Measures

Within this section, the findings from the self-reported outcome measures, including the dependent variables of engagement, resilience, thriving, health, presenteeism, life purpose, physical activity, and nutrition are reported. Self-report surveys were collected for treatment and control groups over three time periods.

To examine the training effects of the comprehensive WWP course on the combination of all dependent variables, an omnibus mixed-design 2 (Group: Treatment and control) X 3 (Times: Baseline, post-CAC course, and three-month post CAC) doubly multivariate repeated measures ANOVA was conducted using composite scales for each dependent variable and covariates. The means and standard deviations for the composite dependent variables for both treatment and control groups are shown in Table 4. To determine the key drivers of significant effects for the composite scales, separate 2 (Group: Treatment and control) X 3 (Times: Baseline, post-CAC course, and three-month post-CAC) repeated measures ANOVAs were conducted using the subscales for each composite scale. Means and standard deviations for subscales, where significant effects were observed, are shown in Table 4. Listwise deletion treatment for repeated measures missing data analysis reduced the sample size from 81 to 70 participants in the omnibus analysis. Correlation data by time period for composite variables are shown in Table 5. Composite and subscale significant effects are presented below.

Omnibus ANOVA. Using Pillai's trace as the criterion, the combined dependent variables showed significant group by time effect between treatment and control groups over the 3 time periods of the study, Pillai's trace = .429, $[F(18,226) = 2.7, p < .001, \eta^2 = .21, 1 - \text{Wilk's lambda} = .389]$ with a 1.0 observed power. The omnibus interaction time effects for the combined groups are shown in Appendix AA (Supplemental Findings) and the group by time effects are reported within the following composite scales.

THAW Scale. Employees who participated in the WWP course were expected to realize greater improvements in thriving than employees who did not participate in the WWP course. The omnibus ANOVA confirmed the WWP course had significant effect on the treatment group's thriving over time with group by time interactions [$F(2,120) = 4.5, p < .05, \eta^2 = .07$] with a .76 observed power, thus the third hypothesis is accepted. Separate repeated measures ANOVAs of the thriving subscales showed significant group by time effects for Vitality [$F(2,158) = 6.1, p < .01, \eta^2 = .07$] with a .89 observed power in support of the third hypothesis. Post hoc analysis using a Bonferroni confidence interval adjustment indicated that changes occurred specifically between time 1 and time 3 ($p < .05$) and that treatment group Vitality increased more ($M = .6, SE = .26$) than the control group ($M = -.03, SE = .24$) between baseline and three months.

Table 4 Selected self-report survey outcome measures by time point: Treatment versus control.

Variable	Baseline (Time 1)				Post CAC (Time 2)				Three Month (Time 3)			
	Treatment		Control		Treatment		Control		Treatment		Control	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Engagement ¹	4.40	.98	4.57	.85	4.49	.87	4.70	.60	4.47	.93	4.67	.68
Thriving Composite Scale ¹	5.52	.99	5.85	.79	5.77	.95	5.79	.69	5.89	1.01	5.75	.80
Subscale: ² Vitality	5.12	1.30	5.54	.93	5.36	1.30	5.55	.91	5.72	1.15	5.50	1.12
Resilience Composite Scale ¹	64.84	11.94	68.12	13.25	72.43	13.37	70.51	12.35	77.01	13.23	71.25	12.44
Subscales: ² Managing Stress	54.41	21.34	58.99	25.22	68.47	21.68	62.50	21.74	77.94	15.50	62.39	21.79
Staying Healthy	56.44	26.34	60.33	26.75	61.74	27.63	59.89	25.52	69.89	26.49	59.91	23.39
Physical Health Composite Scale ¹	51.61	10.02	51.90	10.29	52.52	7.92	50.68	11.00	53.22	8.05	49.57	9.20
Mental Health Composite Scale ¹	45.35	11.05	45.60	9.75	45.70	11.88	49.49	9.27	50.37	10.78	49.67	8.58
Subscales: ² Bodily Pain	83.52	26.93	83.78	26.93	84.09	23.58	86.49	21.73	89.78	19.68	82.43	26.92
Vitality	53.64	21.00	60.68	20.11	56.82	24.07	64.46	19.46	69.32	21.31	59.05	25.55
Mental Health	61.82	20.15	65.14	16.60	62.95	21.19	70.27	16.91	73.86	19.32	66.49	19.59
Presenteeism – Per cent Productivity Loss ¹	5.42	4.91	5.21	3.64	5.88	5.80	4.12	3.12	3.68	4.19	5.04	5.27
Subscales: ² Time Management	19.50	22.59	12.78	15.73	19.10	23.40	10.81	11.47	13.35	20.06	16.61	24.30
Mental-Interpersonal Demands	17.54	18.49	16.33	16.36	21.41	23.71	12.16	14.28	11.08	15.06	16.92	21.89
Life Purpose Composite Scale ¹	43.21	7.26	44.81	5.44	43.06	7.90	45.34	5.30	45.12	6.69	43.78	7.18
Subscales: ² Focus on the Present	5.05	1.28	5.25	1.01	5.25	.99	4.97	1.09	5.52	.82	4.95	1.37
Activities Trivial and Unimportant	5.16	1.14	5.28	1.26	4.89	1.19	5.49	.73	5.14	1.21	5.03	1.38
Sense of Trying to Accomplish	4.61	1.62	5.35	1.11	4.68	1.57	5.41	.76	5.09	1.38	4.73	1.59
Set Goals	4.73	1.42	5.24	.90	4.82	1.42	5.32	.88	5.36	1.16	5.05	1.22
Physical Activity MET minutes per week ¹	2,328	2,284	2,769	2,618	3,430	2,769	2,876	3,290	3,152	2,787	1,770	1,973
Subscales: ³ Walking MET minutes per week	540	520	870	1,013	790	925	1,019	1,173	873	960	608	476
Sitting minutes per week	479	178	433	172	587	217	370	158	436	178	385	159
Sleeping hours per week	6.85	.93	6.89	.80	7.18	.86	6.82	1.32	7.41	.77	6.73	1.01
Nutrition Composite Scale ¹	49.86	7.77	50.24	6.82	58.27	6.63	50.33	5.08	55.03	7.07	49.69	7.55
Subscales: ² Fruit	4.66	2.07	4.97	1.79	6.00	2.28	5.38	1.82	5.82	2.19	4.65	2.02
Dairy	6.64	3.14	7.15	2.82	8.43	2.71	6.89	3.12	7.82	2.85	6.70	3.00
Fats	7.08	2.78	7.91	2.23	8.53	2.28	7.65	2.46	7.75	2.60	6.86	2.57

¹ Treatment (n=38); Control (n=32); ² Treatment (n=44); Control (n=37); ³ Treatment (n=35); Control (n=23)

Table 5 Composite variable correlations by time period.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Engagement																											
1.T-1	1	.841**	.771**	.755**	.633**	.662**	.451**	.448**	.423**	.114	.117	.135	.312**	.420**	.303**	-.484**	-.562**	-.195	.536**	.566**	.434**	.066	.017	-.092	.072	.063	-.069
2.T-2	.841**	1	.717**	.687**	.571**	.751**	.439**	.561**	.423**	.063	.080	.064	.372**	.487**	.255**	-.465**	-.552**	-.137	.513**	.587**	.444**	.140	.056	.007	.077	.039	-.074
3.T-3	.771**	.717**	1	.603**	.734**	.599**	.389**	.445**	.544**	.119	.109	.076	.258**	.356**	.416**	-.442**	-.529**	-.305**	.488**	.518**	.378**	.009	-.037	-.036	.019	-.057	-.123
Thriving:																											
4.T-1	.755**	.687**	.603**	1	.703**	.774**	.474**	.480**	.404**	.087	.080	.070	.438**	.547**	.362**	-.490**	-.546**	-.158	.589**	.539**	.450**	.182	.032	.045	.037	-.050	-.110
5.T-2	.632**	.571**	.734**	.703**	1	.751**	.395**	.542**	.658**	.180	.256	.227	.280**	.349**	.623**	-.367**	-.432**	-.399**	.474**	.529**	.464**	.020	-.060	.131	-.033	.051	.095
6.T-3	.662**	.751**	.599**	.774**	.751**	1	.377**	.666**	.502**	.101	.192	.081	.352**	.439**	.384**	-.405**	-.536**	-.171	.497**	.527**	.481**	.114	-.019	.080	.004	.015	-.027
Resilience:																											
7.T-1	.451**	.439**	.389**	.474**	.395**	.377**	1	.704**	.587**	.043	.063	.095	.413**	.437**	.201	-.323**	-.469**	-.145	.404**	.540**	.241**	.111	-.022	-.038	.185	.039	-.036
8.T-2	.448**	.561**	.445**	.480**	.542**	.666**	.704**	1	.752**	.000	.111	.102	.326**	.401**	.306**	-.304**	-.470**	-.203	.321**	.501**	.390**	.032	-.040	.038	.042	.043	.006
9.T-3	.423**	.423**	.544**	.404**	.658**	.502**	.587**	.752**	1	.027	.097	.113	.177	.234**	.495**	-.212	-.267**	-.284**	.293**	.448**	.395**	-.055	-.115	.078	.058	.097	.097
Physical:																											
10.T-1	.114	.063	.119	.087	.180	.101	.043	.000	.027	1	.866**	.642**	-.160	-.152	-.117	-.212	-.181	-.038	.027	.055	-.054	.401**	.308**	.033	-.089	-.113	-.087
11.T-2	.117	.080	.109	.080	.256**	.192	.063	.111	.097	.866**	1	.717**	-.108	-.271**	-.037	-.188	-.147	-.098	.014	.052	.037	.382**	.249**	.054	-.025	-.066	.005
12.T-3	.135	.064	.076	.070	.227**	.081	.095	.102	.113	.642**	.717**	1	.013	-.070	-.098	-.160	-.132	-.267**	.079	.133	.023	.300**	.292**	.219	-.036	.113	.112
Mental:																											
13.T-1	.312**	.372**	.258**	.438**	.280**	.352**	.413**	.326**	.177	-.160	-.108	.013	1	.793**	.405**	-.506**	-.477**	-.250**	.387**	.453**	.198	-.006	-.020	.165	.002	.052	-.015
14.T-2	.420**	.487**	.356**	.547**	.349**	.439**	.437**	.401**	.234**	-.152	-.271**	-.070	.793**	1	.421**	-.562**	-.643**	-.263	.406**	.564**	.264**	-.021	-.008	.088	.033	.004	-.078
15.T-3	.303**	.255**	.416**	.362**	.623**	.384**	.201	.306**	.495**	-.117	-.037	-.098	.405**	.421**	1	-.301**	-.285**	-.451**	.281**	.346**	.302**	-.219	-.164	.102	-.035	-.061	.150
Presentee-ism:																											
16.T-1	-.484**	-.465**	-.442**	-.490**	-.367**	-.405**	-.323**	-.304**	-.212	-.212	-.188	-.160	-.506**	-.562**	-.301**	1	.696**	.342**	-.412**	-.413**	-.278**	-.208	-.097	-.032	-.121	-.048	.004
17.T-2	-.562**	-.552**	-.529**	-.546**	-.432**	-.536**	-.469**	-.470**	-.267**	-.181	-.147	-.132	-.477**	-.643**	-.285**	.696**	1	.372**	-.334**	-.550**	-.304**	-.114	-.096	.068	.002	.082	.097
18.T-3	-.195	-.137	-.305**	-.158	-.399**	-.171	-.145	-.203	-.284**	-.038	-.098	-.267**	-.250**	-.263**	-.451**	.342**	.372**	1	-.065	-.295**	-.188	.157	.090	-.034	-.071	-.058	-.310**
Life Purpose:																											
19.T-1	.536**	.513**	.488**	.589**	.474**	.497**	.404**	.321**	.293**	.027	.014	.079	.387**	.406**	.281**	-.412**	-.334**	-.065	1	.655**	.470**	-.006	-.126	-.007	.068	.007	-.141
20.T-2	.566**	.587**	.518**	.539**	.529**	.527**	.540**	.501**	.448**	.055	.052	.133	.453**	.564**	.346**	-.413**	-.550**	-.295**	.655**	1	.523**	-.006	-.121	.006	.025	-.099	-.104
21.T-3	.434**	.444**	.378**	.450**	.464**	.481**	.241**	.390**	.395**	-.054	.037	.023	.198	.264**	.302**	-.278**	-.304**	-.188	.470**	.523**	1	-.089	-.167	.077	.078	.174	.183
Physical Activity:																											
22.T-1	.066	.140	.009	.182	.020	.114	.111	.032	-.055	.401**	.382**	.300**	-.006	-.021	-.219	-.208	-.114	.157	-.006	-.006	-.089	1	.746**	.455**	.021	-.065	-.096
23.T-2	.017	.056	-.037	.032	-.060	-.019	-.022	-.040	-.115	.308**	.249**	.292**	-.020	-.008	-.164	-.097	-.096	.090	-.126	-.121	-.167	.746**	1	.528**	-.083	.136	-.016
24.T-3	-.092	.007	-.036	.045	.131	.080	-.038	.038	.078	.033	.054	.219	.165	.088	.102	-.032	.068	-.034	-.007	.006	.077	.455**	.528**	1	-.069	.243	.226**
Nutrition:																											
25.T-1	.072	.077	.019	.037	-.033	.004	.185	.042	.058	-.089	-.025	-.036	.002	.033	-.035	-.121	.002	-.071	.068	.025	.078	.021	-.083	-.069	1	.360**	.471**
26.T-2	.063	.039	-.057	-.050	.051	.015	.039	.043	.097	-.113	-.066	.113	.052	.004	-.061	-.048	.082	-.058	.007	-.099	.174	-.065	.136	.243	.360**	1	.572**
27.T-3	-.069	-.074	-.123	-.110	.095	-.027	-.036	.006	.097	-.087	.005	.112	-.015	-.078	.150	.004	.097	-.310**	-.141	-.104	.183	-.096	-.016	.226**	.471**	.572**	1

Resilience at Work Scale. Employees who participated in the CAC were expected to realize greater improvements in resilience than those who did not participate in the course. The omnibus ANOVA confirmed the WWP course had significant effect on the treatment group's resilience over time with group by time interactions [$F(2,120) = 6.7, p < .005, \eta^2 = .10$] with an observed power of .91, thus the fourth hypothesis is accepted. Separate repeated measures ANOVAs were conducted on the resilience subscales. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Living Authentically, [$\chi^2(2) = 12.66, p < .005$] and Staying Healthy [$\chi^2(2) = 8.92, p < .05$], therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity of [$\epsilon = 0.90$] and [$\epsilon = 0.93$] respectively. Significant group by time effects were found for Managing Stress [$F(2,158) = 10.7, p < .001, \eta^2 = .12$] with a .99 observed power and Staying Healthy [$F(1.87, 147.6) = 5.8, p < .005, \eta^2 = .07$] with a .87 observed power in support of the fourth hypothesis. Post hoc analysis using a Bonferroni confidence interval adjustment indicated that increases for Managing Stress occurred specifically between time 1 and time 2 ($p < .005$) ($M = 8.8, SE = 2.27$) and time 1 and time 3 ($p < .001$) ($M = 13.5, SE = 2.32$) and that the treatment group's Managing Stress increased more ($M = 23.53, SE = 3.97$) than the control ($M = 3.40, SE = 5.48$) between baseline and three month measurements (see Figure 2). Post hoc analysis showed that increases for Staying Healthy occurred between time 1 and time 3 ($p < .05$) ($M = 9.8, SE = 2.27$) and that the treatment group's Staying Healthy increased more ($M = 13.45, SE = 5.63$) than the control ($M = -.42, SE = 5.84$) between baseline and three months (see Figure 3).

RAND SF-36 Health Survey (SF-36). Employees who participated in the CAC were expected to realize greater improvements in their quality of life and health than those who did not participate in the course. Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated for SF-36 Physical Health [$\chi^2(2) = 17.69, p < .001$] requiring degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = .94$]. The omnibus ANOVA confirmed that the WWP course approached significant effects on the treatment group's physical health over time with group by time interactions for SF-36 Physical Health [$F(1.87, 120.0) = 3.4, p = .05, \eta^2 = .05$] and an observed power of .57, thus the fifth hypothesis is accepted. Separate repeated measures ANOVAs of the SF-36 subscales were performed. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Vitality [$\chi^2(2) = 19.33, p < .001$], Mental Health [$\chi^2(2) = 24.48, p < .001$], and Bodily Pain [$\chi^2(2) = 42.88, p < .001$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity, [$\epsilon = 0.85$], [$\epsilon = 0.81$] and [$\epsilon = 0.70$], respectively. Significant group by time effects were found for Vitality [$F(1.69, 133.6) = 13.4, p < .001, \eta^2 = .15$]; Mental Health [$F(1.62, 128.2) = 5.7$]; and Bodily Pain [$F(1.41, 111.0) = 3.5, p < .05, \eta^2 = .04$]; $p < .005, \eta^2 = .07$], thus supporting the fifth hypothesis. Post hoc analysis using a Bonferroni confidence interval adjustment indicated that increases for Vitality occurred specifically between time 1 and time 3 ($p < .005$) ($M = 7.03, SE = 2.08$) and that the Vitality of the treatment group increased more ($M = 15.68, SE = 4.51$) than the control group ($M = -1.62, SE = 5.35$) between baseline and three months (see Figure 4). Post hoc analysis showed that increases for Mental Health occurred between time 1 and time 3 ($p <$

.05) ($M = 6.70$, $SE = 2.63$) and that the treatment group's Mental Health increased more ($M = 12.04$, $SE = 4.21$) than the control group ($M = 1.35$, $SE = 4.29$) between baseline and three months (see Figure 5).

Work Limitations Questionnaire. Employees who participated in the CAC were expected to realize greater improvements in presenteeism than employees who did not participate in the course. Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated for Presenteeism - Productivity Loss [$\chi^2(2) = 9.6$, $p < .010$] requiring degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 1.0$]. The omnibus ANOVA confirmed the WWP course had significant effects on the treatment group's Presenteeism - Productivity Loss for group by time interactions [$F(2.0, 120.0) = 3.4$, $p < .05$, $\eta^2 = .05$] with a .62 observed power, thus the sixth hypothesis is accepted. Separate repeated measures ANOVAs of the Presenteeism subscales were performed. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Time Management [$\chi^2(2) = 20.72$, $p < .001$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 0.84$]. Significant group by time effects were observed for Time Management [$F(1.67, 132.1) = 4.3$, $p < .05$, $\eta^2 = .05$] with a .68 observed power and Mental-Interpersonal demands [$F(2, 158) = 5.9$, $p < .005$, $\eta^2 = .07$] with a .86 observed power in support of the sixth hypothesis. On average, treatment group productivity loss from Time Management improved more ($M = -6.14$, $SE = 4.55$) than the control group ($M = 3.83$, $SE = 4.36$) between baseline and three months. Treatment group productivity loss from Mental-Interpersonal Demands also improved more ($M = -6.46$, $SE = 3.60$) than the control group ($M = .58$, $SE = 4.49$)

between baseline and three months.

Ryff Purpose in Life Survey. Employees who participated in the CAC were expected to realize greater improvements in their life behaviours and purpose than those who did not participate in the course. The omnibus ANOVA confirmed that the WWP course had significant effects on the treatment groups' purpose in life behaviours with group by time interactions [$F(2,120) = 3.4, p < .05, \eta^2 = .05$] with .64 observed power, thus the seventh hypothesis is accepted. Separate repeated measures ANOVAs of the PIL individual questions were performed. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Set Goals [$\chi^2(2) = 7.92, p < .05$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity [$\epsilon = 0.94$]. Significant effects were found for group by time effects for Focus on the Present (*I tend to focus on the present, because the future nearly always brings me problems*). [$F(2,158) = 3.4, p < .05, \eta^2 = .04$] with a .64 observed power; Activities Trivial and Unimportant (*My daily activities often seem trivial and unimportant to me*). [$F(2,158) = 3.14, p < .05, \eta^2 = .04$] with a .60 observed power; Sense of Trying to Accomplish (*I don't have a good sense of what it is I'm trying to accomplish in life*). [$F(2,158) = 7.81, p < .005, \eta^2 = .09$] with a .95 observed power; and Set Goals (*I used to set goals for myself, but that now seems like a waste of time*). [$F(1.89, 149.2) = 5.7, p = .005, \eta^2 = .07$] with a .84 observed power in support of the seventh hypothesis.

International Physical Activity Questionnaire - Short Form (IPAQ).

Employees who participated in the CAC were expected to realize greater improvements in physical activity than employees who did not participate in the

course. Specifically, the treatment group was expected to exercise more frequently and at higher levels of intensity, sit less, and sleep more in accordance with the CAC guidelines. Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated for Physical Activity [$\chi^2(2) = 7.22, p < .05$] requiring degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 1.0$]. The omnibus ANOVA confirmed the WWP course had significant effects on physical activity group by time interactions [$F(2.0, 120.0) = 5.0, p < .01, \eta^2 = .08$] with .80 observed power, thus the eighth hypothesis is accepted. Separate repeated measures ANOVAs were conducted on the Physical Activity subscales. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Sitting [$\chi^2(2) = 11.03, p < .005$] and Walking [$\chi^2(2) = 8.56, p < .05$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 0.89$] and [$\epsilon = 0.92$] respectively. Significant group by time interactions were observed for Walking [$F(1.83, 102.6) = 3.2, p = .05, \eta^2 = .05$], Sitting [$F(1.77, 99.2) = 6.3, p < .005, \eta^2 = .10$] and Sleeping [$F(2, 158) = 6.9, p < .005, \eta^2 = .08$] in support of the eighth hypothesis. On average, treatment group weekly Vigorous MET minutes improved more ($M = 250.29, SE = 354.02$) than the control group ($M = -483.48, SE = 468.30$) between baseline and three months, however, differences were non-significant. Treatment group weekly Moderate MET minutes improved more ($M = 176.58, SE = 242.29$) than the control group ($M = -215.65, SE = 225.17$) between baseline and three months. However, differences were found to be non-significant. Treatment group weekly Walking MET minutes improved more ($M = 333.30, SE = 184.49$) than the control group ($M = -262.57, SE = 233.40$) between baseline and three months;

treatment group weekly Sitting minutes improved more ($M = -150.54$, $SE = 47.42$) than the control group ($M = 14.0$, $SE = 46.86$) between time 2 and three months; and treatment group hours Sleeping increased more ($M = .56$, $SE = .18$) than the control group ($M = .16$, $SE = .21$) between baseline and three months (see Figure 6) and both of these differences were statistically significant.

Nutrition Survey. Employees who participated in the CAC were expected to realize greater improvements in nutrition than those who did not participate in the course. The omnibus ANOVA confirmed that the WWP course had significant effects on the treatment group's nutrition with group by time interactions [$F(2,120) = 11.4$, $p < .001$, $\eta^2 = .14$] with .99 observed power, thus the ninth hypothesis is accepted. Separate repeated measures ANOVAs were conducted on the Nutrition subscales. Significant group by time effect interactions were found for Fruits [$F(2,158.0) = 6.1$, $p < .005$, $\eta^2 = .07$] with a .88 observed power; Dairy [$F(2,158) = 5.1$, $p < .010$, $\eta^2 = .06$] with a .82 observed power; and Fats [$F(2,158.0) = 5.1$, $p < .010$, $\eta^2 = .06$] with a .82 observed power in support of the ninth hypothesis. Post hoc analysis using a Bonferroni confidence interval adjustment indicated that increases for Fruits occurred specifically between time 1 and time 2 ($p < .001$) ($M = .88$, $SE = .21$) and for Fats between time 2 and time 3 ($p < .05$) ($M = .78$, $SE = .31$) and that the treatment group consumed healthier servings of Fruits ($M = 1.16$, $SE = .45$) and Fats ($M = .67$, $SE = .57$) than the control group Fruits ($M = -.32$, $SE = .44$) and Fats ($M = -1.04$, $SE = .56$) between baseline and three months.

Utrecht Work Engagement Survey. Employees who participated in the CAC were expected to realize greater improvements in engagement than employees who did not participate in the course. The omnibus ANOVA confirmed

the WWP course had no significant effects on the treatment group's engagement with no group by time interactions occurring [$F(2,120) = .08, p = .92, \eta^2 = .00$], thus the second hypothesis is rejected. Separate repeated measures ANOVAs of the engagement subscales showed no significant group by time effects for vigour, dedication, and absorption.

Life Coaching. Employees who participated in the CAC and were supported by life coaches were expected to realize greater improvements in engagement, resilience, thriving, health, presenteeism, purpose in life behaviours, physical activity, and nutrition consumption than those who participated in the course without CALC support. This outcome was expected because the life coaches are trained and of skilled in evoking and supporting behaviour change for their clients and it was hypothesized they would achieve more favorable outcomes than the treatment group without CALC support. The life coaching group sample size was too small ($n=9$) to achieve acceptable levels of statistical power because only 44 employees of the planned 66 people participated in the CAC, thus the results for the tenth hypothesis are inconclusive. To examine whether life coaching influenced the overall study effect, an analysis that removed life coached participants from the 2 X 3 doubly multivariate repeated measures ANOVA was conducted and compared to the original omnibus ANOVA (Appendix AA). There were no changes found to the significance of any dependent variables when comparing the two analyses. It was reasonable to conclude that life coaching was not solely responsible for overall treatment effect. However, the degree to which life coaching improvements were realized was inconclusive due to sample size limitations.

To summarize, the omnibus mixed-design 2 (Group: Treatment and Control) X 3 (Times: Baseline, post-CAC course, and at three months) doubly multivariate repeated measures ANOVA on composite scales measures rejects the second hypotheses, accepts hypotheses number three through nine and is inconclusive for the tenth hypothesis, as shown in Table 6 on the next page. Separate repeated measures ANOVAs conducted on subscale measures, shown above, provided more specific drivers behind the statistically significant effects and support for the hypotheses test results on the next page.

Table 6 Hypotheses test results with significant subscales.

#	Hypothesis	Test Result	Significant Subscales
1	Employees who participate in the CAC will realize greater improvements in <u>productivity</u> than employees who do not participate in the CAC.	Rejected	-Sales Credits
2	Employees who participate in the CAC will realize greater improvements in <u>engagement</u> than employees who do not participate in the CAC.	Rejected	- Not Applicable
3	Employees who participate in the CAC will realize greater improvements in <u>thriving</u> than employees who do not participate in the CAC.	Accepted	- Vitality
4	Employees who participate in the CAC will realize greater improvements in <u>resilience</u> than employees who do not participate in the CAC.	Accepted	- Managing Stress - Staying Healthy
5	Employees who participate in the CAC will realize greater improvements in <u>health</u> than employees who do not participate in the CAC.	Accepted	- Bodily Pain - Vitality - Mental Health
6	Employees who participate in the CAC will realize greater improvements in <u>presenteeism</u> than employees who do not participate in the CAC.	Accepted	- Time Management - Mental-Interpersonal Demands
7	Employees who participate in the CAC will realize greater improvements in <u>life purpose behaviours</u> than employees who do not participate in the CAC.	Accepted	- Focus on the Present - Activities Trivial and Unimportant - Sense of Trying to Accomplish - Set Goals
8	Employees who participate in the CAC will realize greater improvements in <u>physical activity</u> than employees who do not participate in the CAC.	Accepted	- Walking - Sitting - Sleeping
9	Employees who participate in the CAC will realize greater improvements in <u>nutrition</u> than employees who do not participate in the CAC.	Accepted	- Fruits - Dairy - Fats
10	Employees who participate in the CAC with CALG support will realize greater improvements in <u>engagement, resilience, thriving, health, presenteeism, life purpose behaviours, physical activity, and nutrition</u> than employees who participate in the CAC without CALG support.	Inconclusive	Not Applicable

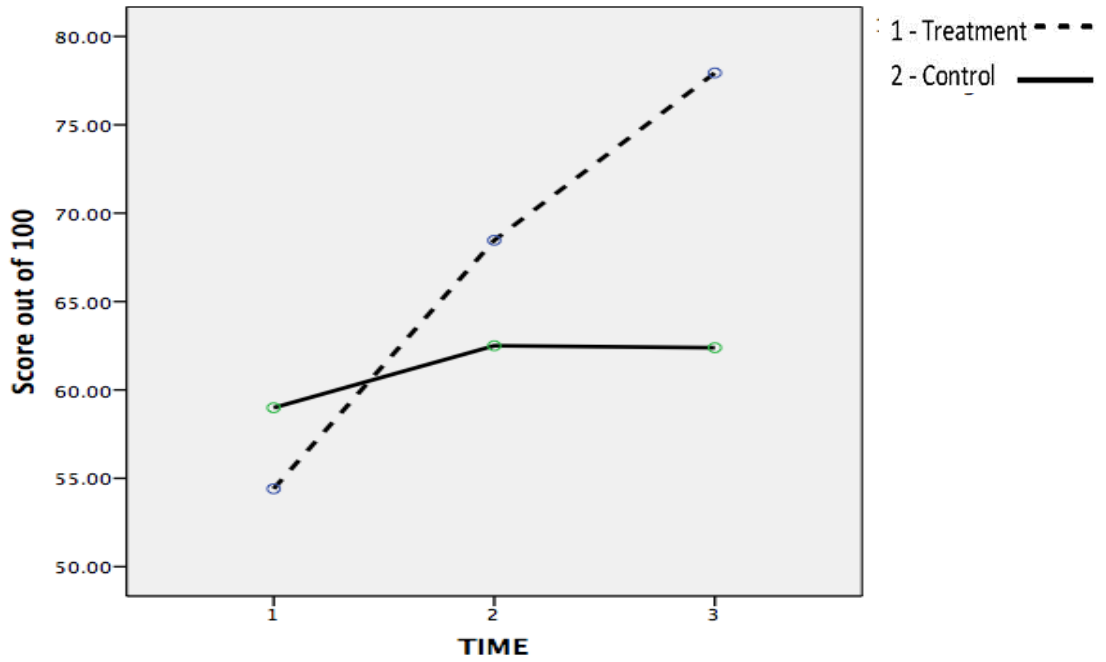


Figure 2 Means for Resilience Managing Stress subscale by group over time.

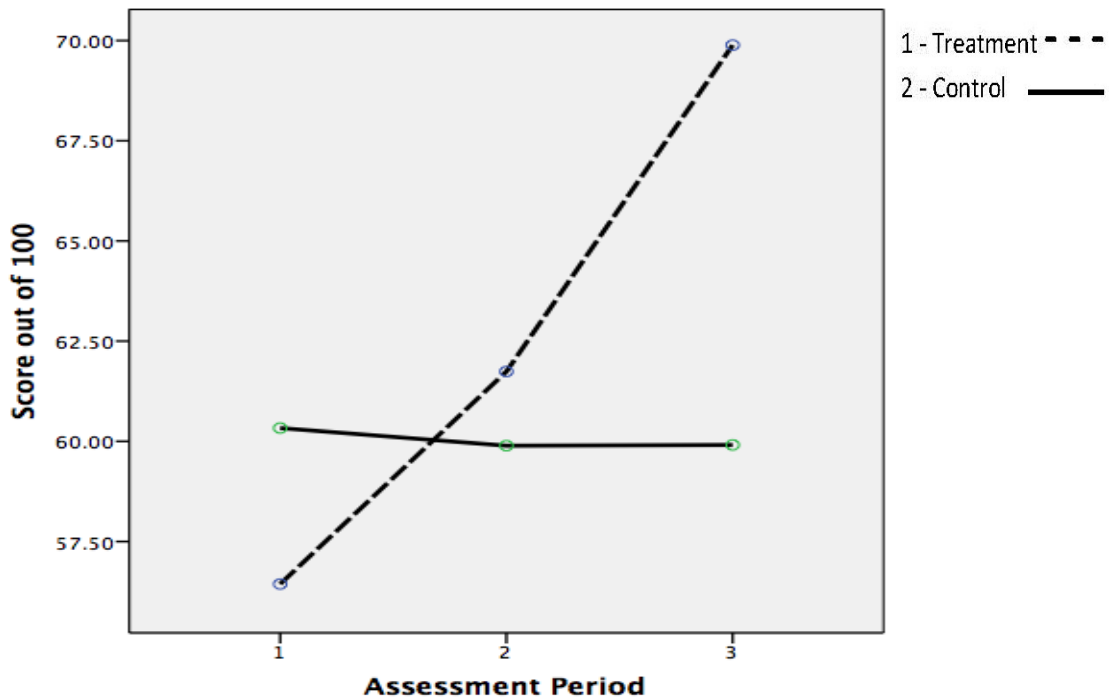


Figure 3 Means for Resilience Staying Healthy subscale by group over time

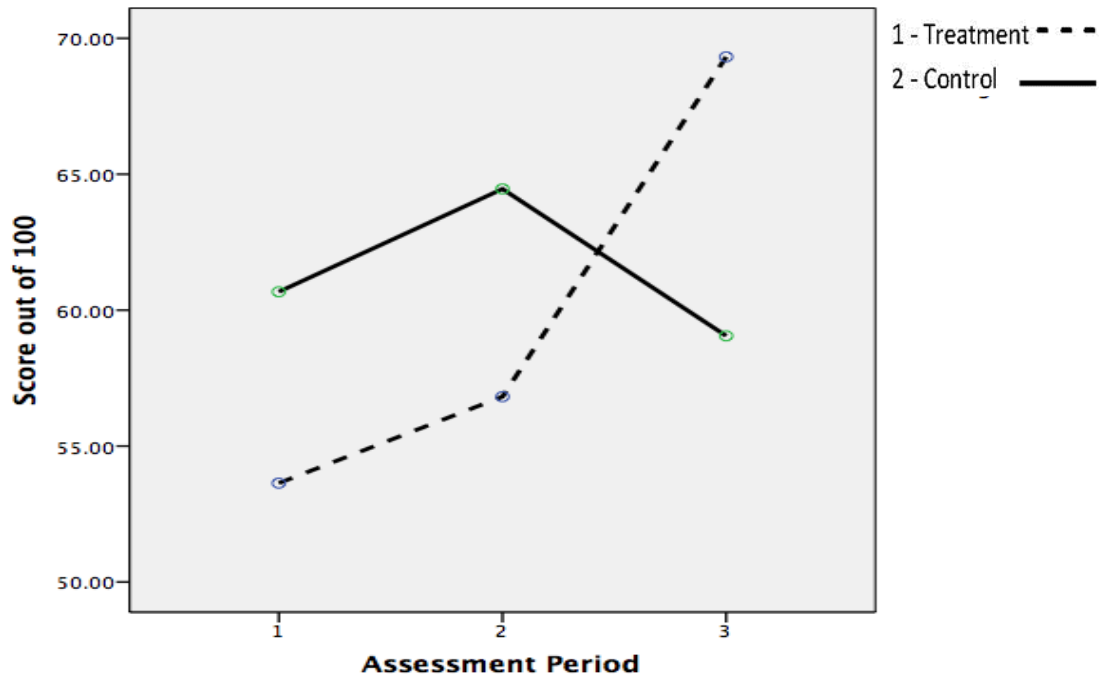


Figure 4 Means for SF-36 Vitality subscale by group over time.

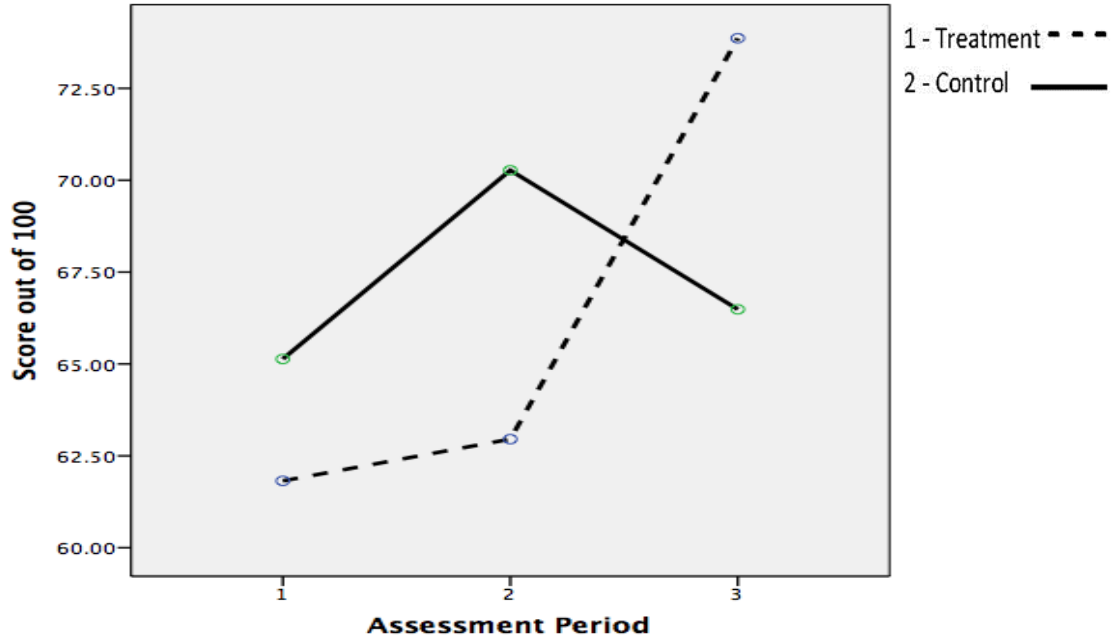


Figure 5 Means for SF-36 Mental Health subscale by group over time.

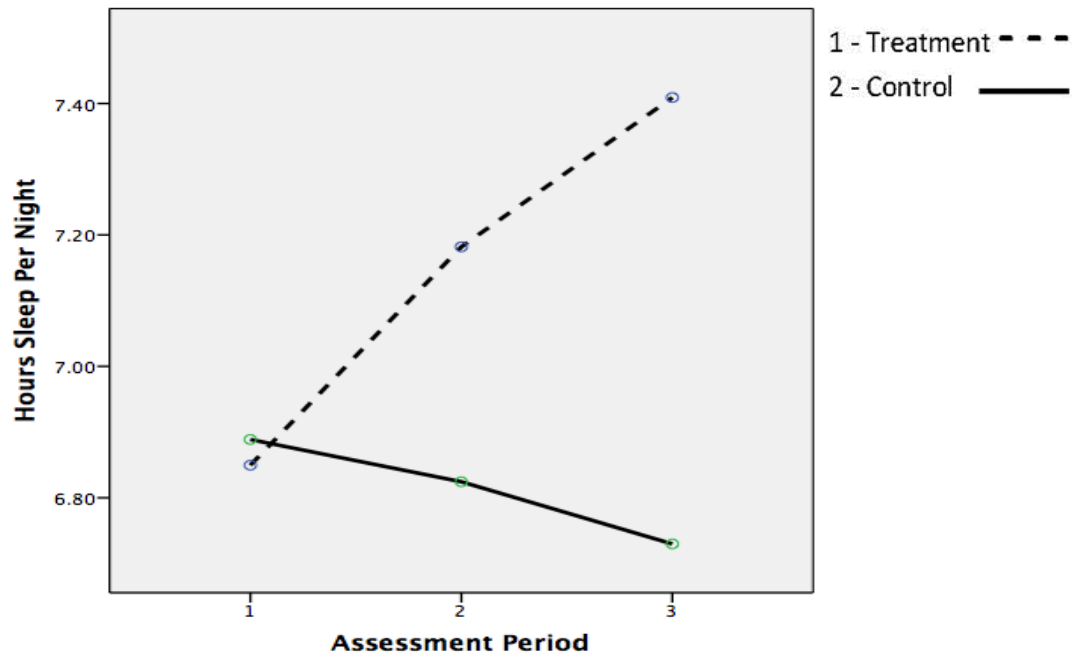


Figure 6 Means for Physical Activity Sleeping Hours Per Week subscale by group over time.

4.2 Sales Revenue Findings

Within this section are the findings from the effect of the comprehensive WWP training on the ABC Co. sales revenue measure (Sales credits). The treatment group was expected to achieve higher levels of sales-related productivity over the six-month period following the intervention. To examine the effects of the training from the comprehensive WWP course on the sales credit dependent variable, an omnibus mixed-design 2 (Groups: Treatment and control) X 7 (Times: Baseline and six consecutive months) doubly multivariate repeated measures ANOVA was conducted using the sales credit dependent variable. The control group (n=134) for the sales revenue analysis contained all employees within the offices that participated in the treatment and did not take the CAC because the data was readily available anonymously from ABC Co. The rationale

for this approach was that employees in the same offices and provinces were more similar than employees in different offices and provinces. Recall from the previous general and demographic characteristics section, the self-report surveys tested significant for non-equivalence for treatment versus control groups on office location. The analysis was conducted under three scenarios: including outliers, excluding outliers, and transforming to logarithmic data. All three scenarios yielded similar results. To mitigate against a lower sample size power effect, the analysis including the outliers was used and reported. Mauchly's Test of Sphericity indicated that the assumption of sphericity was violated for sales credits [$\chi^2(20) = 151.85, p < .001$] requiring degrees of freedom corrections using the Greenhouse-Geisser estimates of sphericity of [$\epsilon = .76$]. The group by time interaction effects were non-significant, $F(6, 165) = .40, p > .05$, meaning the sales credit increases were not greater for the Treatment compared to the control group over the seven month data collection period, thus the first hypothesis is rejected. To examine further the differences between the groups, independent sample t-tests using sales credits were calculated. The result of the t-test showed the treatment group sales credit mean values were significantly higher than the control group for September $t(41.6) = 2.34, p < .05$ and October $t(47.1) = 2.35, p < .05$. Means and standard deviations for sales credits are shown in Table 7 and Figure 7 on the following page.

Table 7 Sales credit outcomes by time point: Treatment versus control.

Time period	Treatment (n=38)		Control (n=134)	
	M	SD	M	SD
September – Baseline	\$107,950 ¹	\$131,028	\$56,688	\$60,752
October	112,011 ¹	127,773	60,155	86,675
November	98,299	146,610	56,181	58,353
December	123,004	275,510	60,711	101,062
January	89,239	123,354	54,261	73,833
February	166,714	208,852	107,590	110,900
March	117,730	137,599	73,308	81,037

¹ Statistically significant $p < .05$

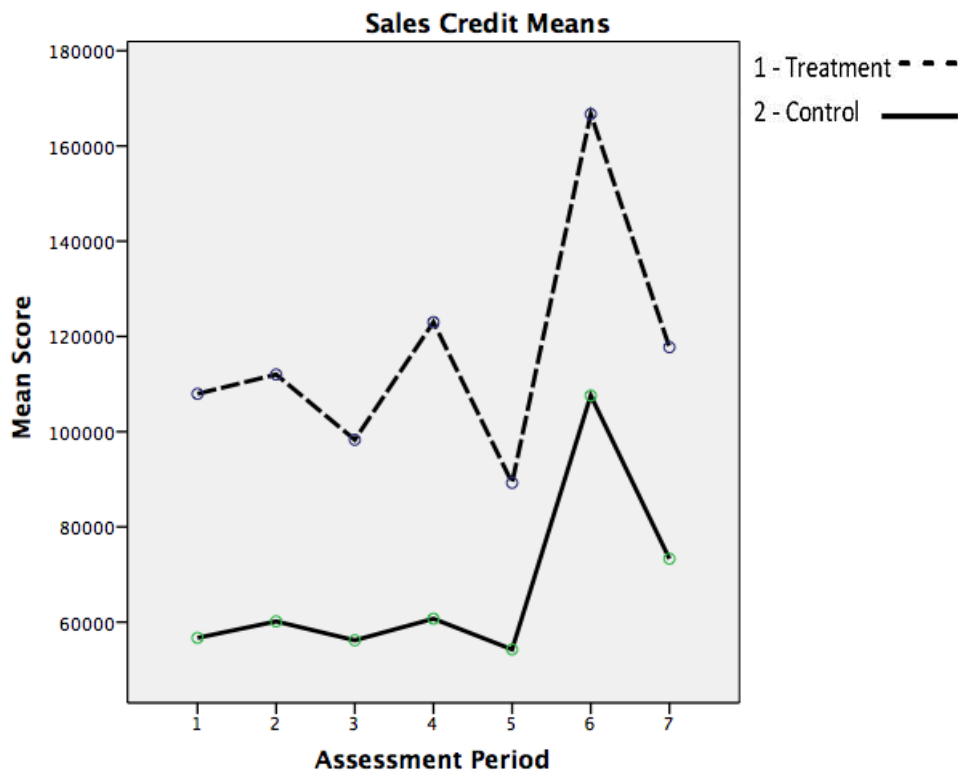


Figure 7 Means for sales credits by group over time.

To summarize, the quantitative findings are evidence that participation in a two and a half day long comprehensive WWP course can be effective in creating favourable physical activity and nutritional lifestyle changes resulting in improved health, life purpose behaviours, presenteeism, resilience, and thriving outcomes over a three-month study period. Conversely, no statistically significant

differences were found for engagement and sales credit measures between the treatment and control groups. Life coaching effect was found to be inconclusive due to the low sample size.

4.3 Qualitative Findings

This section contains the findings from the qualitative research methods used for this dissertation, namely observations, unstructured interviews, and e-journals. In accordance with the study's embedded experimental model, the primary purpose of the qualitative data collected during the intervention is to aid in interpreting intervention fidelity and to explore treatment effects. In this QUAN(qual) → qual design, the qualitative component provides supportive explanation to the primary quantitative component and is intended to be supportive to answering the question of why the treatment effect either worked or not as intended. In the first part of this section, the findings from the CAC are outlined, based upon the lead researcher's field note observations. The second part of the section explores the findings from the 90-day training plan experiences following the CAC that were based on participant interviews and weekly e-journals.

4.3.1 Corporate Athlete Course: Observation Findings

Within this section, the lead researcher used field notes from five days of observing the CAC along with extensive experience as a life coach, athletic coach, and professional presenter, to describe the elements that worked well and those that did not work well in the delivery of the course. The overarching finding was that the CAC contained scientifically credible and comprehensive health content that was delivered effectively and competently by experts and had a

meaningful impact on participants. Every element of the CAC, both big and small, was skillfully designed to work together to initiate a changing experience for participants in the classroom and continue to fuel participants' motivation during the 90-day training plan and beyond. Importantly, the individual course elements worked, or did not work, to different degrees for each participant and the following assessment represents the lead researcher's observations.

The CAC elements that worked well were as follows: The notion of managing four energy dimensions, a new concept for most participants, was an effective communication tool that 'clicked' for participants and helped them process and comprehend the large volume of presented health-related content. The ongoing referencing of scientific studies to provide the rationale for suggested behaviours often created 'aha' moments for participants. Notable studies referenced were the detrimental effects to mortality of sitting beyond six hours daily; losing 2% muscle mass annually (and three times more if in menopause); eating less if water was consumed before meals; and increasing your likelihood of exercising if exercising is performed in the early morning period. The flow of the CAC was interrupted every 45 minutes for a different participant to lead the group in a movement activity and this effectively reenergized the group. Additionally, the many individual and group activities, interspersed throughout the agenda, provided opportunities to increase engagement and deepen the learning process. A group competition was established early and further increased engagement and created a fun environment. The telling of stories and use of metaphors by trainers throughout the CAC was very effective at helping key points resonate and become internalized by participants. Based upon the lead researcher's extensive

presentation training and experience, the trainers were experts, excellent presenters, and quickly established rapport with the group and were one of the most important elements in the CAC. The energy in both groups was positive; however, there were a few participants who were more vocal in Group 2 that created more noise and louder discussion. The video played at the end of the CAC of physically impaired but determined elderly people driving motorcycles created feelings of inspiration to motivate participants to leave the CAC and follow their dreams.

The CAC elements that did not work well were: The CAC started early in the morning and ended around six pm and, given the intensity of classroom and fitness centre activities, many participants were visibly tired towards the end of the day and not fully engaged. The final agenda items on both days were important behaviour change technique content (Defining purpose and skillful storytelling) and may not have been fully absorbed by participants. The transition period between the classroom and the fitness centre on Day One for both groups was confusing because some participants left the class to change into workout clothing, other participants were reading their heart rate monitor instructions and trying to make them function properly, while the instructor attempted to explain complex details about the upcoming interval, resistance, and flexibility activities. The 360-degree feedback instructions, provided late in the afternoon of Day Two in the skillful storytelling section, was not useful for several participants who did not complete the survey process prior to the course. The blood chemistry cholesterol standard numbers were calculated in US (milligrams/deciliter) rather than Canadian (millimoles/litre) numbers for the first session of Group 1 and this

caused confusion and delayed participants from accurately interpreting their scores until the following day. This was fixed and numbers were properly converted for Group 2. The body composition device results were questioned by some of the participants from Group 2 and a more accurate alternative was provided for about 10 to 12 participants by the fitness centre Manager. The resistance training was performed in the fitness centre and was not effective for all of the participants for several reasons. First, the CAC group was sharing the facility with members and this created background noise, making instruction difficult to hear. Second, participants were paired into groups of two and worked together on pre-assigned machines. There were only two fitness instructors for five to six groups of participants and this was insufficient because of the lack of experience that most participants had with resistance equipment. Additional fitness instructors and more focused attention on groups could have reduced the amount of discussion and distraction between participants. While most participants were engaged throughout the CAC, one participant missed three hours and another, five hours of instruction, which may have impeded the overall impact of the CAC.

To summarize the CAC observation findings, the lead researcher reiterates that the CAC was an excellent comprehensive WWP course delivered to a high quality standard. While the aforementioned aspects of the CAC could have been improved upon to enhance the participant experience, the strengths and positive aspects of the CAC surpassed any of these minor concerns.

4.3.2 90-day Training Plan: Interview and e-Journal Findings

The findings that are outlined in this section are presented using the categories described in Chapter 3. These categories represent a logical construct to make sense of the treatment experience because the experience itself was intended to evoke lifestyle changes for participants. The eight categories were derived from applying the lead researcher's life coaching training and experience, associated with the behaviour change process, to the three theoretical frameworks, namely CALO-RE taxonomy, DVM and CALC reviewed in Chapter 3. The data obtained from the 18 treatment group participants, who provided 12-weekly e-journals (n=10) and participated in two interviews (n=8), is categorized within the eight categories as follows: Self-care inventory, values and purpose discovery, dissonance and resonance, barrier identification, options and action planning, skills acquisition, monitoring and support, and individual outcomes.

The following analysis, within each of these subcategories, narrates the stories of participants' experiences as they lived through the 90-day training plan following completion of the CAC. The behaviour change categories will be described in each section. To enable better understanding of qualitative findings and ensure anonymity, attributions for quotations were labelled to indicate treatment group participant gender (M = male, F = female), the data source (I = interview, J = e-journal) and unique identification number. For example, MJ-25 is male participant number 25, who reported via e-journal. Quotations were chosen for reporting based on how effectively they reflected the category descriptions, how often they occurred in responses, and to represent the range of responses.

Self-care inventory. The Self-care inventory is defined as evidence associated with a person's current state of physical, emotional, mental, and spiritual health. This is an important early step in the behaviour change process and has been popularly characterized as 'taking a look in the mirror'. The information participants obtain from this inventory inform them of facts or truths about themselves of which they may or may not be aware. As participants comprehend the possible implications of negative information, they may be intrinsically motivated to make lifestyle changes. During the CAC, participants were provided with the confidential results and interpretation of three types of self-care evidence:

1. Blood chemistry (High-density lipoproteins, low-density lipoproteins, triglycerides, and fasting glucose).
2. Body chemistry (Height, weight, and percent body fat).
3. A 360 Energy Profile survey that each participant completed for themselves and three to five of their colleagues, friends, or family who also completed a survey about them.

Most of the impact to participants from reviewing their Self-care inventory occurred in the classroom during the review and interpretation by the instructors. Some participants were surprised by the unfavourable information that they received, as reported by these participants:

"...one of the things was taking your blood to determine whether or not you're predisposed for diabetes. It's like, 'Oh, my gosh.'" (FI-114)

"But I mean, numbers that were a little higher than I would have liked them to [be]." (MI-129)

The information given to participants during the CAC motivated some of

them to follow-up with in-depth medical testing after the course to diagnose other conditions, as reported by this participant:

“I booked in to have my hormone levels reviewed and I am hoping that will help as well.” (FJ-141)

One participant, at the end of the 90-day training program, discovered unfavourable check-up results as follows:

“I’ve continued to do my walking but I had a little bit of reality check yesterday because I was back to my family doctor for my regular check-up and the blood sugars were up a little and the expansion around the waist was a little [larger] and she’s saying, you know, ‘You really need to get your handle on that again.’ (FI-114)

To summarize this section, participants were presented with information about their lifestyle choices and interpretations during the CAC that were designed to fuel the behaviour change process. While the above interview excerpts are great examples of physical health, the CAC showed participants that all four energy dimensions are interconnected and physical health is the foundation for the other three dimensions. The following Values and Purpose attributes helped participants attach more meaning to their interpretation of the self-care inventory.

Values and purpose. Values and purpose is a process of discovery that helps a person become more consciously aware of what is the most important to them and ultimately uncovering their overall purpose in life. This step in the behaviour change process was important because it provided participants with the purpose behind starting to change their lifestyle. During the CAC, participants created their new story (i.e., life purpose) and reflected on their personal values to provide purpose and meaning to their lives and their 90-day training mission. The

instructor encouraged participants to rewrite their new story several times during the 90-day training mission in order to internalize it and improve their overall training mission success. Values and purpose sentiments are heard through the following voices of participants as they speak of their aspirations, the impact they desire for their lives, and living a life in alignment with their values.

“I really want to be independent in so many ways. I believe that by building a successful practice, I will have the means and the time to be able to do more for others and for myself; my family, friends, and in my community.” (FJ-108)

“I try to think of what is important in my life (My family and friends) and remember that I have to match my action to what is important to me.” (FJ-134)

“On the personal side, it made me think quite carefully about what's important in my life, where I want to be and am I achieving what I want to be? So...it's looking inwardly and saying, 'What is it I want to be? What do I have to do to get there?'...it's inward focus first and that part, I thought, was very, very important. It's allowing me to make some changes in my life right now for the better.” (MI-133)

One participant, reporting after the 90-day training program, stated the CAC helped them reprioritize and live according to their values:

“[The CAC] sort of dusted off and uncovered things that I believe in and the values that I had already but I've re-prioritized those values and brought them to the forefront and now those values are things I'm living by.” (MI-139)

The CAC's focus on the four dimensions of energy helped participants become conscious of all parts of their lives, as evident from these quotes:

“The CAC allowed me to basically walk through the process of being more consciously aware; spiritually of what I was thinking; mentally, what I was concentrating on; physically, allowing me to make some small changes in my life and emotionally, being more connected to family.” (FI-114)

“You have these four different pieces in your life. No one's really showed it to you that way before. You know, you just live life and you're not really thinking about these separate pieces and are they all in line and balanced,

right?” (MI-129)

To summarize, the process of discovering values and purpose served to fuel the spiritual energy component of participants' energy, as described in the CAC, and establish the internal motivation and drive to begin the changes towards the life they were able to more clearly articulate. The following section on dissonance and resonance touches on what occurred when participants connected their values and purpose with their self-care inventory.

Dissonance and resonance. Dissonance is defined as a person's feelings of tension and discord when their values are being dishonoured. Resonance is a person's feelings of aliveness or power when their values are being honoured. Dissonance shows up in employees with low energy and can negatively impact relationships. One participant gave an example of this as they realized the cost of their low energy on their relationship with their spouse:

“Before [the CAC], if I didn't have to work in the evening, I plopped myself in front of the TV because I had nothing left to give and that's where I stayed. My husband would take the dogs for a walk and he'd be doing other activities and I just wouldn't be engaged with him at all.” (FI-122)

When people feel dissonance and know the reasons why, it can create within them the intrinsic motivation to change the situation. Often these feelings appear as 'aha' moments when participants develop new realizations and understandings. Many participants experienced 'aha' moments during the course that created a dissonance for them:

“[An 'aha' moment was] when I realized that the way I was living and the things I was doing were not aligned with my life mission.” (FJ-134)

“The sitting for six hours a day increases mortality rate [was a] huge 'aha' moment that I needed to get moving more, which is why I focused on exercise.” (FJ-112)

“Oh, my gosh...here I am...I've got a few years left in me yet and if I don't make changes...I'm going to be one of those statistics, which I don't want to be...” (FI-114)

“So grateful to Corporate Athlete because I might have developed another excuse and that might have lasted another 10 years. You know that's scary, right?” (MI-139)

‘Aha’ moments can also create resonance that may help a person establish more meaning with something they already are doing:

“I didn't realize until I was in the course how great a role that fitness is in my life. That was the biggest one [‘Aha’ moment].” (FI-122)

When people feel resonance and know the reason behind the feeling, they often look for more situations that create the same feeling. As one participant stated:

“So my feelings are very positive that I have a constant reminder of what I'm doing and more importantly, why I am doing it?” (MJ-115)

In the following quote, the participant’s euphoric feelings from working out clearly resonated with them and contributed to their intrinsic motivation.

“When I leave the gym and I'm freshly showered and I'm going to start my day, that's the best feeling of the day. That's the best time of the day. I couldn't be more motivated to do something at that point. You'd really have to call me up and say, '<Participant's Name>, somebody just died in your family or something to bring me out of that kind of euphoric feeling that I have.” (MI-106)

Resonance can also help create long lasting positive feelings of self-esteem for participants:

“I feel really good about this [training mission]. I feel more disciplined and productive. It makes me feel good about myself.” (FJ-108)

One participant used a metaphor to describe the positive impact of their participation in the CAC, which in turn brought about a feeling of resonance:

[Interviewer: “What is an image that says how you feel?]. “That would be a plane flying a long distance from say Halifax to Miami, operating at peak

efficiency, under steady power, at the right time, and smooth operation, like a painless flight.” (MI-139)

To summarize, dissonance and resonance are feelings that participants experienced to either motivate them towards making behaviour change (Dissonance) or sustain them to continue their behaviour change (Resonance). The above examples from CAC participants clearly shows how both dissonance and resonance played important roles in the behaviour change process.

Barrier identification. Barrier identification is defined as anything that gets in the way of a person living in alignment with their values and/or life purpose (e.g. the wild boar). This aspect of behaviour change is important because, unless participants know how to deal with these barriers, their change efforts will fail. Participants reported considerable commonality associated with barriers to their 90-day training plan. Barriers included: Injuries, illness, sleep issues, travelling, bad habits, management policies, and family distractions.

Injuries, including: Knee, hip, sprained ankle, back, arm, and elbow strain were reported by many participants that prevented them from participating in movement or exercise activities. The following quote illustrates the frustration caused by the injury and the acceptance of focusing on the recovery process:

“My knee injury, which I got weeks before the training, is annoying me because I want to get into [an] exercise plan but I understand I have to heal first and I am putting my attention to that strategy.” (FJ-110)

Some injuries, however, have significant impacts to the person participating in even the most basic exercises:

“I used to walk all the time but my hip pain has prevented that all of this year.” (MJ-137)

“I sprained my ankle on Saturday night and landed in the hospital for a six

hour stint in emergency.” (FJ-108)

Illnesses were reported by respondents and included a sinus infection, gout, a cold, and hormone issues. The participants spoke to the impact that their illnesses had on their ability to exercise:

“I could not exercise as I had no energy from a sinus infection.” (FJ-134)

“The biggest challenge was a recurring case of gout in my toe, which severely limited my ability to move.” (MJ-115)

“Bad head cold last week - recovered on weekend - relapse on Tuesday - still recovering.” (MJ-137)

The participant with hormone issues was able to find treatment for her problem and you can feel the relief to have this barrier removed in her statement.

“I think the past week was a bit of a turning point for me. Since I started the hormone replacement I feel like that was my missing link.” (FJ-141)

The absence of a good night’s sleep was common barrier identified by several participants and was related to both sleep quantity and quality. The negative impacts of poor sleep are far-reaching in participant’s lives as demonstrated in the following interview excerpts:

“Although I normally sleep well and through the night, there are nights that I lie in bed wide awake until two or three am. This is beyond frustrating for me as I usually can’t function well on less than 7 hours of sleep.” (FJ-110)

“[A barrier for me was] things disrupting my schedule and throwing off my sleep, which throws everything else off.” (FJ-112)

“I was trying to get to bed early every night but some things beyond my control kept me from doing so. (e.g. unable to fall asleep for hours).” (FJ-108)

“There were some social gatherings [while traveling]... [and]...it was difficult to, to stay with it [the training plan] and to get the required amount of sleep.” (MI-106)

Travelling was reported as having a detrimental effect on participant's training plan due to the lack of healthy food choices and availability of exercise facilities. One of the participants admitted that they used not having access to healthy foods while travelling as an excuse:

"Well, I did not do the week as well as I had hoped since I was on the road most of the time and it is difficult to find good food to eat (Not really, but you know...)." (FJ-134)

Another participant found that continuing to exercise while travelling was a challenge:

"The week I travelled, it was difficult to keep up the physical [exercises]." (MI-106)

This participant was similarly challenged as the others above, yet they did not use an excuse and rather found a solution by doing advance planning.

"[A challenge was] making good choices while traveling. It made me plan the trip stops in advance to get good menu choices." (MJ-115)

A few participants were taking the Certified Financial Planner course and preparing for exams and this led to challenges in focusing on their training plan:

"I also have a big exam to study for and I am having difficulty blocking in the time to do that." (FJ-141)

"[I] started my Certified Financial Planner studies, so more hours of things to do, leaving less hours to do the things I would like." (MJ-115)

Bad habits and critical internal voices (e.g. saboteurs – a CTI term) were reported by a few participants as a reason why they were stuck in old unproductive habits. This participant experienced the persistence of their saboteur voices in this quote:

"[I] realize my life has previously been ruled by a lot of fear and unconscious self-medication with food and bad health behaviours...I feel

though...Week three has been worse than the past two weeks because the 'voices' are more insistent and bullying... old habits die hard!!!” (FJ-110)

This participant’s hyper vigilant inner voice from many years ago is creating an irrational barrier around exercise timing and injury risk:

“I’m terrible for working out in the mornings because it seems anytime I’ve ever gotten injured or pulled a muscle, like 10 or 20 years ago, it was always because I was exercising in the morning.” (MI-129)

In the following quote, the participant had a bad habit of procrastination that they wished a genie would take away:

“[My genie wish is...] to take away all my anxiety for the times that I keep procrastinating on.” (MI-106)

There were barriers to success identified by one participant associated with the fact the CAC was positioned as an individual initiative versus a team initiative within the participant company:

“I believe for a bunch of individuals to succeed, you should think like a team and if there was a disappointment [From the CAC experience] it would that it was very much an individual thing and I would like to have seen more team activity.” (MI-133)

Barriers associated with stress in one’s family life was reported by participants as impeding success in their training mission:

“The big thing that’s been preventing me from my overall mission has been aging parents in the family and issues around them.” (MI-106)

“The other [Barrier] is in my personal life. The past month and a half has not been good and very stressful. So that’s affected me quite a bit in terms of being distracted.” (MI-133)

In summary, barriers come in many varieties and should be expected in any change process. The CAC helped participants understand the danger of barriers through the wild boar story and reinforced the aspect of staying focused on the mission (Their values and life purpose). The next subsection of options

brainstorming and action planning demonstrate how participants overcame their barriers to achieve success.

Options brainstorming and action planning. Options brainstorming and action planning is defined as establishing priorities and goals to create a plan that moves a person towards the end state they desire. This component is an important aspect of the behaviour change process as it serves to open up new perspectives for participants and move them towards taking action. Participants provided several examples of goal setting behaviour, action planning, and evidence of achieving their goals related to the key areas of the CAC (Exercise, movement, nutrition, and recovery). One participant provided an example of a goal setting behaviour and stated their intentions to create a more regular exercise routine when they fell short of their expectation:

“I didn’t get in as much exercise as I would have liked to. I plan to exercise every other day starting this weekend, tomorrow.” (FJ-108)

These participants provided good examples of goal setting behaviour that were associated with exercise:

“[I] did begin evening exercise - weights, stretch band. Planning to start personal training in two weeks.” (MJ-137)

“I’ve committed to walking at least half an hour every single day and I have used the rubber band [for resistance training] a little bit.” (FI-122)

“So I go to the gym. I get up a 5:45am, which is an hour before I used to for the last eight years and I’m on game. I go to the gym Monday, Tuesday, Wednesday, Thursday, Friday and I do two aerobic and the resistance training.” (MI-139)

“I think I’m more dedicated on the physical dimension. I’ve been very strict about my exercise routine, which is good.” (MI-106)

Movement was a goal for some participants and this participant mentioned the importance of doing it at work and home.

“I have also been very conscious about moving more during the weekday and at home.” (FJ-108)

In the area of nutrition, some participants reported meal planning was an important aspect of eating more healthily, in addition to eating light and often.

“I need to plan my meals better. Make sure that I'm getting all three areas. The carbs, the proteins, and the fat. I'm putting systems in place, in my life, to just absorb all this stuff.” (MI-129)

“I have been pretty much bang on with my eating habits, trying to eat lightly, and often throughout the day.” (FJ-108)

Recovery was reported as an important focus for many participants and the idea of going to bed early and rising early was a common theme:

“Getting up earlier. I am trying to get to bed earlier.” (FJ-112)

“I will rest more and monitor my activity carefully.” (MJ-105)

“Not feeling good and not getting to bed soon enough. Work on getting to bed sooner.” (FJ-112)

“I think I have to start scheduling exercise and chores into my daily routine and just go to bed at a certain time regardless of what else is going on.” (FJ-108)

Organizing and planning ahead was another common theme expressed by some participants that helped them to establish priorities and keep on track with their goals.

“Because the reality of it is if I'm a better planner in terms of my time, then everything else falls in place, right?” (MI-133)

“Even though my car broke down on Friday and I had to reorganize my appointments, I still went to the gym.” (FJ-141)

“Every morning, I look at what I'm trying to accomplish that day and it is a reminder of what I have to do. Keep asking myself, “Why am I doing this?” (MJ-115)

“To address these challenges, I have daily and weekly plans to stay on track with business and personal goals.” (FJ-110)

One participant reported that the CAC caused him to become more reflective and forward-thinking:

“So in a nutshell, [the CAC] changed me a little bit to be more reflective and to also think forward and say whatever I may accomplish and what do I have to do to accomplish it?” (MI-133)

In summary, change does not occur without action, and options brainstorming and action planning precede taking action. Participants reported many examples of their intentions to take action through goal setting, as well as their accomplishments from taking action. In the next subsection, the skills acquired by participants as they implemented their 90-day training plan are described.

Skills acquisition. Skills acquisition is defined as learning and mastering the necessary competencies and abilities required to achieve desired goals. Acquiring new skills are an important component to sustain success in the behaviour change process. Participants reported performing many of the activities they learned in the CAC in the areas of exercise, movement, nutrition, recovery, journaling, managing relationships, and less multi-tasking. In the area of exercise, many participants reported exercising more frequently and developing the habit of exercising more intensely by engaging in activities like interval training.

“I was never doing interval training before and now I'm doing 20 minutes of interval training every morning.” (MI-106)

“...increased the exercise and the last two weeks after supper, I've just had an abundance of energy and I'm just feeling great about it.” (FI-122)

“I don't think I've got it all figured out yet but I do know that the things that are easy to control, like getting up and going to the gym...making sure that my family duties are done on a routine. Those things I've gotten perfected now.” (MI-106)

“[When I] go on a treadmill machine [since the CAC], I always do interval training.” (FI-126)

Movement was a skill several participants reported to recover and to create energy throughout the work day. Participants implemented several ideas discussed in the CAC in their offices including using a standing desk, programming breaks, and getting out of the office:

“...this is actually my third week of using a standing desk now.” (MI-129)

“I move around more too. I'm very conscious of not sitting in my chair too long. So [I am] moving every 20 minutes or so.” (MI-139)

“I now know how to re-energize myself by movement.” (FJ-108)

“I have become more aware of getting out of my office for a good break through the day.” (FJ-141)

“So now when I'm feeling tired, I can stand up, do a little bit of stretching, and get some energy from the exercises they showed us that you could do right at your desk.” (FI-122)

Using the nutritional knowledge and insight into glucose in the body, several participants reported making better choices about the timing, quality, and composition of their foods:

“...the eating part of it has been phenomenal. I'm just so much more aware of not just the food but just about what I do in the run of a day.” (FI-119)

“...it's always on my mind about what I'm about to eat. Should I be eating this? Is it a want or is this really nutritious for me? So...that's probably the biggest impact...the nutrition part.” (FI-122)

"I do pay more attention to making sure there's protein, extra protein at breakfast..." (FI-126)

"I've learned how to reduce my blood sugar levels naturally by taking fiber and by trying to go for a 15 minute walk after every meal because that can reduce up to half your blood sugar." (FI-122)

One participant reported having more energy by strategically snacking between meals:

"So now I'm actually planning to have snacks every hour and a half to two hours, which gives me an energy boost, and I've noticed a difference. So the nutrition part, that was a big thing." (MI-133)

Recovery was a dominant theme reported by many participants through improved sleep management practices, such as getting to bed earlier and not eating too close to bedtime:

"I did some yoga and have been making strides in getting to bed earlier." (FJ-108)

"Having sleep habits of getting to bed and getting up early makes my day feel better right away." (FJ-141)

"I am getting to bed earlier more consistently. I am moving and exercising more often." (FJ-108)

"I'm trying not to eat very late and getting off caffeine and trying to get to bed early. So the difference during my day now at work is night and day. [My] focus is much better and energy levels are much better. I would say 100% change in both of those." (MI-129)

Planned recovery was a skill taught during the CAC to mitigate against unplanned recovery (e.g., illness and burnout). During the course, one participant demonstrated that they knew how to put themselves first as a priority and took a day off to recover:

"Took a day for myself to take time to reflect and relax." (FJ-134)

Deep breathing was demonstrated in the CAC as an effective method to manage stress and this participant detailed how they combined deep breathing and positive self-talk to better self-regulate and choose a more constructive response:

"I've also incorporated some of the relaxation and the deep breathing. I will stop and take those four deep breaths and cleanse and just say, 'Okay. Let's refocus and get back to the tasks at hand and I think provide myself with a few counter tapes of how you could react versus how you want to react.'" (MI-106)

Some participants sought out additional skills to enhance their CAC experience, as reported by this participant:

"Currently returning home from five days at a yoga teacher training program in Colorado. Learned deeper practices." (MJ-105)

Journaling was a skill that was strongly endorsed by the CAC and participants were encouraged to journal their thoughts and feelings during the course. Some participants kept journaling after the course and the following participant reported benefits in both their personal and work areas:

"I've started to journal my days, so that I know what kind of exercise I'm doing every day. Also how my business progress is going each day, so that I look back and it's easy to forget. So the journal has been a good tool for me." (MI-106)

Some participants reported enhancements in work and family relationships by improving their self-awareness skills to provide more constructive responses to other people:

"I seem to be more aware and have more patience/tolerance and relaxed attitude around client and peer relations." (MJ-105)

"You know what? It's okay that your [daughter] didn't do the vacuuming today...When I get around to it, I can get around to it. It doesn't matter if the dust bunnies are still around for another day, who cares?" (FI-114)

"I am more careful with how I speak and what I say to others." (FJ-108)

Another participant spoke of developing their communication skills and being more vulnerable, yet still assertive, to improve relationships:

"For my personal challenges of talking more about my feelings and opening myself more to a relationship...I have started working on my communication skills. Putting myself first and seeing what is important for me." (FJ-134)

The skill of being present-minded led this participant to being grounded and clear about being responsible for their life:

"I would just say that I think that I'm more accountable to myself and I'm more structured. I guess I'm more present." (MI-106)

Some participants reported being more focused by working on single, prioritized tasks, rather than multi-tasking:

"...prioritizing what matters to me and also, one task. I'm not saying I don't ever multi-task. I'm just getting away from it." (FI-119)

"...I also recognize that I'm not trying to do so much at once. I'm concentrating more on what has to be done. So that, to me, is a revelation in itself..." (FI-114)

Another participant described how the life coach helped them become more effective at saying 'No', which ultimately led to them feeling more valued at work:

"I wasn't a person that could say no. [Now, after the support from my life coach]...I do what I want and when I want, which is a big difference. My assertiveness now in my dual roles [at the office] has me feeling more valued." (FI-119)

This participant learned to take accountability for challenging situations and take action rather than blame others and take no action:

"[Another thing], the CAC did for me was strictly about taking accountability. About me taking responsibility for my success and not depending on other people. What the CAC did was it showed me that whether or not I have support from other people? I had to take control of my life and ask for help or just move on. But doing nothing is not a solution.

You know, the biggest thing I learned is that ultimately, it's up to me.” (MI-133)

In summary, as participants progressed in their 90-day training plan, they acquired and frequently mastered a wide variety of skills that were learned both during and after the CAC. These skills clearly supported participants in moving in the direction of their new story. The next subsection, the monitoring and support aspect in the behaviour change process is described.

Monitoring and support. Monitoring and support is characterized as methods and people that help a person achieve their goals. For example, a structure is a method for helping people remember and take action on what is designated as important and may include a wristband or booking an appointment with yourself. Examples of people-based support include: Exercise partners, coaches, and friends. The types of monitoring and support reported by participants included: social support, coaching support, and CAC support. Several participants reported social support from friends, family, and spouses:

“I have been in regular contact with a friend who will support my mission – sharing the work and my plans and activities day to day.” (FJ-110)

“My wife and I are looking at some kind of exercise regime we can do together but Thanksgiving is upon us, plus her new career, and we are both looking for time together.” (MJ-137)

“My friends and my family are helping me and encouraging me to follow my mission.” (FJ-134)

“I ask my boys, 'What do you think of daddy going to the gym?' 'Daddy, it's great. We like it.'” (MI-139)

Participants also reported receiving social support from colleagues in the office who completed the CAC:

“Those that are around me in the office being more consciously aware, also, of those who have also taken the course with me and...touching base back with them...seeing just little changes that they're making in their days.” (FI-114)

“The seven minute workouts, we're sort of adopting our own little workout here in the office and my associate and I after lunch are, doing the stairs, coming back down and just walking around the building and coming back.” (FI-114)

“Like I mentioned earlier with the other consultants, we talk about issues we're facing. We reflect back on the CAC and say, 'If it wasn't for that, I probably would have had a different perspective.' It's because of that, I'm thinking, I'm more positive about how I do things and that's not just about work.” (MI-133)

The following participants combined spouse support with fitness support to stay on-track with their fitness goals:

“...my wife is flat out too but we both intend to sign up the same personal exercise coach.” (MJ-137)

“...my husband and I joined the Canada Games Centre for the New Year. I can't tell you how wonderful that is...” (FI-114)

Support was a common theme reported by participants who were life coached. Life coaches helped participants see things differently to create new, more effective perspectives:

“In discussion with the 'coach' she got me off of the exercise mindset I was in to consider walking (Connecting the physical and spiritual) to include my spirituality.” (MJ-137)

“Second session with Coach [name] was thought-provoking.” (MJ-115)

Life coaches were also accepting and encouraging, and provided accountability for some participants as follows:

“The CAC is fading a bit but we [Coach & me] are looking for ways to keep it front of mind.” (MJ-137)

“The session with the life coach was the best one yet. Although she is not that much older than me her presence feels motherly to me. She is

accepting and encouraging and I never got that from my own mother.” (FJ-141)

“The highlight [in the last seven days] has been the chat with the personal coach. She reminded me of mash files like I used to keep in previous career.” (MJ-137)

“I would say her best asset was just being encouraging to me and the fact where she wrote everything down and kept a record of everything that we were talking about, then sent me an email on it and followed up on it. It was neat.” (MI-129)

This life coach helped the participant deal with her feelings rather than procrastinate as follows:

“She [the life coach] was just really phenomenal. From her, one of the things that I would say that stands out is for me that, when I have an emotion, not to run from it. To actually stop and think, 'What's this making me think? What's it making me feel?' Because I have a very long-standing habit of, 'Yeah, I'll think about that tomorrow.’” (FI-126)

The CAC provided several structures of support to help participants remember what to do, including: weekly emails with tips and reminders, exercise cards, a wristband inscribed with the phrase ‘Complete the mission’, a coin inscribed with a wild boar and picket fence, books, and a course work book and hand-outs. The weekly emails sent to participants for the 90-day training mission provide explicit action items and access to more CAC resources and the following participant found them valuable:

“I have found them [Weekly emails] absolutely inspirational, as far as the information that they gave us.” (FI-114)

The CAC provided professional exercise cards illustrating and describing proper technique for resistance, interval, and flexibility training that helped participants in their exercise routine:

“Having the exercise cards for weight routines is helpful.” (MJ-105)

The rubber wristband and the medallion provided in the course are simple, nevertheless they evoked powerful emotions for some participants:

“I still wear and frequently touch the black wristband from the CAC - the band that says touch the white picket fence - it helps me get centred and feel enthused about my mission. I really like it.” (FJ-110)

“I keep the coin in my room where I can see it. On my bed, along with my Yoda.” (FI-126)

The books and course material provided support for some participants to remember and deepen their understanding of what was covered during the course as follows:

“I try to keep going back and I'm reading the Corporate Athlete book that they gave us. There's a lot of good information in that. A lot of it resonates what we talked about in the course.” (MI-106)

“I'm still sort of going through the material over and over. I look at the material every two to three days...” (MI-139)

In summary, participants reported many different types of monitoring and support that helped them achieve success. The following subsection outlines the individual outcomes for participants from their investment in their 90-day training plan.

Individual outcomes. Individual outcomes are defined as specific achievements that a person attains from their goals. Participants reported achieving benefits associated with their 90-day training mission in the areas of health and wellness related to the physical, emotional, and mental components; relationships; and in their work. The following participants reported achieving physical and emotional health benefits:

“...my blood pressure has come down from 140 over 90, back down to 120 over 84.” (MI-106)

“Weight is down and positive thinking is up.” (MJ-115)

“I consider myself far better off in health and wellness than I was before the course so I am grateful.” (FJ-110)

“My life has greater hope and direction than before.” (FJ-110)

“[I feel] ...just plain more optimistic. Back to a ‘can do’ attitude.” (MJ-137)

The following participants reported higher levels of energy and reductions in their stress levels:

“...so I've worked a lot on that and I'm finding that my energy level is significantly higher than before I took the course. Significantly... [the CAC has] helped my stress level tremendously.” (FI-122)

“I seem to have a higher level of energy and willingness to take on work challenges.” (MJ-105)

The following participants reported achieving improvements in family relationships:

“I have more energy, so I'm playing with the dogs more. I'm talking to my husband more instead of just sitting there with a glass of wine in my hand.” (FI-122)

“My family life is going much better.” (FJ-134)

“So we never, ever had quality time together to do stuff like that. So now I say, 'Okay. I'm going to get up an hour earlier and let's get out and walk the dogs together and get some fresh air and have a chat in the morning. So that's one little thing that's having a positive impact... spending [quality] time with your family, for sure.” (MI-129)

“Even though I'm doing more work, I seem to have more time for my family... And I look back and I think, you know what? I am in a better place than I was before.” (MI-106)

The following participants reported achieving benefits in their work life, including being more focused and productive:

“I am also as efficient or more at work even if I spend less time at the office.” (FJ-134)

"I had lost focus for a while and what this has done for me now has got the focus back on again. It's forcing me to be more disciplined in how I do things from a work point of view." (MI-133)

"This program has really focused me on activity gets results and energy needs to be managed and you know, if you don't manage it, it will manage you." (MI-106)

"Well, it's given me a better feeling of accomplishment because I feel like my days are more productive and I feel my health has improved..." (MI-139)

"My mental clarity and concentration has probably doubled." (FI-122)

Some participants reported the CAC helped their business become more successful as follows:

"I did get the see the results of some of my hard work in new business coming in the door." (FJ-108)

"Feeling good about myself seems to make everything feel easier. I am continuing to feel like I am blessed at work as well. I signed almost \$200,000 in transfers in two days, and they were easy appointments." (FJ-141)

"My original goal was to energize my business. I'm so busy now I guess that goal has been met." (MJ-137)

"I think I'm doing more activity. I'd like to say I'm getting more results. It's not measureable just yet but I certainly have more in the funnel than I had before and I have more activity coming to me as a result of my activity." (MI-106)

"Oh, yes. The funnel's probably getting larger. I'm quite certain that it is..." (FI-122)

One participant credited the strategies that she learned in the CAC helped her pass her financial planning exam:

"So that [studied, wrote an exam and passed] all happened and that all went well and the focus and the determination, I believe, was as a result of some of the new techniques that I learned from the Corporate [Athlete Course]." (FI-114)

The following participant encapsulates many of the benefits they received from the CAC in the following quote:

“I don't know what has happened with the result of this course but I personally have a better focus on things and a better measure of what needs to get done and I don't seem to be worrying so much now about what people are saying or feeling towards me, I'm not taking it personally. I can't explain it.” (F1-114)

In summary, participants reported a wide variety of individual outcomes they attribute to their 90-day training plan and the overall CAC journey itself. It is noteworthy and significant the outcomes reported validate the comprehensive and holistic design of the CAC. While the course may be labelled as the ‘Corporate Athlete Course’, what participants actually received from taking the course is a better life.

In closing, within this section, was reported the highlights of the experiences from 18 participants over three months as they implemented their 90-day training plan. The eight behaviour change categories were used to describe participant experiences in a logical and meaningful manner. The participant’s experiences served to illustrate and provide initial validation of the discrete and related steps in the behaviour change process. Furthermore, the qualitative data provided enriched understanding of the experiences the CAC successfully evoked that manifested into lifestyle changes for participants.

4.4 Quantitative and Qualitative: Integrated Findings

In this section, in accordance with an embedded experimental mixed methods design, the quantitative (QUAN) and qualitative (qual) findings are integrated to enhance the overall study interpretation (Creswell & Plano, 2007).

The QUAN findings revealed that the CAC had a positive effect on several lifestyle outcomes for the treatment group. In comparison, the qual findings provided insights into the behaviour change aspects that contributed to the positive QUAN effect. The QUAN findings also represent treatment group averages, whereas the primary objective within this section is to explore subgroup effects on variances in treatment effects for individual participants.

The first step was to categorize the qualitative interview and e-journal participants into logical subgroupings for further analysis. The qual findings evidence revealed two key themes about the treatment that participants reported, which facilitated categorization. The first theme was participant commitment level. Participants disclosed varying levels of commitment to their 90-day training plan. Some participants appeared more committed to their 90-day training plan by providing long, detailed responses in their weekly e-journals outlining their many accomplishments, while other participants provided one word answers or no responses at all, indicating they were not moving their 90-day training plans forward. Another possible indication of commitment level were the number of energy dimensions that participants reported from their 90-day training plan. While some participants targeted their efforts on all four energy dimensions, other focused on only one or two dimensions. The second theme observed was the level of stress in participant reports. While most participants were managing varying levels of stress from normal life events (e.g., aging parents, adult children at home, and financial concerns), three of the participants had experienced recent adverse life event or unexpected personal loss.

Three logical participant subgrouping categories emerged from these themes: Highly committed, preoccupied/not Ready, and adverse life event. A total of ten participants from a possible 18 participants were assigned to a category based upon the lead researcher's interpretation of findings, whereas the remaining eight participants were not categorized into a subgroup because it appeared they did not fit into any easily identifiable categories. Overall, six of the ten participants were randomly assigned a life coach across all three subgroups. The highly committed subgroup comprised of five participants, including: Male 115, 129, 139 and Female 110 and 122, where their weekly e-journals and unstructured interviews consistently reported progress in all of the CAC's four dimensions of energy. There appeared to be no other identifiable characteristics these participants had in common except for their on-going commitment and positive response to the treatment program. Participant age, office location, and time employed with ABC Co. were different. Table 8 provides the pre (baseline) and post-study (three months) means for select subscales of individual participants within each of the three subgroups. Treatment group means were provided for comparison purposes.

The highly committed subgroup reported a holistic view of their 90-day training program as shown in this quote from one of its participants:

"...the Corporate Athlete gave me the tools to analyze my output and my body versus just something to follow." (MI-139)

The reported level of commitment of the highly committed group was extraordinary as shown by the following response to an e-journal question about

how participants would sustain progress in their 90-day training plans during the Christmas Holiday season.

“[I will sustain progress in my 90-day training plan by]...Revisiting the Mission many times daily, regular habits to achieve results, planned family and holiday time and rest time - continuing with my regular day to day efforts at good health physically, mentally, emotional - spiritual - stay on the Mission - keep in touch with my supports.” (FI-110)

The highly committed group appeared to bounce-back from setbacks and get back on track with their training program.

“It's been difficult to maintain a positive attitude to keep things progressing towards my goals. The good news is that I do keep persevering and continue to work on myself every day. The written Ultimate Mission and Training Mission statements help to keep a daily reminder of why I'm doing this.” (MJ-115)

The highly committed subgroup quantitative results showed all five individuals reported improvements in time 3 compared to time 1 on the selected subscales, except two participants (MI-129 and FI-122) who maintained the same scores on the subscales of Staying Healthy and Mental Health and two (FI-122 and MI-129) participants who showed declines in THAW-Vitality. There were two participants in this group assigned to CALCs (MJ-115 and MI-129).

The preoccupied/not ready subgroup included two participants, both from the e-journal group, and they provided the lowest number of weekly reports when compared to the other participants (23% response versus 85% response for the group). These participants, for a variety of reasons, lived through circumstances that caused them to become preoccupied on matters that prevented them from focusing on their 90-day training mission. For these people, while they initially reported progress, their efforts eventually succumbed to their life circumstances. Perhaps they were not ready to make the lifestyle changes but it is difficult to

identify the reasons for their lack of progress. Examples of their reports on their weekly training mission highlights include:

"It has been a rough week and I have not kept to my mission very well."
(FJ-112)

"My workout and diet schedule has been disrupted for last three weeks."
(FJ-112)

"Haven't been able to stay on track because of my travel." (MJ-123)

The preoccupied/not ready subgroup quantitative results showed no improvements in time 3 compared to time 1 for the two participants on all selected subscales, except one participant (FJ-112) reported a minor improvement in the Nutrition scale. There was one participant (FJ-112) in this group who was life coached and only completed five of the six sessions.

The adverse life event subgroup contained three participants, all of whom were randomly assigned life coaches, and whose circumstances cannot be described to protect their anonymity. This group shared the fact they experienced personal loss. However, in two cases the loss was sudden and as a result of tragic circumstances. While other study participants may have experienced an adverse life event, they did not reveal this fact to the lead researcher. While the timing of the losses may have varied, all three participants were dealing with and processing their losses during the study period. This subgroup, in spite of their situation, appeared to embrace their 90-day training plan as an opportunity to support them in dealing with their circumstances. This is shown in this response to the question about how they felt about their training mission weekly highlights:

"...unhappy that I lost ground but determined to make up for it." (MJ-111)

One participant expressed that they felt that the CAC came at the right time to support them:

“There's so much going on and so much changing and so many realizations. I mean, that course was one of the synchronicities. Of things just being there for when I needed it and I do, I needed that course. It did make a difference.” (FI-126)

When asked to provide a metaphor for what they got from the entire Corporate Athlete experience, this participant also expressed determination and resilience with this response:

“...the never give up. I'm still putting one foot in front of the other and now I have more direction to where I put them.” (FI-126)

The life coaching was a benefit to these participants in their circumstances:

“During my crisis, she [the Coach} helped me in that area [the crisis], not giving me advice but helping me, understand what choices I have, and what decisions I should make.” (MI-133)

The adverse life event subgroup quantitative results showed all three participants reported improvements in time 3 compared to time 1 on all selected subscales, except one participant (MI-133) who reported declines in Mental Health and Physical Activity-MET subscales. All three adverse life event subgroup participants were assigned a CALC.

In summary, the integration of the quantitative and qualitative findings resulted in the identification of three participant groupings: Highly committed, preoccupied/not ready, and adverse life event. The quantitative data and qualitative data were largely consistent in the finding that the highly committed and adverse life event subgroups showed their participation in the CAC resulted mostly in improvements, and the preoccupied/not ready subgroup showed mostly no improvements or a decline on selected self-report measures during the 90-day

training plan period. This finding was consistent no matter whether participants were assigned a CALC.

Overall, the findings from both quantitative and qualitative data showed participation in a two and a half day comprehensive health-based course made a significant difference to the working and personal lives of Financial Consultants who maintained high levels of engagement and sales productivity during the study period. This finding was consistent no matter whether participants were assigned a CALC.

Table 8 Pre and post study individual means by subgroup category for selected subscales.

Subgroup Category	Thriving – Vitality		Resilience- Managing Stress		Resilience- Staying Healthy		SF-36 Mental Health		Physical Activity - MET		Nutrition	
	M-T1	M-T3 ¹	M-T1	M-T3	M-T1	M-T3	M-T1	M-T3	M-T1	M-T3	M-T1	M-T3
Highly Committed Subgroup:												
MJ-115 (Coached)	3.8	6.0	70.8	95.8	16.7	66.7	50.0	70.0	848	3,933	50.0	57.0
FJ-110	5.8	7.0	50.0	100.0	58.3	83.3	50.0	90.0	792	8,460	48.0	57.0
FI-122	4.8	4.0	75.0	87.5	75.0	91.7	60.0	60.0	6,870	10,398	56.0	60.0
MI-129 (Coached)	6.0	5.6	54.2	62.5	91.7	91.7	70.0	80.0	5,706	6,800	43.0	56.0
MI-139	6.8	7.0	75.0	87.5	66.7	83.3	90.0	100.0	4,266	6,372	54.0	69.0
Preoccupied/Not Ready Subgroup:												
FJ-112 (Coached)	4.4	4.2	79.2	75.0	75.0	16.7	80.0	40.0	690	693	58.0	63.0
MJ-123	7.0	7.0	100.0	100.0	100.0	100.0	90.0	60.0	3,546	1,893	57.0	55.0
Adverse Life Event Subgroup:												
MJ-111 (Coached)	2.6	5.0	58.3	58.3	66.7	83.3	50.0	70.0	396	693	50.0	53.0
MI-133 (Coached)	6.0	6.0	45.8	70.8	66.7	83.3	60.0	20.0	4,194	3,269	34.0	37.0
FI-126 (Coached)	3.8	6.0	50.0	95.8	50.0	91.7	30.0	100.0	306	1,188	50.0	62.0
Treatment Group (n=44)	5.1	5.7	54.4	77.9	56.4	69.9	61.8	73.9	2,328	3,152	49.9	55.0

¹M=Mean; T1=Baseline measurement; T3=Three month measurement

CHAPTER 5 DISCUSSION

This chapter considers the implications of this study's findings associated with WWPs and closes with a discussion of the strengths, limitations, delimitations, and recommendations. Overall, the study findings supported that the treatment group received benefits from the CAC intervention with improvements to thriving, resilience, health, presenteeism, life purpose behaviours, physical activity, and nutrition. Study findings, however, did not support a treatment group intervention effect for productivity or engagement, and were inconclusive for life coaching. An important finding was that a comprehensive two-and-a-half-day workplace health intervention showed a positive effect despite opposing forces that should have reduced its impact. By the end of the 90-day training plan period, participants achieved statistically significant outcomes to their wellbeing, including: increased vitality, improved physical and mental health, increased ability to manage stress, lower productivity loss due to presenteeism, improved life purpose, more time walking and sleeping, and improved nutrition. In short, participants attending a two and a half day health and wellness course experienced many health improvements through implementing lifestyle changes over a three month period.

In the final chapter, the implications of this research are explored within: the contextual factors, the CAC, WWP interventions: Self-report outcome implications, WWP intervention, productivity outcome implications, the discussion on engagement, resilience and thriving, life coaching, strengths, limitations and delimitations, and recommendations.

5.1 Contextual Factors

It is important for researchers to study and report on contextual factors because of the impact that they have on the research findings (Johns, 1991; 2006). To set the stage for a robust discussion on the study findings, the contextual factors are outlined and discussed under the following headings: WWP best practice analysis and additional contextual factors.

5.1.1 WWP Best Practice Analysis

Within this section, the contextual factors will be reviewed using the WWP best practices described in Chapter 2 to assess their influence on treatment effect (Goetzel et al, 2007; Hind & Rouse, 2014; Morrison & MacKinnon, 2008). Notably, only about one-quarter of Canadian organizations have developed a comprehensive WWP strategy, thus the following commentary about ABC Co. was not unexpected (Conference Board of Canada, 2010). As the following compliance to best practices assessment is reviewed, it is important to consider the culture of independence at ABC Co., both in how the different offices operate within Atlantic Canada and in how employees operate within their offices. Although offices operate under a national brand, the local offices have a significant level of autonomy and much of the culture is influenced by the regional leader. Similarly, employees tend to operate as independent business owners, more akin to entrepreneurs than employees in the traditional sense.

There were four WWP best practices identified in the study that may have positively influenced the treatment effect, including: The project champion, the WWP course, incentives, and the established WWP environment. First, a senior leader fulfilled the role of project champion by dedicating commitment to the

project's success (Hind & Rouse, 2014). This person, who had formal authority in only one of several regions that participated in the study, generated interest and support from the most senior leader in the region, convinced peers to participate and fund the study, supported study recruiting efforts, and provided administrative resources to coordinate the course and complete research tasks. The project champion's influence was highly effective in his own region as he possessed formal authority. His influence was less effective in regions led formally by his peers. Second, was the effective delivery of a state-of-the-art theory and evidence-based comprehensive intervention targeting MHBC and lifestyle changes (Hendrie et al., 2012; Hind & Rouse, 2014; Lippke et al., 2011; Soderlund et al., 2009). The CAC, rooted in scientific best practices, was effectively delivered and validated using observation research methods (Johnson & Johnson Human Performance Institute, 2015a). The CAC was planned and designed by an experienced course vendor (Johnson & Johnson Human Performance Institute) and implemented by professional trainers who achieved a high standard of treatment fidelity. The third WWP best practice was the use of an incentive, worth substantial monetary value, to attract participants to the research study (Morrison & MacKinnon, 2008). The treatment group was offered a free course (\$5.2K US value) and life coaching (\$1.2K Cdn value) while the control group was offered a free online course (\$290 US value) in exchange for participating in the research study. While the incentive was mostly effective in the recruiting efforts, the study achieved only 44 of the 66 treatment participant goal and this negatively affected the validity of the life coaching findings. The fourth WWP best practice was an already established basic WWP in the participant

organization (Morrison & MacKinnon, 2008). Although an employee assistance program and a local office Health and Safety committee structure were in place, a strong health culture was not observed among employees during the study. In sum, while these four WWP best practices were observed during the study, three were limited. Specifically, the project champion, incentives, and an established WWP environment were missing attributes that reduced their positive influence on the study results. The strongest WWP best practice observed during the study, having the most significant positive effect on outcomes, was the CAC.

There were six WWP best practices absent from this study's environment that may have negatively influenced the treatment effect, including: stakeholder engagement, business integration, executive support, health screening, communications, and measurement. The first best practice that was missing was the engagement of stakeholders at all levels (Morrison & MacKinnon 2008). While stakeholder engagement was achieved to some degree in the functioning of the employee assistance program and Health and Safety committees, there was no engagement with employees around the CAC and employee participation was not equally encouraged in all regions. Second, the intervention was not part of an overall WWP comprehensive approach that aligned the program with overarching business objectives (Goetzel et al., 2007; Morrison & MacKinnon, 2008). The intervention was ad-hoc and offered as a 'once only' initiative that was not integrated into the core business of the company. Third, strong and visible organizational local management support did not occur across all regions targeted by the study (Hind & Rouse, 2014). At best, with the exception of the region led by the project champion, most regional leaders allowed recruitment of their

employees and passively supported the study, whereas others controlled recruiting communications and one leader actually dissuaded their employees' participation in the study. The senior leader responsible for all the regions approved the study but did not actively communicate his support for it. Given the autonomous nature of the local regions, the senior leader relied on the project champion to resolve conflicts with peers. There were funding conflicts with at least one regional leader that prevented interested participants from attending the CAC. Overall, leader support for the course, beyond the project champion's region, was mostly passive. Fourth, there was no established health-risk screening program in place at ABC Co. followed by counseling and education on how to best use medical or health services for necessary follow-up (Hind & Rouse, 2014). At least two employees dropped out of the study because of concerns about their employer having access to personal health information. Fifth, the communications about the CAC were weak as recruiting sessions were delivered over teleconference, the presenters were not highly effective at convincing a challenging sales audience of the course benefits, and the summer timing was not ideal to maximize participation (Goetzel et al., 2007; Hind & Rouse, 2014). Recruiting email communications, in many cases, were required to be forwarded from the region leader to their employees and it was not feasible to confirm that this was always completed. Last, there was no WWP data collected or rigorous evaluation of programs on the basis of clear definitions of success, as reflected in scorecards and metrics agreed on by relevant stakeholders (Goetzel et al., 2007). In sum, the absence of support from many senior leaders and poor communications may have negatively impacted the results of the study.

Based upon the foregoing WWP best practices assessment, it can be concluded that the autonomous culture at ABC Co, where local regions operate as independent smaller businesses, created varying degrees of leadership and communications effectiveness and likely diminished from the treatment effect. Furthermore, the autonomy factor was a barrier for ABC Co. to exhibit a cohesive and consistent health-based culture. This concern is unremarkable as the vast majority of organizations do not meet the high standards outlined by these WWP best practices with only one-quarter of Canadian organizations offering comprehensive WWP approaches (Conference Board of Canada, 2010). Indeed, what is a most remarkable finding in this study, is that an established and strong health culture did not seem to be a prerequisite to achieving significant improvements in employee health and vitality outcomes. Although an organization with an established health culture and all ten WWP best practices in place should maximize a single treatment effect, this study suggests a comprehensive course alone may be one of the most important considerations. The ability to sustain such improvements may be improved with a positive and supportive health culture; however, exploring how long these changes could be maintained was beyond the scope of the study and could be followed up with a longer time frame in future research.

The important implication of the CAC having effect in the absence of many of the best practices is that organizations who do not have an established WWP approach may more quickly and cost-effectively achieve health-related benefits for their employees. This study showed that a single leader can offer the CAC to their employees, with minimal WWP organizational support, and achieve a

positive effect. On the other hand, it is expected that the maximum CAC effect would be achieved in organizations with a strong and supportive health culture but these environments are not common. The CAC represents an opportunity for leaders to acknowledge the trend towards increased self-care, and consider their employees' health as a priority to achieve improved organizational outcomes and productivity. These findings do not suggest that organizations should ignore the WWP best practices but on the contrary, that the most important best practice is a comprehensive intervention that utilizes multiple BCTs similar to the CAC.

5.1.2 Additional Contextual Factors

In the following section, other contextual factors that may have detracted from the treatment effect are reviewed, including events occurring throughout the study, as well as participant barriers to their 90-day training plan (Johns, 1991; 2006). The complexities encountered in this workplace intervention study led to several factors, which likely detracted from the treatment effect. Perhaps the absence of engagement of all stakeholders (suppliers, employees, and senior leaders) in this study may have contributed to these concerns (Morrison & MacKinnon 2008). After significant planning and coordination efforts, the cancellation of the first course was a major setback that caused the project to lose momentum and led to ongoing commitment and support questions for the second course. Although difficult to determine, the lack of confidence that the course would occur likely affected recruitment efforts and may explain some of the last minute cancellations from participants. Additionally, the timing of the course did not work well for many employees as it was the week following a company recognition conference for high performing employees at a location where people

stayed a few extra days to vacation. As well, one of the local ABC Co. offices was in the midst of a physical move and some participants may have decided not to attend the course for this reason. Finally, the recruiting presentations may not have effectively communicated the CAC, which made it easy for busy sales people not to participate in the study.

Another factor that may have influenced the treatment effect was that several participants reported they implemented ideas learned in the course (e.g., movement activities and recovery breaks) within their local offices, which may have exposed control group participants to the treatment resulting in control group contamination effects (Polit & Beck, 2012). Although it was positive and noteworthy that participants shared the new ideas learned in the intervention with colleagues, these actions may have resulted in lifestyle improvements for the control group and understated the treatment group effect.

The timing of data collection during the Christmas holiday may also have negatively impacted treatment effects. Since many people tend to deviate from their healthy lifestyle routines during Christmas due to obligations and activities, it is likely the treatment effect was understated as several self-report questions asked participants to recall a recent time period when answering the questions (i.e., the last seven days, the past two weeks, the past four weeks).

Many barriers, of varying significance, were reported by participants as impeding their success in their 90-day training plan. The barriers to physical activity and nutrition interventions common in the literature were experienced by study participants (Blackford, Jancey, Howat, Ledger, & Lee, 2012; Freene, Waddington, Chesworth, Davey, & Cochrane, 2013; Rerchert, Barros,

Domingues, & Hallal, 2007) and included: injuries (e.g., knees, hips, and ankles), illness (e.g., colds, sinus infection, and gout), sleep issues (e.g., not enough or poor quality) travelling (e.g., less available nutrition and not enough time to exercise), bad habits (e.g., procrastination, inner critic voices, and self-medication), and family distractions (e.g., aging parents and separation). Additionally, participants were sales professionals who relied on their own initiative for compensation, and were very busy working in their business and many were studying for professional designation exams. Indeed, achieving treatment effect, considering these many personal barriers participants managed through in their 90-day training program, is a significant result.

Despite the collective impact of the foregoing discussion of the factors associated with this study's context, many of which undoubtedly detracted from the treatment effect, it is remarkable the intervention resulted in a positive effect. In the next section, the findings related to the CAC are outlined to better understand why the treatment worked.

5.1.3 The Corporate Athlete Course

The primary aim of this study was to test the efficacy of the CAC in a workplace setting and, ultimately, the treatment had a positive improvement in the lives of the participants. Both the quantitative and qualitative findings showed that many participants made lifestyle changes that resulted in significant improvements in their work and personal lives. Many treatment participants reported improvements in their personal lives, such as family relationships and time for leisure activities. The connection between the CAC and the participant's work was further affirmed as some participants presented their 90-day training

plan to their leaders to demonstrate how they were intending to grow their future business.

A noteworthy finding, not previously reported, was that participants who were interviewed conveyed a high degree of excitement, enthusiasm, and gratitude about their CAC experience and the positive impact that the course had on their lives, even three months after the course. Similar observations could be seen in the e-journal participants' weekly writings. Remarkably, as the 90-day training plan ended, many participants expressed a determination to continue on the health improvement path and set new goals. This suggests the CAC experience may have had a sustained and lasting effect on participants; however, further longitudinal study is required to determine these effects.

What are the conditions within the CAC that led to such a positive impact on peoples' lives and why did it work? There are many elements within the CAC design that contributed to its efficacy. This section argues the single most important element of the course was the combination of many BCTs that created a powerful and meaningful experience for participants. The CAC exposed participants to a wide-ranging number of BCTs that were previously validated in the literature, and the qualitative categorization was effective at identifying the use of BCTs in this study (Hendie et al., 2012; Michie et al., 2011; Soderlund et al., 2009). The extensive emphasis in the course on the old story, new story, life mission, and values aligns with findings from Anshel's (2010) DVM, Cooper et al.'s (2013) resilience work, and Kimsey-House et al.'s (2011) co-active life coaching framework. The positive findings in the Ryff PIL Survey, confirm that the

treatment group was significantly affected by the CAC focus on values, life mission, goal setting, and planning.

Several BCTs resonated with participants and were reported in e-journals and interviews. Participants referred to their old story, new story, and life mission several weeks and months after the course, often framing these concepts as the 'why' behind their change efforts (Anshel, 2010). Many participants reported 'aha' moments during the course that appeared to provide ongoing internal motivation to sustain their change efforts throughout the 90-day training plan period. Other BCTs reported by treatment participants in the qualitative data were organizing and planning ahead, goal setting, regularly reviewing progress towards goals, and making adjustments and journaling; using colleagues, family and friends to support their efforts and provide accountability; using structures as reminders, including the participant's letter to themselves a month after the course, the medallion with the wild boar, the rubber wristband, weekly emails, course written material, and exercise cards; creating new positive habits around sleep, exercise, and nutrition; using deep breathing to relax and manage stress; and learning new skills to take charge of their self-care (Michie et al., 2011; Cooper et al., 2013). Further evidence of increased meaning in life, goal setting behaviour, and planning found in the Ryff PIL Survey support the qualitative findings.

While all activities and BCTs in the CAC were not adopted by every participant, a unique selection of activities and BCTs seemed to resonate with individual participants that contributed to overall treatment effect. In other words, a benefit of the CAC was that there was something of value for every participant. Apparent from the qualitative data reporting was that the scope of adoption of the

CAC strategies varied by participant. Some participants focused their efforts on the majority of areas covered in the CAC, while other participants focused only a few of the areas. Many participants focused on one or two specific energy dimensions (e.g., physical and spiritual or emotional and mental), and may have ignored certain aspects within the other energy dimensions (e.g., resistance or interval training). For example, some participants admitted to not performing any resistance training while intending to build it in to their future plans. Another participant reported increasing their daily walk to a brisker pace but not to the intensity level of interval training learned in the CAC. While the holistic and comprehensive nature of the CAC and the four dimensions of energy appeared to resonate with most participants, when it came to implementation of the CAC principles within their busy lives, most participants chose to focus on select areas of the CAC that were most appealing to their interests. This finding is consistent with literature on the effectiveness of MHBC interventions, which suggests physical activity, nutrition, and BCTs should be combined to improve effectiveness (Lippke et al., 2011; Soderlund et al., 2009). Furthermore, Hendie's (2012) top BCT's in effective interventions, including providing general information on behaviour–health links, prompting practice of behaviour, and planning for social support/social changes were observed in this study. While the comprehensive and holistic aspects of the CAC resonated with participants, an important aspect was that participants were able to customize their training plans to suit their individual circumstances to achieve improved health outcomes.

5.2 WWP Intervention: Self-report Implications

Remarkably, seven out of eight self-report composite scales showed significant effects for the treatment group compared to the control group over the three month study period, thus validating the CAC as a credible and effective health-based intervention. Within this section, the study finding implications of selected individual self-report composite measures is examined. Overall, the CAC participants made improvements in their exercise and nutrition behaviours as shown by the significant effects in the IPAQ and Nutrition scales. The IPAQ findings showed significant treatment effects for more time walking and sleeping, which were topics covered in the CAC. Unexpectedly, because interval training was a key component of the CAC, vigorous and moderate physical activity showed no significant effects. There were two possible reasons for this outcome. First, some participants reported taking a break from their exercise routines during the Christmas holidays, when the data collection occurred, as previously discussed. Second, the IPAQ instrument's conservative outlier instructions may have masked significant effects. Further analysis, adopting a more rigorous outlier method whereby more outliers were excluded ($n=66$), resulted in a significant group by time interaction for Vigorous MET minutes [$F(2.0, 118) = 4.8, p = .010, \eta^2 = .08$] ($n=61$). On average, treatment group weekly Vigorous MET minutes improved more ($M = 520.0, SE = 244.27$) than the control group ($M = -200.0, SE = 234.21$); between baseline and 3 months. There were no significant effects for Moderate MET minutes observed for the more rigorous outlier method. Treatment participants remarkably reported consuming more nutritious levels of fruit, dairy, and fats during the Christmas holiday. The qualitative findings support these IPAQ

and Nutrition scale quantitative findings and provide more validation not found in the scales. For example, participants reported in the qualitative findings completing resistance training exercises, standing more in the office, planning meals and snacks, and strategies used to adopt exercise and healthy eating. Lastly, consistent with the CAC emphasis on movement sitting showed significant effect improvement for the treatment group, however, the results may be biased because the time 2 measurement was taken immediately after the participants spent 2 ½ days mostly sitting in the course.

Engagement did not show significant effect as predicted. A possible explanation for this result was that study participants were already engaged before the treatment and thus, more effort was required to increase their scores. The UWES norm mean total composite score is $M=3.82$, $SD=1.10$ ($n=2,313$) and the average category range is (3.07, 4.66) and the high category range is (4.67, 5.53) (Shaufeli & Bakker, 2003). The treatment and control group study participants' mean scores (refer to Table 2) all exceeded the norm mean score and compared to the higher range of the average category and lower range of the high category norm categories. While this finding suggests the CAC treatment was not effective at increasing engagement for already highly engaged employees, it would be inappropriate to conclude the treatment would not increase engagement for disengaged employees since this condition was not tested in the study. The findings from the UWES Vigour subscale did not show significant effect, as expected, because this subscale compares with both the THAW Vitality and SF-36 Vitality subscales that showed positive effect. The Vigour range score findings were (4.25, 4.60) compared with norm average vigour

range of (3.21, 4.80) and high vigour range of (4.81, 5.60). People that measure high on Vigour usually have much energy, zest, and stamina when working, whereas those who score low on vigour have less energy, zest, and stamina as far as their work is concerned (Shaufeli & Bakker, 2003). This perspective of vigour is supported by the qualitative findings as some treatment participants reported increased energy and willingness to take on more challenges. While it is unexpected vigour did not report significant effect, a possible explanation may be within the survey design. The UWES Survey questions embed the work context within each question (*At my work, I feel bursting with energy; At my job, I feel strong and vigorous*). The THAW Survey questions reference the work context within the instructions and at the top of the survey question section, however work is not referenced within the questions (*I feel alive and vital; I have energy and spirit; I feel alert and awake*). The SF-36 Survey questions make no reference to the work context in the instructions as they ask the participant how they felt and how things had been during the past four-weeks (*Did you feel full of pep? Did you have a lot of energy? Did you feel tired?*). With the work context absent from these questions, participants may have responded considering their whole life, not just their work life. Finally, Paterson et al. (2014) found that it is possible to be engaged and not thriving, which may further explain this study's findings. Further study is required to validate the treatment with employees possessing lower engagement scores and to compare vigour and vitality on similar instruments.

The RAW Managing Stress and Staying Healthy subscales were the most affected by the treatment and the extent of the effect is further validated by the work by Winwood and McEwen (2014) on normative comparisons for Australian

workers (n=933). This study's findings for the treatment group showed the mean increased significantly for managing stress between time 1 (M=54.41, SD=21.34) and time 3 (M=77.94, SD=15.50) and compared favourably to the normative average category range (54, 72) and high category range (73,81); and for staying healthy the treatment group showed the mean increased between time 1 (M=56.44, SD=26.34) and time 3 (M=69.89, SD=26.49) and compared favourably to the normative average category range (55, 77). Furthermore, qualitative findings provided examples of stress and health improvements experienced by participants, and the SF-36 Bodily Pain, Vitality, and Mental Health subscale improvements were consistent with the quantitative findings.

While significant increases were experienced in the managing stress and staying healthy subscales, increases occurred to all five remaining RAW subscales for the treatment group that showed increases between time 1 and time 3, however, the increases were not statistically significant. Interestingly, no treatment group scores were reported below the average category range (- ½ to + ½ SD of the mean). The implications of the finding that the CAC showed improvements to stress management and health are important as workplace stress and employee health continue to trend unfavourably.

5.3 Engagement, Resilience, and Thriving Discussion

Several notable implications emerged from this study associated with the topics of engagement, resilience, and thriving. First, Pearson bivariate correlation analysis confirmed the three variables are correlated with each other. As shown in previous studies, resilience and engagement were highly correlated in this study $r^2 = .45$ (T-1); $r^2 = .56$ (T-2) and $r^2 = .54$ (T-3) as compared to $r^2 = .53$ in the study

by Winwood et al. (2013). This study showed that engaged employees are not necessarily resilient, however, did not confirm resilient employees are engaged. Furthermore, the study showed engagement was highly correlated with thriving $r^2 = .76$ (T-1); $r^2 = .57$ (T-2) and $r^2 = .60$ (T-3), which appears to be the first scholarly study comparing the two variables. The study showed thriving and resilience are highly correlated with $r^2 = .47$ (T-1); $r^2 = .54$ (T-2) and $r^2 = .50$ (T-3). Second, the focus by many larger organizations on the single measure of engagement as a comprehensive people measure may be problematic as it may provide leaders with a perspective that is too narrow. As shown in this study, engaged employees were not highly resilient or thriving yet learned to become more resilient and achieve higher thriving. Leaders only measuring engagement, for example, would not have valuable insight into how their employees are managing stress or their overall health. Collectively, these three measures may provide leaders with a more comprehensive people perspective than any one singularly. Furthermore, the trend among countries to balance economic and wellbeing measures (Anielski, 2001; *Canadian Index of Wellbeing*, 2016; *Gross Happiness Index*, 2016; OECD, 2015; Wilson & Tydemers, 2013), is instructive for organizations to consider to possibly develop a health and wellness measure to balance financial measures. Third, while this study did not provide organizational leaders with an effective intervention to increase engagement, at least with engaged employees, it did show the CAC, a comprehensive WWP course, was an effective intervention to increase resilience and thriving. This finding is significant to organizational leaders, consultant firms and intervention service providers who may struggle with

unhealthy or highly stressed employees. Further study is required to show whether the CAC is effective for disengaged employees.

5.4 WWP Intervention: Productivity Implications

The primary aim of this study was to assess a comprehensive WWP on sales revenue productivity. While the treatment group overall health improved, their sales credits did not increase more than the control group over the six-month study period. On the other hand, treatment group sales credit results did not decline over the study period, which is a positive finding. There were several plausible reasons for this productivity outcome. First, a six-month period may not be enough time to measure the productivity effects of a complex financial services sales cycle. The time required to prospect new clients, finalize the decision making process, and complete the complex investment transfer from a competing institution can be lengthy and more suited to a 12 to 18-month longitudinal study design (Polit & Beck, 2012). Furthermore, the study included the busiest season of the year (Retirement Savings Plan season) when most, if not all, Financial Consultants would be investing their energy heavily in work activities. Second, the absence of WWP best practices and the limited health culture at ABC Co., as previously discussed, may have been a factor in limiting productivity effects from the CAC training. Third, similar to the engagement discussion, treatment participants were already achieving high levels of sales credit results when compared to the control group. In fact, the treatment group sales credit results were higher than the control group for all seven months of the study, and for two months (September and October), the mean differences were statistically higher. It appears high performing employees volunteered for the CAC and were

predisposed to health-related interventions, living a healthy lifestyle and were already achieving the benefits of higher productivity, thus suggesting a selection bias in the study.

Despite the absence of a treatment group sales credit increase as predicted, the subjective evidence from self-report and qualitative findings suggested favourable productivity effects were indeed achieved. Several treatment participants reported being more productive at work. Work-related benefits reported included being more efficient, having more mental clarity and better concentration, doing more activity, being more disciplined, having more business in the sales funnel, energizing their business, feeling more productive, having more energy, and taking on more work challenges than before the CAC. Some participants reported that, although they had not seen measurable business results, they had more business activity than before the CAC, suggesting that more time may be needed for the sales results to materialize. The WLQ also confirmed treatment participants achieved favourable productivity gains from improvements in Time Management and Mental-Interpersonal Demand that showed significant differences when compared to the control group. While subjective and objective productivity instruments have shown correlation in previous studies, Johns (2010) raises concerns about expecting their correlation because they are different measures. The objective measures (e.g., sales credits) are primarily interested in between-employee performance and the subjective estimates, such as the WLQ, reflect within-employee differences. Interestingly, some participants chose to invest their new energy capacity and time in non-work related areas of their lives to reflect their new stories. Accordingly, some

participants may have reduced the time spent doing work but were more productive while completing work activities, which may account for the absence of sales credit effects and the positive findings from the WLQ.

Productivity is multifaceted and includes both short and long-term factors. While this study focused on short-term factors, including sales revenue from new business and presenteeism, longer-term productivity improvements may eventually be realized by ABC Co. The topic of human sustainability through healthier employees has previously been discussed. This study validates how sustainability for high performing sales employees may be created, which is an important finding since these employees contribute disproportionately to organizational performance. For instance, burnout is considered by some scholars to be the opposite of work engagement and is characterized as exhaustion, cynicism, and ineffectiveness (González-Roma, Schaufeli, Bakker, & Lloret, 2004; Maslach & Leiter, 1997). With treatment participants achieving better health outcomes and stress management techniques, perhaps these sales employees who perform in high stress environments, will avoid burnout and ABC Co. will avoid the associated unfavourable productivity costs associated with absenteeism, turnover, recruitment, and lost sales. The implication for employers is that employees can learn to become healthier, resilient employees who are balancing their work and non-work lives, may have better stress management skills to sustain higher work-related performance for longer periods of time, which should be of interest to employers (Winwood et al., 2013). Longitudinal studies are required to validate this assertion.

Another benefit for employers is that employees who are more resilient and engaged provide better overall service to their clients (Harter et al., 2002). In the case of Financial Consultants, it may be important to convey positive and steady energy to potential clients in order to create the necessary conditions for the client to decide to transfer their life savings to the firm. Measuring customer services was not part of this study; however, future studies should consider measuring customer service as this could affect long-term productivity.

Finally, the subject of economic productivity is relevant in this study. While economists are continue developing more rigorous economic productivity measures for preventative health activities, the trend towards measuring health and wellbeing in Canada and other countries demonstrates the interest to improving population health. An effective CAC intervention in a workplace setting thus should be of interest to organizations influencing health policy and preventative health measures.

While this study did not confirm the CAC increased objective employee productivity, future studies should be randomized to remove the selection bias from a volunteer assignment, the study duration should be at least one year to allow for sales cycle considerations and customer satisfaction measures should be included.

5.5 Life Coaching

Life coaching was of interest in this study because it is prevalent in the literature as an effective method to address lifestyle and health issues (Newnham-Kanas et al., 2009; Newnham-Kanas et al., 2011). While the sample size (n=9) was insufficient to determine statistical significance, the qualitative analysis

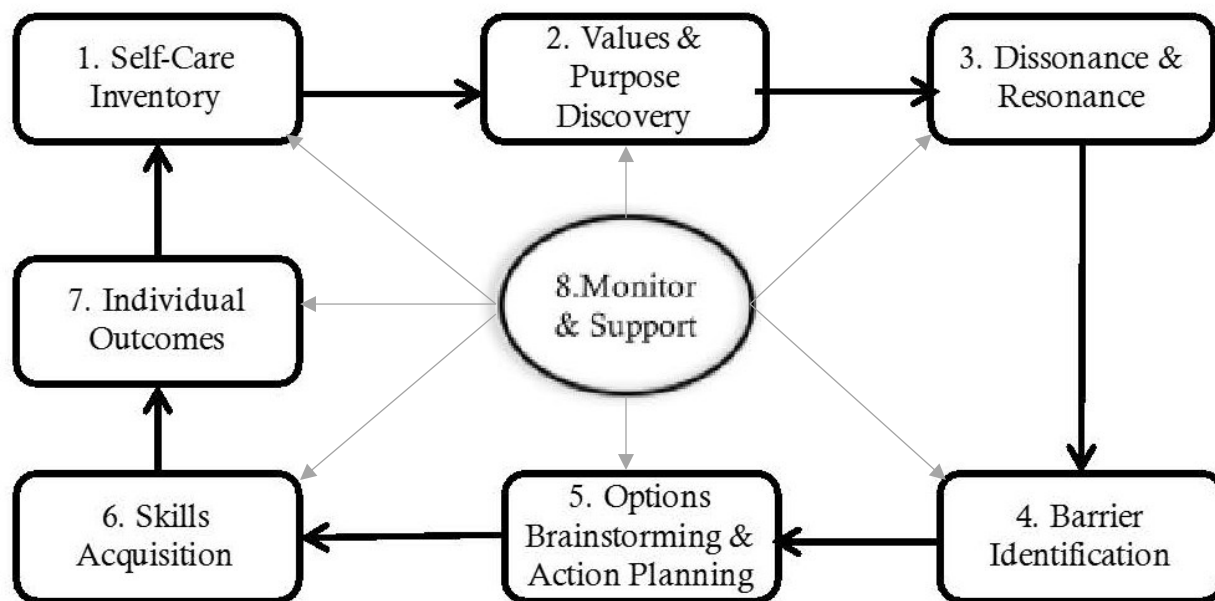
showed life coaching participants had mostly favourable experiences. Most participants reported the encouragement and accountability support throughout the 90-day training program were helpful. Furthermore, participants dealing with recent adverse life events reported receiving a high level of emotional support from their life coaches. Life coaches provided participants with different perspectives and the regular meetings kept the 90-day training program top-of-mind for many life coaching participants. Life coaching was less effective in two cases. In one case, the coach's style and tactics were not a good match for the participant. In another case, the participant did not feel they required coaching support as they were already at a high level of health and fitness and were not making major lifestyle changes. In these cases, where life coaching was not effective, the six required sessions were not completed. While these results are mostly positive and support previous research findings validating life coaching support for health interventions, larger sample sized studies are needed to provide stronger evidence on the effect of life coaching for WWP interventions.

5.6 Proposed Self-care Behaviour Change Model

The theoretical frameworks, reviewed in Chapter 2, were used to create the categorization for the qualitative data and helped in achieving higher levels of treatment fidelity and understanding of the impacts of contextual factors on study results. Individually each framework has limitations. The CALO-RE taxonomy, by the author's admission, is incomplete and the 40 items are already unwieldy for practical application (Michie et al., 2011). Furthermore, an example of behaviours that are missing from the CALO-RE taxonomy are values and life purpose behaviours, which associated with the DVM. Although the DVM framework shows

promise, its scope is too narrow to be applied as a holistic method to categorize behaviour change interventions. The CALC framework, designed as a life coaching methodology and not a theoretical model, does not facilitate coding behaviour change in health interventions. CALC is appealing because it provides a process understanding of behaviour change that may result in a more accurate application in the coding of observed interventions. Combining the strengths of the three frameworks with the life coaching experience of the lead researcher helped in the development of the following proposed framework that practically facilitates accurate coding of behaviour change interventions and overall analysis. The proposed framework, called the Self-care Behaviour Change (SBC) Model, (see Table 9) and has eight categories, as defined on the next page.

Table 9 Self-care Behaviour Change Model.



The SBC Model categories described above are simple, easily understood, and intuitive. Appendix A demonstrates the allocation of the 40 item CALO-RE taxonomy within the eight categories of the SBC. While this study did not validate

the SBC Model, the categories defined by the model provided meaningful examples of the lived experiences of treatment participants as they progressed through their 90-day training plan. There were several points observed about the SBC Model efficacy in the study. First, the eight categories facilitated effective sorting and analyzing of qualitative data. In contrast with the CALO-RE 40 item taxonomy, the more streamlined SBC Model worked effectively, however, it was helpful to refer to the CALO-RE subcategories within each SBC category (Appendix A) to clarify exactly what category best suited the data. Second, the categories were different enough from each other with minimal overlap as there were few instances where data could be placed in multiple categories. Third, although most categories were well detailed with voluminous amounts of qualitative data, some categories were not as thoroughly described. For example, the self-care inventory, which was experienced mainly in the classroom through the 360-degree feedback, blood testing, and BMI measures, did not appear frequently in participant's post-course responses possibly due to recall concerns. Future researchers may want to collect data during the course while participants are closer to the actual experience to provide a better understanding of this category. The values and purpose, and dissonance and resonance categories would also be enhanced with richer responses from data collection occurring during the course. The remaining SBC Model categories mostly unfold and are experienced outside the classroom; thus data collection post intervention is a favorable approach. Future researchers should focus their data collection efforts to maximize participant recall. Fourth, the eight categories appeared to be complete as there were minimal, if any, instances where qualitative data could not

be assigned to a category. Further, all of the qualitative data was able to be assigned to the eight categories. Finally, the SBC Model effectively reconciled and enriched the quantitative intervention results and appropriately described the participant's 90-day training plan experience.

5.7 Strengths, Limitations, and Delimitations

A review of the strengths, limitations, and delimitations of this study will be provided in this section. There were several strengths in this study. The study was strong methodologically with a non-equivalent group mixed methods design including pre, mid and post measures for both treatment and control groups. The treatment and control groups were statistically equivalent on demographic measures except for office location. The methodology was further strengthened by the qualitative methods including observations, interviews and e-journals, which controlled for treatment fidelity and contextual considerations. While the life coaching aspect was not confirmed in this study, the methodological design associated with life coaching is rigorous and should be used in future studies. Second, the SBC Model emerged from this study as a practical research tool for WWP BCT-based interventions. The eight categories effectively fit the breadth of data collected from interviews and e-journals. The resulting analysis using the SBC Model enriched the quantitative analysis to provide contextual insight and rationale for the study results. The SBC Model is rooted in both the theoretical and practitioner literature and further study is needed to validate the model. Third, the lead researcher strengthened the study in three important ways. Firstly, the lead researcher's training and experience in both life coaching and athletic coaching provided in-depth knowledge and understanding that enriched the

interpretation of study findings and analysis. Secondly, the lead researcher chose to be more embedded in the intervention thus building a rapport with participants that resulted in higher quality qualitative data collection. The bond between the lead researcher and participants may have contributed to the high response rates to the self-report survey and the e-journals and led to participants feeling more at ease to be more open and honest in their responses. For some e-journal and interview participants, their comments suggested the lead researcher provided them an ongoing accountability structure that improved their motivation to succeed in their 90-day training plan. Thirdly, the lead researcher's 32-year experience in senior leadership roles in a large national firm provided the necessary skills and abilities to navigate and successfully implement a complex multi-stakeholder workplace intervention.

This study was limited because participants were volunteers and not randomly selected. A true randomized selection from a sample frame of all employees would have controlled for selection bias and improved validity, however, ethical concerns associated with employers doing a mandatory health-related intervention would need to be addressed. The study may be biased by the use of self-reporting measures, however, this limitation was mitigated by the confidentiality of responses, the minimization of highly sensitive survey questions, and the ability to cross-compare responses with qualitative data. The life coaching sample size was insufficient to provide conclusive findings.

Delimitating factors included: the findings are generalizable to Financial Consultants who work in financial services organizations with a highly variable compensation plan linked to sales performance and the six-month duration for

measuring productivity may not have been long enough to show the effect of longer sales cycles.

5.8 Recommendations

The findings from this study have a number of implications for stakeholders. The following recommendations emerged from this research, for consideration by academics and organizational leaders:

- 1. Increase workplace health intervention research.** The positive findings from this study suggest increased investments in workplace health intervention research may provide value to employee and organizational outcomes. Evidence is lacking for effective decision-making associated with WWP interventions in the workplace. This study's findings are not generalizable to every employee and organization, thus future intervention studies should target different scenarios and conditions to validate the CAC effect more broadly. Opportunities for future research include more WWP intervention studies using the CAC and the CAC with CALC that target several different scenarios. First, various roles should be studied to compare with the findings from this study's sales roles, including administrative, technical, and operational roles. However, priority should be placed on studying roles that have accurate and objective productivity measures that help obtain more pertinent evidence for leaders. Second, unionized, management, and non-management employee groups would validate if there are any differences within these common employee categories. Third, public sector organizations, including government and non-governmental organizations, should be studied because they comprise a significant portion of the workforce and these

workplaces have different characteristics than private sector organizations. Fourth, organizations with strong health cultures and established WWP best practices should be studied to determine if the CAC and the CAC with CALC may help provide a greater effect. Fifth, organizations with a higher portion of disengaged employees should be studied to validate the CAC and the CAC with CALC effect on improving engagement with less engaged employees. Sixth, smaller organizations should be studied because they employ a high percentage of the workforce and are less likely to have WWPs. Researchers from academia and industry will need to be creative in convincing, often reluctant, organizational leaders to participate in WWP intervention studies. Organizational leaders who serve on university boards, supplier organizations, or are related to researchers may be best situated to volunteer for these interventions.

- 2. Expand human energy management research.** A further expansion on the recommendation above is to focus more resources on human energy management research. The topic has only a few notable scholars and knowledge could be increased with more research and support for the research. For example, the stakeholders for this study, including the lead researcher, academic committee, Johnson & Johnson, and ABC Co. could collaborate to develop this idea further. Possible areas of study include: The concept of managing employee energy as a resource, further understanding the role of personal resources in the JD-R Model and employee engagement, the validation of the SBC Model as a viable framework for designing and

researching self-care interventions, life coaching for health interventions, and effective approaches to increase engagement, resilience, and thriving.

3. Communicate study results to key stakeholders to maximize knowledge

transfer potential. The findings from this study will be communicated to several audiences, including ABC Co. leaders and study participants and Human Performance Institute leaders, within two months of its defence. It will also be shared through WWP industry and academic conferences and through submissions to leading journals and publications. A summary of this study's findings is planned to be presented at HERO, an industry conference, in September 2016. The lead researcher intends to complete a post-doctoral fellowship to publish the study findings in leading journals in order to maximize the knowledge transfer potential. It is anticipated this study could be published in at least two publications with both a quantitative and qualitative publication. The study findings will be presented to academics who have significantly published in related areas, which should lead to co-authoring opportunities. Specific scholars include: Debra Lerner and Gary Johns (presenteeism), Peter Winwood and Kathryn McEwen (resilience), Wilmar Shaufeli (engagement), and Christine Porath and Gretchen Spreitzer (thriving). In addition, the lead researcher will engage in discussions with public and private sector leaders who influence preventative health policy to influence more funding, study, and experimentation in the WWP area.

4. Methods improvements. WWP intervention studies must strive to be methodologically rigorous to ensure evidence is of high quality for decision makers; however, researchers may be required to compromise their designs in

favour of more intervention studies. The following research design enhancements would improve the overall evidence quality for management decision making purposes: Randomized assignment, which may be achieved by providing the CAC treatment as an incentive for the control group at the end of the study, and possibly using cluster randomization methods by office location to minimize contamination within single office locations; larger sample sizes, which would provide stronger evidence validity and power for overall findings, including for life coaching sub-group analysis; objective measures to enhance findings from subjective measures, including operational measures and other metrics that are accurately tracked at the employee level; mixed methods studies to manage treatment fidelity and contextual issues, and further understand the rationale for why the CAC treatment worked or did not work; longitudinal studies to validate if behaviour changes and short-term productivity effects were temporary or permanent, and to determine if long-term productivity from burn-out and turnover savings is realized.

- 5. Validate the SBC Model.** The SBC Model requires scholarly validation as a framework to evaluate health-related interventions. Specifically, researchers should focus on actual interventions rather than simply reviews of studies by other researchers to validate the SBC Model. To minimize recall concerns, which may lead to validity issues, researchers may consider collecting data as closely to the actual experience by participants of aspects of the SBC Model as possible. In most cases this will require researchers to collect data before, during, and after the classroom training sessions.

6. Implement the CAC for sales people with highly variable compensation.

The findings from this study show that the CAC is an effective workplace intervention in sales environments with a highly variable compensation component, where employees are already engaged, and in organizations without strong WWP cultures. Leaders may be confident in realizing positive outcomes in these work environments; however, other environments, as described in recommendation #1, have not been validated. The cost of the course is greatly reduced if organizations adopt an in-house trainer or utilize the online version; however, this study's findings are not generalizable to either of these approaches since they were not validated in this study.

7. Create a combined engagement, thriving, and resilience measure. This study confirmed the interconnectedness of engagement, thriving, and resilience in the workplace as shown in previous studies. Since this study showed that already engaged employees benefited from taking the CAC with improved life styles, health and stress management skills, this raises questions about the validity that engagement is the positive antithesis of burn-out as suggested by some scholars. Further, engagement is the dominant measure used by organizations as an overall assessment of their human resources and thus, the measure may be too limiting and/or provide leaders with a false sense of security about the state of their people. One of the most significant shortcomings with engagement are the many and varying definitions of the term itself used by scholars and practitioners. The findings from this study may help inspire a comprehensive and meaningful definition of engagement in the workplace that refers to it as whole employee engagement. While there are

overlapping components (e.g., vigour and vitality), there are important unique components within each construct, such as energy, vitality, health, stress management, learning, and finding ones calling, which should be included in the new definition and measure. Scholars within each area of engagement, thriving, and resilience may consider collaborating to develop a single definition and measure to provide a more meaningful metric of people for organizational leaders. Admittedly, no single measure will ever be able to measure everything that leaders want. However, scholars have the potential to make an important contribution to organizations by integrating the knowledge of these three vital organizational areas.

5.9 Conclusion

Scientifically rigorous WWP intervention studies are rare because they are challenging due to varied complexities of the intervention and the complications of a changing environment potentially affecting the intervention outcomes (Goldenhar et al., 2001). This study concludes that the Financial Consultants who participated in the CAC, within a work environment with minimal WWP best practice adherence, successfully implemented lifestyle changes over a three-month time period that improved their lives in several work and personal areas. Overall, the study findings supported that the treatment group received benefits from the CAC intervention with improvements to thriving, resilience, health, presenteeism, life purpose behaviours, physical activity, and nutrition. While not validated in this study, these outcomes may lead to reduced employee burn-out and turnover over a longer time period. While the CAC did not lead to improved treatment group sales productivity as anticipated, their already high sales

productivity did not decline, and favourable results were observed in presenteeism that were supported by qualitative findings.

The CAC curriculum, a blend of Sports Science and BCTs, uniquely focused on managing four dimensions of human energy. It resonated with many participants in meaningful and powerful ways that created intrinsic motivation and resulted in positive lifestyle changes and outcomes. The evidence in this study builds upon the existing evidence base and provides decision makers with clearer justification for investing in WWP courses with similar design characteristics to the CAC, specifically for Financial Consultants and other similar role profiles. The SBC Model emerges from this study as a framework to better understand MHBC health interventions. Future studies should focus on validating the SBC Model, including larger sample sizes to validate the life coaching effect, a longer duration to ensure effective capturing of sales cycle timing, and random assignment of participants to address selection bias.

Finally, this study intended to inspire organizational leaders to look for productivity in a less obvious place, namely through their employee's improved health and energy, and add real meaning to the phrase, "*Our people are our most valued assets.*"

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APPENDIX A CALO-RE Mapped to Self-care Behaviour Change Model

1. Self-care Inventory
 - a. Provide information about others' approval,
 - b. Provide information on consequences of behaviour to the individual
 - c. Provide information on consequences of behaviour in general
 - d. Provide normative information about others' behaviour
2. Values & Purpose Discovery - NA
3. Dissonance & Resonance Exploration - NA
4. Barrier Identification & Problem Solving
 - a. Barrier identification/problem solving
 - b. Fear arousal
 - c. Prompt anticipated regret
5. Options Brainstorming & Action Planning
 - a. Goal setting (behaviour)
 - b. Goal setting (outcome)
 - c. Action planning
 - d. Set graded tasks
 - e. Plan social support/social change
 - f. Prompt identification as role model/position advocate
 - g. Motivational interviewing
 - h. Environmental restructuring
 - i. Relapse prevention/coping planning
 - j. Agree behavioural contract
 - k. Stimulate anticipation of future rewards
6. Skills Acquisition
 - a. Time management
 - b. Prompt use of imagery
 - c. Prompt self-talk
 - d. Stress management/emotional control training
 - e. Prompt practice
 - f. Teach to use prompts/cues
 - g. Model/demonstrate the behaviour
 - h. Provide instruction on how to perform the behaviour
 - i. Provide information on where and when to perform the behaviour
 - j. Facilitate social comparison
 - k. General communications skills training
7. Monitoring & Support
 - a. Prompt review of behavioural goals
 - b. Prompt review of outcome goals
 - c. Prompting generalization of a target behaviour
 - d. Prompt self-monitoring of behaviour
 - e. Prompt self-monitoring of behaviour outcome
 - f. Prompting focus on past success
 - g. Provide feedback on performance
 - h. Use of follow-up prompts
 - i. Prompt rewards contingent on effort or progress towards behaviour
 - j. Provide rewards contingent on successful behaviour
 - k. Shaping

APPENDIX B Corporate Athlete Course Agenda

Day 1

7:30-8:30 AM	Blood Chemistry Analysis & Breakfast	Staff
8:30-9:00 AM	Introduction Performance Coach	
9:00-10:30 AM	Energy Management Technology	Performance Coach
10:30-10:45 AM	Recovery Break	
10:45-12:15 PM	Nutrition for Energy Management	Nutritionist
12:15-12:45 PM	Lunch	
12:45-2:15 PM	Movement for Energy Management	Exercise Physiologist
2:15-2:30 PM	Change for Workout	
2:30-3:30 PM	Resistance and Flexibility Training	Performance Coach
3:30-3:45 PM	Recovery Break	
3:45-5:15 PM	Defining Purpose	Exercise Physiologist

Day 2

7:30-8:30 AM	Blood Chemistry Analysis & Breakfast	Staff
8:30-10:00 AM	Facing the Truth	Performance Coach
10:00-10:15 AM	Recovery Break	
10:15-11:45 AM	Nutrition for Energy Management	Nutritionist
11:45-12:00 PM	Change for Workout	
12:00-1:00 PM	Interval Training	Exercise Physiologist
1:00-1:30 PM	Lunch	
1:30-2:30 PM	Blood Chemistry Results	Performance Coach
2:30-3:00 PM	Body Composition Results	Performance Coach
3:00-3:15 PM	Change for Workout	
3:15-4:00 PM	Dynabands, Body Circuit and Flexibility	Exercise Physiologist
4:00-4:15 PM	Recovery Break	
4:15-5:45 PM	Skillful Storytelling	Performance Coach

Day 3

7:30-8:30 AM	Breakfast	Staff
8:30-9:00 AM	Nutrition & Fitness Planning	Performance Coach
9:00-9:15 AM	Recovery Break	
9:15-10:45 AM	Taking Action Performance Coach	
10:45-11:15 AM	The Journey to Success in Your Mission	Performance Coach
11:15-11:45 AM	The Journey Begins	Staff
11:45-12:15 PM	Lunch	Staff

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Appendix C Life Coaches Letter of Information



Project Title: Comprehensive Self-care Programs in the Workplace – REB# 2014-3276

Lead researcher: Sean Hennessey, PhD Candidate, Dalhousie University,
Sean.Hennessey@dal.ca, 902.434.0279

Other researchers:

Dr. Laurene Rehman, Health & Human Performance, Dalhousie University,
laurene.rehman@dal.ca

Dr. Kevin Kelloway, Department of Management & Psychology, Saint Mary's University,
Kevin.Kelloway@smu.ca

Dr. James Barker, Faculty of Management, Dalhousie University,
j.barker@dal.ca

Dr. Gail Tomblin-Murphy, School of Nursing, Dalhousie University,
gail.tomblin.murphy@dal.ca

Funding provided by: ABC Co., Johnson & Johnson, and Mitacs

Introduction:

We invite you to take part in a research study led by Sean Hennessey, a PhD student at Dalhousie University. The research is explained below - what you will be asked to do and any benefit, risk, inconvenience or discomfort that you might experience. Please ask as many questions as you like. If you have any questions later, please contact the lead researcher.

Purpose and outline of the research study:

The following research study looks to examine comprehensive self-care wellness and life coaching programs and their impacts on employee health, engagement, resilience, thriving, presenteeism, and productivity. At present, there is little evidence on the impact of such programs and no data on Financial Consultants who have taken these programs.

Who can take part in the research study?

You may take part in this study if you are an experienced English-speaking, Certified Professional Co-Active Coach (CPCC) who is interested in supporting Financial Consultants with their health and wellness self-care journey. You are within 2 hours of the Atlantic Time Zone to minimize scheduling conflicts with very busy clients.

How many people are taking part in the study?

We are hoping to recruit about 10 to 12 CPCC Life Coaches to take part in the study to coach ~33 study participants.

What you will be asked to do:

If you agree to participate, you will use your skills to assist your clients (i.e., study participants) with their 90-day self-care plan developed from their attendance at the Corporate Athlete Training Program (CATP), scheduled for late September/early October 2015. The study will run from September 2015 to January 2016. The purpose of the study is to determine the impacts of the CATP on its own, and the CATP with 3 months of life coaching, on employee health, engagement, resilience, thriving, presenteeism, and productivity. You are required to coach 3-4 clients over the telephone for approximately 45-60 minutes every two-weeks for 3 months for a total of 6 coaching sessions per client starting 2 weeks after clients complete the CATP course (~ mid-October). You are requested to record the duration and dates of your coaching sessions and the name of each client and provide this information to the lead researcher after the study is completed. You are encouraged to follow a similar coaching process (e.g., client agreements, discovery, confidentiality, etc.) as you would with your regular new clients but accounting for the 3 month coaching time period. Clients will be randomly assigned to life coaches and will be provided with their life coach's email contact information after the CATP course. Clients will be instructed to initiate contact with their life coach. Life coaches will be required to complete an online/webinar version of the CATP, specifically designed for life coaches, starting in September (possibly before) requiring a 60-90-minute weekly commitment over 4 weeks plus two 90-minute live instructor led webinar sessions scheduled for mid and end of September. The webinar sessions will be recorded and made available as an alternate to the live sessions. Life coaches will be invited to attend a 90-minute teleconference focus group session in early 2016 to discuss observations of their coaching experience, however these details will be provided in a future consent form.

Possible benefits, risks and discomforts:

There are no known risks to participating in this research. However, some of the topics you encounter in your coaching sessions may cover sensitive topics, and you may experience some discomfort in these situations, such as clients displaying signs of a more serious condition than stress. In the event that your clients experience distress from a situation like this, we ask you to refer your clients to the appropriate qualified health professionals. Furthermore, your clients may be starting an exercise program for the first time and may require clearances from their physician depending on their individual health circumstances. It is the life coach's responsibility to clarify coaching role obligations and, if you are providing health advice to your clients, to ensure appropriate waivers are signed.

What you will receive for taking part:

There is no cost to you in taking part in this research study, and there will be no compensation. You will receive for no charge the online/Webinar Life Coaches version of the CATP course, specifically designed for life coaches, valued at \$900 US.

How your information will be protected:

Information that you provide will be kept private. In most cases, only the research team will have access to this information. In some cases, other authorized officials at the University such as the Research Ethics Board may have access as well. We will share our

summary findings with participant company leaders and participants and intend to publish the results in academic journals. We will be careful to talk only about group results so that no one will be identified. This means that **you will not be identified in any way in our reports**. The people who work with your information have an obligation to keep all research information private. To ensure your privacy, we will use a participant number (not your name) in our written and computer records so the information about you contains no names. All your identifying information will be kept in a separate file, in a secure place. All paper files related to the study with identifying information will be held for 6 months and then will be destroyed/shredded. All electronic records will be kept secure in a password-protected, encrypted file on the researcher's personal computer or a Dalhousie University secure server and erased after 7 years.

How to see results:

The results from this study may be shared through scholarly publications and presentations at conferences. We will provide you with a short description of group results when the study is finished. If you wish to receive a copy of the final report for this study, please provide an email address or a mailing address where you would like the results sent.

Questions or concerns:

Please contact Sean Hennessey at 902.434.0279 or by email at Sean.Hennessey@dal.ca or Dr. Laurene Rehman at 902.491.8652 or by email at laurene.rehman@dal.ca if you have any questions or concerns about the study.

This research has been reviewed and approved by Dalhousie University's Research Ethics Board (REB# 2014-3276). If you have any questions or concerns about your rights as a research participant, you may contact the Director, Research Ethics, Dalhousie University at ethics@dal.ca or 1.902.494.1462.

If you want to participate:

Please sign and initial the signature page (page 4 of this document) and provide a scanned copy (only page 4 please) to Sean.Hennessey@dal.ca , or alternatively send via post to the following address, at your earliest convenience:

Sean Hennessey
4 Rosehill Drive
Dartmouth, NS,
B2W 6E5

There are limited spaces in the study and you will be advised via email from Sean Hennessey if you have been either selected for the study or are on the waiting list.

Thank you for your interest in this research study.

Signature Page

Project Title: Comprehensive Self-care Programs in the Workplace - REB# 2014-3276

Lead researcher: Sean Hennessey, PhD Candidate, Dalhousie University,
Sean.Hennessey@dal.ca , 902.434.0279

I have read the details about this study. I have been given the chance to talk about it and my questions have been answered. I agree to take part in this study. I realize that my participation is voluntary.

BY SIGNING BELOW, YOU AGREE TO THE FOLLOWING (Please initial the appropriate response and provide a scanned copy of this page only to Sean.Hennessey@dal.ca):

I agree to take part in this study for no compensation. Yes _____ No _____

I understand the risks of this study, as explained above, and I accept those risks. Yes _____ No _____

I consent to the use of my personal information with the confidentiality protections explained in the form. Yes _____ No _____

I have had enough time to think about this and a chance to ask questions. Yes _____ No _____

Participant Printed Name: _____

Participant Signature: _____ Date: _____

Participant Email Address: _____

Please keep one copy of this form for your own records.

Appendix D Participant & Life Coach Introduction

Hello Study (Participant Name & Life Coach Name),

I am pleased to e-introduce you to each other to start your 3-month life coaching journey!

As a reminder, here's the plan:

- (Participant Name) has been briefed on life coaching and encouraged to share his 90-training plan
- The first 45-60-minute session should take place from now until October 15 and approximately every 2 weeks until six sessions have been completed
- (Life Coach Name) will reach out to set-up the first meeting in the next 2 days
- (Life Coach Name) will provide me a listing at the end of coaching the time and dates of the completed sessions

I wish you two tremendous success in this exciting journey (or shall I say mission)!

All the best,

Sean
Lead Researcher

Appendix E Ethics Approval



Health Sciences Research Ethics Board Letter of Approval

November 04, 2014

Mr. Sean Hennessey
Health Professions/Health & Human Performance

Dear Sean,

REB #: 2014-3276
Project Title: An Assessment of Comprehensive Self-care Programs in the
Workplace: A Mixed Methods Study

Effective Date: November 04, 2014
Expiry Date: November 04, 2015

The Health Sciences Research Ethics Board has reviewed your application for research involving humans and found the proposed research to be in accordance with the Tri-Council Policy Statement on *Ethical Conduct for Research Involving Humans*. This approval will be in effect for 12 months as indicated above. This approval is subject to the conditions listed below which constitute your on-going responsibilities with respect to the ethical conduct of this research.

Sincerely,

Dr. Brenda Beagan, Chair

Appendix F Ethics Renewal Approval



Health Sciences Research Ethics Board Annual Renewal - Letter of Approval

October 19, 2015

Mr. Sean Hennessey
Health Professions\Health & Human Performance

Dear Sean,

REB #: 2014-3276

Project Title: An Assessment of Comprehensive Self-care Programs in the Workplace: A Mixed Methods Study

Expiry Date: November 04, 2016

The Health Sciences Research Ethics Board has reviewed your annual report and has approved continuing approval of this project up to the expiry date (above).

REB approval is only effective for up to 12 months (as per TCPS article 6.14) after which the research requires additional review and approval for a subsequent period of up to 12 months. Prior to the expiry of this approval, you are responsible for submitting an annual report to further renew REB approval. When your project is complete and no longer requires REB approval, please complete a Final Report to close your file in good standing. Forms are available on the Research Ethics website.

I am also including a reminder (below) of your other on-going research ethics responsibilities with respect to this research.

Sincerely,

Dr. Brenda Beagan, Chair

Appendix G Consent Form



Project Title: Comprehensive Self-care Programs in the Workplace – REB# 2014-3276

Lead researcher: Sean Hennessey, PhD Candidate, Dalhousie University,
Sean.Hennessey@dal.ca, 902.434.0279

Other researchers:

Dr. Laurene Rehman, Health & Human Performance, Dalhousie University,
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Dr. Kevin Kelloway, Department of Management & Psychology, Saint Mary's University,
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Dr. James Barker, Faculty of Management, Dalhousie University,
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Dr. Gail Tomblin-Murphy, School of Nursing, Dalhousie University,
gail.tomblin.murphy@dal.ca

Funding provided by: ABC Co., Johnson & Johnson, and Mitacs

Introduction:

We invite you to take part in a research study led by Sean Hennessey, a PhD student at Dalhousie University. Taking part in the study is your choice. Even if you do take part, you may leave the study at any time for any reason. The research is explained below - what you will be asked to do and any benefit, risk, inconvenience or discomfort that you might experience. Please ask as many questions as you like. If you have any questions later, please contact the lead researcher.

Purpose and outline of the research study:

The following research study looks to examine comprehensive self-care wellness and life coaching programs and their impacts on employee health, engagement, resilience and productivity. At present, there is little evidence on the impact of such programs and no data on Financial Consultants who have taken these programs.

Who can take part in the research study?

You may take part in this study if you are a consultant, division director, or associate (without your consultant participating) employed with ABC Co. in NS, NB and PEI, between the ages of 25-65, able to speak and write in English and have access to the Internet. You will need at least 6 months employment with ABC Co. and are expected to remain employed with ABC Co. for the 4 month study period. To participate in the study, you are either intending to participate in the wellness and life coaching programs or you are just interested in participating in the research study and not the programs.

How many people are taking part in the study?

We are hoping to recruit about 99 ABC Co. Financial Consultants, Supervisors, and Directors to take part in the study.

What you will be asked to do:

To help us understand the effect of the wellness and life coaching programs you will be randomly assigned to either the Corporate Athlete Training Program (CATP) on its own (Group 1) or the CATP with 3 months of life coaching (Group 2). Those not taking either program may participate by being in the control group. All participants will be asked to complete a 30-minute survey related to their health and wellness approximately 4 weeks before the CATP course, at 6-weeks and 12 weeks after the CATP course and your ABC Co. business credit information will be provided to the lead researcher. Group 1 and 2 participants only will be observed in the classroom by researchers and asked to complete a 5-minute course feedback survey, and 10 participants (5 from each of Group 1 and 2) will be asked to provide weekly, 5 minute emails on their experience and 8 people (4 from each of Group 1 and 2) will be asked to do two 45-minute personal interviews which will be recorded.

Possible benefits, risks and discomforts:

Groups 1 and 2 will receive for no charge the CATP and, if assigned to Group 2, the life coaching program, valued at \$5.2K US and \$1.5K respectively, to participate in the research study. The control group will receive for no charge an e-course version of the CATP valued at \$300 after the study is completed. You may also enjoy sharing and talking about your experiences with the lead researcher. Your contributions will provide greater understanding of self-care in the workplace and may provide new insights for ABC Co. and other companies to improve employee resilience, engagement, health and productivity. Your personal information will remain confidential to the research team. Your employer will not be informed that you are participating in the study however they will see you attending the CATP course. It will be up to you if you decide to share personal information in the classroom and in interviews. You may choose not to answer any question and can stop any interview without providing a reason.

What you will receive for taking part:

There is no cost to you in taking part in this research study, however there may be costs associated with taking the CATP course including travel, accommodation and meal expenses.

How your information will be protected:

Information that you provide will be kept private. In most cases, only the research team will have access to this information. In some cases, other authorized officials at the University such as the Research Ethics Board may have access as well. We will share our summary findings with ABC Co. leaders and participants and intend to publish the results in academic journals. We will be careful to talk only about group results so that no one will be identified. This means that **you will not be identified in any way in our reports.** The people who work with your information have an obligation to keep all research information private. To ensure your privacy, we will use a participant number (not your name) in our written and computer records so the information about you contains no

names. All your identifying information will be kept in a separate file, in a secure place. The audiotapes will be erased after the discussion has been transcribed. Aspects of your story may be retold and/or particular quotes or items from your CATP classroom comments, weekly emails or interviews may be used however, at no point will your name, or any other identifying information be used. All quotes used will require your written consent. All paper files related to the study with identifying information will be held for 6 months and then will be destroyed/shredded. All electronic records will be kept secure in a password-protected, encrypted file on the researcher's personal computer or a Dalhousie University secure server and erased after 7 years.

If you decide to stop participating:

You are free to leave the study at any time and there will be no fees charged for taking the CATP or life coaching. If you decide to stop at any point during the study, you can also decide if you want any of the information that you have provided up to that point to be removed or if you will allow us to use that information. Decisions about participation or non-participation are private. If you choose to participate and later decide to change your mind, you may stop taking part at any time and do not need to give any reason for doing so. This decision will not harm your employment at all as your employer will not know if you are taking part in the study.

How to see results:

The results from this study may be shared through scholarly publications and presentations at conferences. We will provide you with a short description of group results when the study is finished. If you wish to receive a copy of the final report for this study, please provide an email address or a mailing address where you would like the results sent.

Questions or concerns:

Please contact Sean Hennessey at 902.434.0279 or by email at Sean.Hennessey@dal.ca or Dr. Laurene Rehman at 902.491.8652 or by email at laurene.rehman@dal.ca if you have any questions or concerns about the study.

You will also be provided with any new information that might affect your decision to participate or to continue ongoing participation in the study.

This research has been reviewed and approved by Dalhousie University's Research Ethics Board (REB# 2014-3276). If you have any questions or concerns about your rights as a research participant, you may contact the Director, Research Ethics, Dalhousie University at ethics@dal.ca or 1.902.494.1462

If you want to participate:

Please sign and initial the signature page (page 4 of this document) and provide a scanned copy to Sean.Hennessey@dal.ca , or alternatively send via post to the following address, at your earliest convenience:

Sean Hennessey
4 Rosehill Drive
Dartmouth, NS
B2W 6E5

There are limited spaces in the study and you will be advised via email from Sean Hennessey if you have been either selected for the study or are on the waiting list.

Thank you for your interest in this research study.

Signature Page

Project Title: Comprehensive Self-care Programs in the Workplace - REB# 2014-3276

Lead researcher: Sean Hennessey, PhD Candidate, Dalhousie University,
Sean.Hennessey@dal.ca , 902.434.0279

I have read the details about this study. I have been given the chance to talk about it and my questions have been answered. I agree to take part in this study. I realize that my participation is voluntary and that I am free to leave the study at any time.

BY SIGNING BELOW, YOU AGREE TO THE FOLLOWING (Please initial the appropriate response and provide a scanned copy to Sean.Hennessey@dal.ca):

I agree to take part in this study. Yes _____ No _____

I understand the risks of this study, as explained above, and I accept those risks. Yes _____ No _____

I consent to the use of my personal information with the confidentiality protections explained in the consent form. Yes _____ No _____

I have had enough time to think about this and a chance to ask questions. Yes _____ No _____

I understand that my participation is voluntary and that I can end my participation at any time. Yes _____ No _____

I agree that the researcher may audio-record any interviews with me. Yes _____ No _____

I understand the researcher will require my consent to publish any of my quotations. Yes _____ No _____

I intend to participate in the CATP and/or life coaching programs. (check 'No' to participate in the control group) Yes _____ No _____

Participant Printed Name: _____

Participant Signature: _____ Date: _____

Participant Email Address: _____

Please keep one copy of this form for your own records.

Appendix H Participant Recruitment Email

Subject: Tired of being tired? Sign-up for this exclusive \$5.2K program for FREE

Greetings Consultants & Managers,



Are you tired of being tired?
Burning the candle at both ends?
Struggling with work-life balance?

The Offer:

ABC Co. is being offered a one-time opportunity to access a world-leading 2 1/2 day leadership program. The Human Performance Institute's unique approach to energy management is rooted in over 30 years of science-based research and training with elite performers including Olympic Gold Medalists, military Special Forces, and Fortune 500 CEOs. This program, valued at \$5,200, is available FREE to qualified ABC Co. consultants and managers who agree to take part in a research study starting in January 2015.

Here's what people who have taken the program have experienced:

- more engaged with work and personal life
- increased mental alertness and greater focus
- more resilient
- improved work-life balance
- higher energy, fitness, and frequency of exercise

How you can participate:

There are limited spots available and it's first come, first serve.

Interested? Advise Sandy Smith (Sandy.Smith@ABCCo.com) [pseudonym] who will provide you the details for the upcoming introductory teleconference where you will find out more about the program and the research study. Check-out this [video link](#) for a preview on how to unlock your energy capacity and ignite your full potential at work and in life

See you there!

Jim (pseudonym)

Regional Director-ABC Co.

Appendix I Confidentiality Agreement

CONFIDENTIALITY UNDERTAKING

As part of my duties, I will be working on a research project known as, 'An Assessment of Comprehensive Self-care Programs in the Workplace: A Mixed Methods Study' (also known as 'The Wellness Project').

I have been advised that participant data relating to The Wellness Project are confidential and that potentially participants would suffer significant damage if that confidence is not maintained at all times. Accordingly, I agree that:

- I will not disclose data relating to The Wellness Project with anyone other than those individuals that have been identified to me as being part of the research team.
- I will keep all files relating to The Wellness Project, whether in paper or electronic form, in a secure environment including, whenever possible, in a locked environment and subject to password protection.
- To the extent that I have any questions relating to my obligations to maintain this level of confidentiality, I will seek instructions from Sean Hennessey, Lead Researcher.
- I understand that any breach of these obligations may result in serious consequences and will be grounds for discipline (up to and including termination for cause)

Dated this _____ day of _____ 2015.

Research Team Member Signature

Investigator Signature

Appendix J ABC Co. Employee Recruitment Presentation

Title Slide: Comprehensive Self-care Programs in the Workplace
July 2015

Slide #1: Today's Agenda

- Introductions – Sean Hennessey
- Corporate Athlete Training Program – Dr. Jack Groppel, Wellness & Prevention, Inc.
- Life Coaching – Sean Hennessey
- Research Study Overview – Sean Hennessey
- Questions

Slide #2: Life Coaching Overview

- Trained and/or certified by the Coaches Training Institute with life coaching experience.
- Provide 45-60 minutes coaching over telephone twice monthly for 3 months to 33 employees in Group 2 (\$1.5K per person value).
- Support participants 90-day plan developed in CATP course.
- Life coaches are ethically bound to confidentiality.
- Logistics and other session details are between life coaches and participants in the first session.
- Participants will be advised they are in the life coaching group after attending the CATP.
- Life coaching will stop if you drop out of the study.

Slide #3: Research study agenda

- Purpose and outline of the research study
- Who can take part in the research study?
- What you will be asked to do?
- Possible benefits, risks and discomforts
- How your information will be protected?
- If you decide to stop participating
- How to see results?
- Questions or concerns
- Next steps

Slide #4: Purpose and outline of the research study

- Purpose
 - Determine the effectiveness of the Corporate Athlete and life coaching programs and their impacts on employee health, engagement, resilience, thriving, and productivity.
- Overview
 - 4-month project September 2015 to December 2015
 - 99 ABC Co. employees will take the programs or be part of the control group

- Participants requested to complete online surveys and some people will be requested to complete weekly emails and one-on-one interviews
- All responses are confidential and ABC Co. will not know you have participated in the study

Slide #5: Who can take part in the research study?

- Consultants, Division Directors, & Associates* with ABC Co. in NS, NB, PEI, and NL
- At least 6 months employed with ABC Co. and expected to remain employed with ABC Co. for the 4-month study period
- Study participants will be randomly assigned to one of the following groups after attending the CATP:
 - Group 1 & 2 - intend to complete the 2.5-day Corporate Athlete Training Program (CATP) at the Dartmouth Sportsplex on September 28 – October 2, 2015
 - Group 2 – intend to take 3 months of life coaching starting in October 2015
 - The control group will not take the CATP or life coaching programs
- * For Associates to qualify, their Consultants must not be participating in the study

Slide #6: What you will be asked to do?

- Complete a 30-minute survey three times (90 minutes total) related to employee engagement, resilience, health and wellness.
- 3-4 weeks before attending the CATP course
- At 1-week and 12-weeks after the completing the CATP course
- Be observed by researchers while attending the CATP course
- Complete a 5-minute feedback survey after the CATP course
- 10 people will be asked to complete 12-weekly 3-5 minute (36-60 minutes total) e-journals from October – December 2015 on your experience
- 8 people will be contacted for two personal interviews lasting about 45 minutes each (90 minutes total) that will be recorded
- ABC Co. Business Credits for study participants will be reviewed by the lead researcher to measure the effects of the wellness programs on productivity

Slide #7: Possible benefits, risks, and discomforts

- You will receive for no charge the CATP and, if assigned to Group 2, the life coaching program, valued at \$5.2K and \$1.5K respectively
- Control group participants will receive the Corporate Athlete e-course version for no charge at the end of the study (\$300 value)
- You may enjoy sharing and talking about your experiences with the lead researcher
- May provide new insights for ABC Co. and other companies to improve employee resilience, engagement, health and productivity
- It will be up to you if you decide to share personal information in the classroom and in interviews

- You may choose not to answer any question and can stop any interview without providing a reason
- The lead researcher is a relative of Jim Smith (pseudonym) – ABC Co. Regional Director and is ethically bound not to share any personal information with anyone, including a family member

Slide #8: How your information will be protected?

- Information will be kept private to the research team
- A participant number (not your name) used in our written and computer records
- Your name will not be identified in any way in our reports
- Identifying information will be kept by the lead researcher in a secure place
- Audiotapes will be erased after the discussion has been transcribed
- Only summary findings shared with ABC Co. and publications
- Quotes may be used but you will need to review and approve them before they are used
- Paper files will be held for 7 years and then will be destroyed/shredded
- Electronic records will be password-protected and encrypted on the lead researcher's personal computer or a Dalhousie University secure server
- Your employer will not know you are taking part in the research study as the lead researcher will be selecting productivity data from data sources which include all ABC Co. employees in participating offices

Slide #9: If you decide to stop participating

- You are free to leave the study at any time without reason
- You will be required to stop taking life coaching if you leave the study
- You can also decide if you want any of your information removed from the study
- Decisions about participation or non-participation are private

Slide #10: How to see results?

- Results may be shared through academic publications and presentations at conferences
- Study participants and ABC Co. leaders will receive a summary report of results when the study is finished
- A copy of the final report is available to all participants upon request

Slide #11: Next Steps

- Review and sign consent form (sent via email before this meeting)
- Scan the signed signature page only and email to Sean.Hennessey@dal.ca or return the signed consent form in a sealed envelope to the following address within 5 business days (maintain a copy for your records):

Sean Hennessey
4 Rosehill Drive
Dartmouth, B2W 6E5

Slide #12: Next Steps - continued

- All communication during the study will be via email including:
 - Confirmation of your participation or waiting list – August 31, 2015
 - Online survey #1 – Early September 2015
 - Request for weekly e-journals – Early October 2015
 - Request for one-on-one interviews – Early October 2015
- Attend the CATP course at the Dartmouth Sportsplex either September 28-30 or September 30-October 2, 2015 and/or 6 life coaching sessions October–December 2015 (unless in control group)

Slide #13: Questions or concerns

- Please contact Sean Hennessey at 902.434.0279 or by email at Sean.Hennessey@dal.ca or Dr. Laurene Rehman at 902.491.8652 if you have any questions or concerns about the study
- You will be also provided with any new information that might affect your decision to participate or to continue ongoing participation in the study
 - This research has been reviewed and approved by Dalhousie University's Research Ethics Board
 - If you have any questions or concerns about your rights as a research participant, you may contact the Director, Research Ethics, Dalhousie University at ethics@dal.ca or 1.902.494.1462

Appendix K CAC Postponement Email to Participants

Dear Atlantic Consultants:

Despite our most recent communication with you confirming the times and dates of the Corporate Athlete Course, I must inform you that Human Performance Institute, the organization providing the program, **must postpone the March course** as a result of unexpected further legal requirements that HPI and Sean Hennessey couldn't anticipate. This is mainly because of the uncharted territory of Sean Hennessey's study and the unique relationship HPI has within Johnson & Johnson.

HPI is committed to making this study happen and are deeply sorry for the delay. There is tremendous support for this project within HPI and Johnson & Johnson (the company owning HPI); however, the delay has become unavoidable.

We are now looking to launch the study and reschedule the course within a 90-day window. We are working to secure new dates as soon as possible and will advise you as soon as they are booked. We know that not every date will work for everyone; however, organizers will do their best to find a date to cause the least amount of conflict.

We are still looking for at least 10 more consultants to participate, so while we have this small window of time, please reach out to your colleagues and encourage their involvement.

If you cannot participate in the study, there is still room to participate in the control group as well (3-20 minute only surveys is all you need to do!).

Please confirm that you would like to remain on the distribution list for this program and its updates.

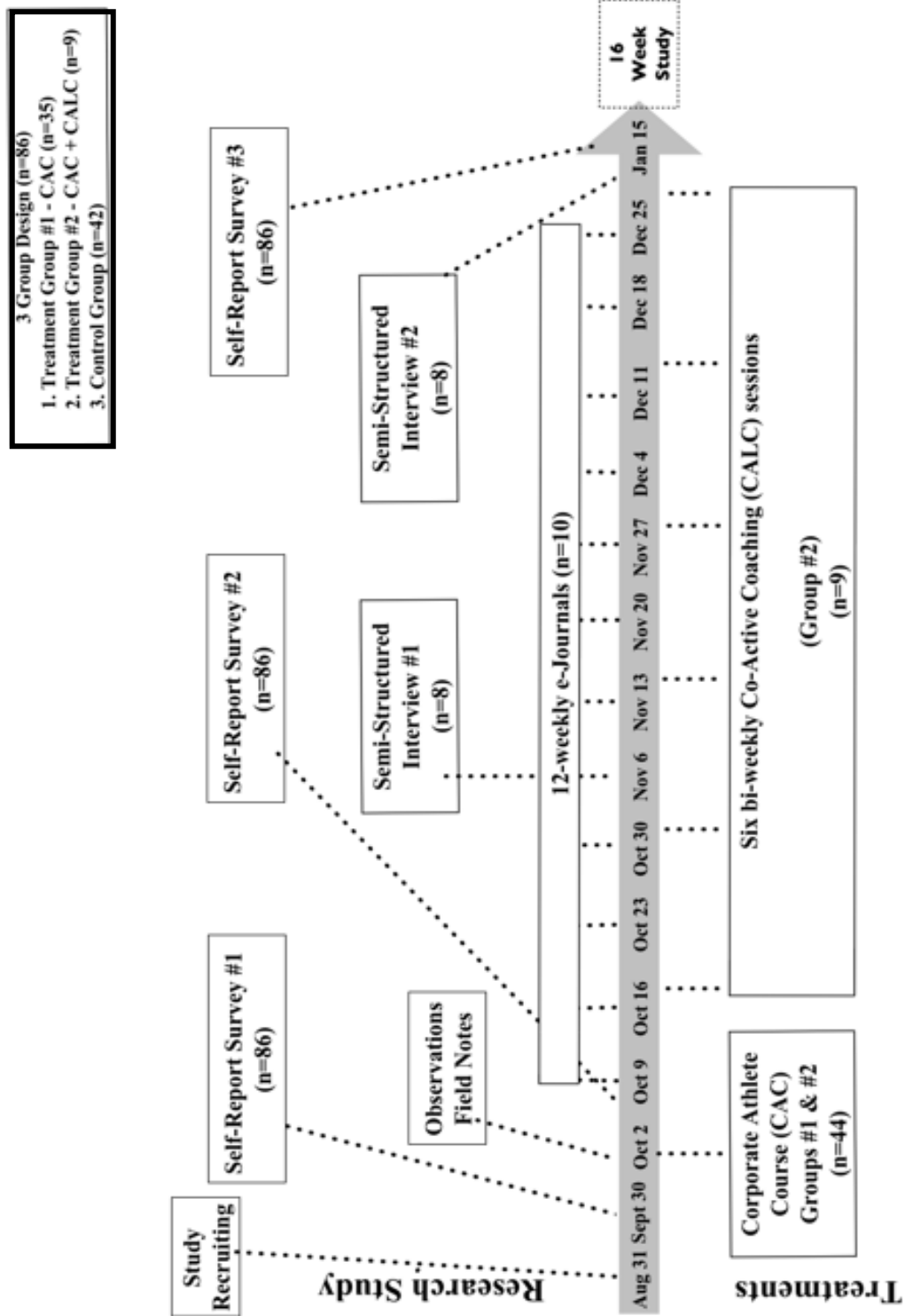
If you have any questions, please do not hesitate to contact me.

Sincerely,

Jim Smith (pseudonym)
Regional Director
ABC Co.

Appendix L

Research Study Overview



Appendix M Demographic and General Information

This survey asks you questions about your health and wellness. Please read each question carefully and select the best answer that applies to you.

Answer all questions even if some questions seem similar. Click the "Back" button to go back and change an answer.

If you are interrupted while completing the survey, simply click the "Save" button and you will be sent an email with a link where you can continue the survey from where you left off.

Name: (Required for interviewing purposes and will not appear in any report)

Preferred telephone number: (Required for interviewing purposes)

Marital Status:

- Married
- Single
- Divorced
- Separated
- Widowed

Which ABC Co. office location do you work?

- Bedford
- Halifax
- Scotia Highlands
- Saint John
- Moncton
- Fredericton
- Corner Brook
- St. John's
- Northumberland Strait

As of September 2015, I have been employed with ABC Co. for:

___years employed with ABC Co.

Gender:

- Male
- Female
- Do not identify as either male or female

What is your age in years?

___years old

What is your highest education level attained?

Less than High School

High School Diploma

Community College Diploma

Undergraduate Degree

Graduate Degree

Do you have a financial industry professional designation?

Yes or No?

Appendix N Utrecht Work Engagement Scale

The following 17 statements are about how you feel at work. Please read each statement carefully and decide if you ever feel this way about your job. If you have never had this feeling, click the button under the ‘0’ (zero) in the box below. If you have had this feeling, indicate how often you feel it by clicking the button under the 1 to 6 that best describes how frequently you feel that way.

	Never 0	Almost Never 1 A few times a year or less	Rarely 2 Once a month or less	Some- times 3 A few times a month	Often 4 Once a week	Very Often 5 A few times per week	Always 6 Every day
1. At my work, I feel bursting with energy							
2. I find the work that I do full of meaning and purpose							
3. Time flies when I'm working							
4. At my job, I feel strong and vigorous							
5. I am enthusiastic about my job							
6. When I am working, I forget everything else around me							
7. My job inspires me							
8. When I get up in the morning, I feel like going to work							
9. I feel happy when I am working intensely							
10. I am proud of the work that I do							
11. I am immersed in my work							
12. I can continue working for very long periods at a time							
13. To me, my job is challenging							
14. I get carried away when I'm working							
15. At my job, I am very resilient, mentally							
16. It is difficult to detach myself from my job							
17. At my work I always persevere, even when things do not go well							

Appendix O Thriving at Work Scale ©

Using the scale below, please answer the following questions in relation to your current experience at work by clicking the button in the box under the number that best applies to you.

At work...	Disagree Strongly 1	Disagree 2	Disagree Slightly 3	Neutral 4	Agree Slightly 5	Agree 6	Agree Strongly 7
1. ...I feel alive and vital							
2. ...I have energy and spirit							
3. ...I am looking forward to each new day							
4. ...I continue to learn more and more as time goes by							
5. ...I do not feel very energetic							
6. ...I am not learning							
7. ...I have developed a lot as a person							
8. ...I feel alert and awake							
9. ...I find myself learning often							
10. ...I see myself continually improving							

Appendix P Resilience at Work Scale

The following statements are about your experiences, behaviours, and attitudes AT WORK. Please indicate the extent to which you agree with them by clicking the button in the box under the appropriate number on the line preceding that item. Please respond with your first, instinctive and honest reaction.

	Strongly Disagree 0	Disagree 1	Slightly Disagree 2	Neither Agree or Disagree 3	Slightly Agree 4	Agree 5	Strongly Agree 6
1. I have important core values that I hold fast to in my work-life							
2. I know my personal strengths and make sure I use them regularly in my work							
3. I am able to change my mood at work when I need to							
4. The work that I do helps to fulfill my sense of purpose in life							
5. My workplace is somewhere where I feel that I belong							
6. The work that I do fits well with my personal values and beliefs							
7. Generally I appreciate what I have in my work environment							
8. When things go wrong at work, it usually tends to overshadow the other parts of my life							
9. Nothing at work ever really “fazes me” for long							
10. Negative people at work tend to pull me down							
11. I make sure I take breaks to maintain my strength and energy when I'm working hard							
12. I have developed some reliable ways to relax when I'm under pressure at work							
13. I have developed some reliable ways to deal with the personal stress of challenging events at work							
14. I am careful to ensure that my work does not dominate my personal life							
15. I often ask for feedback so that I can improve my work performance							
16. I believe in giving help to my work colleagues, as well as asking for it							
17. I have a good level of physical fitness							
18. I am careful about eating well and healthily							
19. I have friends at work whom I can rely on to support me when I need it							
20. I have a strong and reliable network of supportive colleagues at work							

Appendix Q RAND SF-36 Health Survey (Modified)

This survey asks for your views about your health.

Answer every question by selecting the answer as indicated. If you are unsure about how to answer a question, please give the best answer you can.

1. In general, would you say your health is:

Excellent (1)	Very Good (2)	Good (3)	Fair (4)	Poor (5)

The following items are about activities you might do during a typical day. Does **YOUR HEALTH NOW LIMIT YOU** in these activities? If so, how much?

	Yes, Limited a Lot (1)	Yes, Limited a Little (2)	No, Not Limited at All (3)
2. MODERATE ACTIVITIES, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf			
3. Climbing SEVERAL flights of stairs			

During the PAST 4-weeks, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF YOUR PHYSICAL HEALTH?

	Yes (1)	No (2)
4. ACCOMPLISHED LESS than you would like		
5. Were limited in the KIND of work or other activities		

During the PAST 4-weeks, have you had any of the following problems with your work or other regular daily activities AS A RESULT OF ANY EMOTIONAL PROBLEMS (such as feeling depressed or anxious)?

	Yes (1)	No (2)
6. ACCOMPLISHED LESS than you would like		
7. Didn't do work or activities as CAREFULLY as usual		

8. During the PAST 4-weeks, how much did PAIN interfere with your normal work (including both work outside the home and housework)?

Not At All (1)	A Little Bit (2)	Moderately (3)	Quite A Bit (4)	Extremely (5)

The next questions are about how you feel and how things have been DURING THE PAST 4-weeks. For each question, please give the one answer that comes closest to the way you have been feeling.

How much of the time during the PAST 4-weekS...

	All of the Time (1)	Most of the Time (2)	A Good Bit of the Time (3)	Some of the Time (4)	A Little of the Time (5)	None of the Time (6)
9. Did you feel full of pep?						
10. Have you felt calm and peaceful?						
11. Did you have a lot of energy?						
12. Have you felt downhearted and blue?						
13. Did you feel worn out?						
14. Did you feel tired?						

15. During the PAST 4-weeks, how much of the time has your PHYSICAL HEALTH OR EMOTIONAL PROBLEMS interfered with your social activities (like visiting with friends, relatives, etc.)?

All of the Time (1)	Most of the Time (2)	A Good Bit of the Time (3)	Some of the Time (4)	A Little of the Time (5)	None of the Time (6)

Appendix R Work Limitations Questionnaire

Health problems can make it difficult for working people to perform certain parts of their jobs. We are interested in learning about how your health may have affected you at work during the past 2 weeks.

(1) The questions will ask you to think about your physical health or emotional problems. These refer to any ongoing or permanent medical conditions you may have and the effects of any treatments you are receiving for these conditions. Emotional problems may include feeling depressed or anxious.

(2) The questions are multiple-choice. Indicate your answer by clicking the box under the appropriate box.

1. In the past 2-weeks, how much of the time did your physical health or emotional problems make it difficult for you to do the following:

	Difficult all of the time (100%) (1)	Difficult most of the time (2)	Difficult some of the time (about 50%) (3)	Difficult a little bit of the time (4)	Difficult none of the time (0%) (5)	Does not apply to my job (6)
a. get going easily at the beginning of the workday						
b. begin your job activities as soon as you arrive at work						
c. concentrate on your work						
d. speak with people in-person, in meetings or on the phone						
e. handle the workload						
f. finish your work by the expected deadline						

2. In the past 2-weeks, how much of the time were you able to sit, stand or stay in one position for longer than 15 minutes while working, without difficulty caused by physical health or emotional problems?

All of the time (100%) (1)	Most of the time (2)	Some of the time (about 50%) (3)	A little bit of the time (4)	None of the time (0%) (5)	Does not apply to my job (6)

3. In the past 2-weeks, how much of the time were you able to repeat the same motions over and over while working, without difficulty caused by physical health or emotional problems?

All of the time (100%) (1)	Most of the time (2)	Some of the time (about 50%) (3)	A little bit of the time (4)	None of the time (0%) (5)	Does not apply to my job (6)

Appendix S Ryff Purpose in Life Survey

This survey asks for your views about your self-care related to your life purpose, physical activity, and nutrition. Please provide the best answer that applies to you.

Below are 9 statements with which you may agree or disagree in relation to your purpose in life. Using the 1 to 6 scale below indicate your agreement with each item by clicking the button under the number that best applies to you.

	Strongly Disagree 1	Moderately Disagree 2	Slightly Disagree 3	Slightly Agree 3	Moderately Agree 5	Strongly Agree 6
1. I live life one day at a time and don't really think about the future						
2. I tend to focus on the present, because the future nearly always brings me problems						
3. My daily activities often seem trivial and unimportant to me						
4. I don't have a good sense of what it is I'm trying to accomplish in life						
5. I used to set goals for myself, but that now seems like a waste of time						
6. I enjoy making plans for the future and working to make them a reality						
7. I am an active person in carrying out the plans I set for myself						
8. Some people wander aimlessly through life, but I am not one of them						
9. I sometimes feel as if I've done all there is to do in life						

Appendix T International Physical Activity Questionnaire: Short Form

We are interested in finding out about the kinds of physical activities that people do as part of their everyday lives. The questions will ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person. Please think about the activities you do at work, as part of your house and yard work, to get from place to place, and in your spare time for recreation, exercise or sport

Think about all the vigorous activities that you did in the last 7 days. Vigorous physical activities refer to activities that take hard physical effort and make you breathe much harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities like heavy lifting, digging, aerobics, or fast bicycling?

___ days per week (if no vigorous physical activities enter 0, and skip to question 3)

2. How much time did you usually spend doing vigorous physical activities on one of those days?

___ hours per day AND ___ minutes per day

___ Don't know/Not sure

Think about all the **moderate** activities that you did in the **last 7 days**. **Moderate** activities refer to activities that take moderate physical effort and make you breathe somewhat harder than normal. Think only about those physical activities that you did for at least 10 minutes at a time.

3. During the last 7 days, on how many days did you do moderate physical activities like carrying light loads, bicycling at a regular pace, or doubles tennis? Do not include walking.

___ days per week (if no moderate physical activities enter 0, and skip to question 5)

4. How much time did you usually spend doing moderate physical activities on one of those days?

___ hours per day AND ___ minutes per day

___ Don't know/Not sure

Think about the time you spent **walking** in the **last 7 days**. This includes at work and at home, walking to travel from place to place, and any other walking that you have done solely for recreation, sport, exercise, or leisure.

5. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

___ days per week (if no walking, enter 0 and skip to question 7)

6. How much time did you usually spend walking on one of those days?

___ hours per day AND ___ minutes per day

___ Don't know/Not sure

The last question is about the time you spent *sitting* on weekdays during the *last 7 days*. Include time spent at work, at home, while doing course work and during leisure time. This may include time spent sitting at a desk, visiting friends, reading, or sitting or lying down to watch television.

7. During the last 7 days, how much time did you spend sitting on a week day?

___ hours per day AND ___ minutes per day

___ Don't know/Not sure

8. How many hours of sleep do you normally get each night?

I normally get ___ hours of sleep per night

Appendix U Nutrition Survey

Please answer the following questions about your nutrition.

1. How many times each day do you have the following food items?

	Never	Less than 1 Time	1-2 Times	3-5 Times	6-8 Times	9-11 Times
a. Starch (bread, bagel, roll, cereal, pasta, noodle, rice, potato)						
b. Fruit						
c. Vegetables						
d. Dairy (milk, yogurt)						
e. Meat, fish, poultry, eggs, cheese						
f. Fat (butter, margarine, mayonnaise, oil, salad dressing, sour cream, cream cheese)						
g. Sweets (candy, cake, regular soda, juice)						

2. How much water do you drink in a typical day?

I drink ___8 oz. glasses of water daily (If none, enter 0)

THANK YOU FOR COMPLETING THIS SURVEY!



Appendix W E-Journal Email

Hello ABC Co. Study Participant,

This is your first of 12-weekly e-journals that will capture highlights of your 90-day Training Mission experience. The e-journal will be sent late Thursday each week and a reminder email will be sent Saturday afternoon (only if you have not completed the e-journal). You will have until midnight Sunday midnight to respond. The intention is to capture top of mind thoughts to allow you to complete the 3 or 4-weekly questions in a few minutes, however you can write a more lengthy response if you desire. I am hoping you may even enjoy doing it! :-)

Here's your link:

<https://surveys.dal.ca/opinio/s?s=27225&i=785181&k=akb2&ro=>

If you have any questions please email me at sean.hennessey@dal.ca or call me at 902.497.9263.

Thank you for your commitment to this study!

Sean Hennessey, PhD Candidate
Dalhousie Wellness Study

Appendix X E-Journal Questions

E-Journal Instructions:

Please take a few minutes to write freely about your thoughts and feelings experienced in the past 7 days related to your 90-day Training Mission on the questions below:

Here are a few tips. Write freely in:

- point form (brief statements and bulleted points)
- sentences
- stories

Questions repeated every week:

1. Describe your 90-day Training Mission highlights in the past 7 days?
2. What are your feelings about your Training Mission highlights?
3. What were your biggest challenges to your 90-day Training Mission in the past 7 days? What, if anything, do you plan to do to address these challenges?

Questions asked only once:

1. Describe any pivotal or 'aha' moments from the Corporate Athlete Course where you realized you may need to make lifestyle change(s). If none occurred, you may skip the question.
2. What new skills have you learned or improved upon since you took the Corporate Athlete Course?
3. What or who is most supporting you in your 90-day Training Mission?
4. Tell me about how your Ultimate Mission may be influencing your 90-day Training Mission.
5. What is different in your life since taking the Corporate Athlete Course?
6. What is motivating you to focus on your training mission?
7. Describe how the Corporate Athlete experience has impacted your work life?
8. What are your specific plans to sustain your Training Mission commitment during the upcoming Holiday season?
9. What are you most proud of since taking the Corporate Athlete Course?
10. Thinking back on the past 10-weeks since taking the Corporate Athlete Course, what one thing would have made you more successful?
11. How much closer are you to living your Ultimate Mission compared to before you took the Corporate Athlete Course?
12. What are you most grateful for since taking the Corporate Athlete Course?

Appendix Y E-Journal Email Reminder

Hello ABC Co. Study Participant,

This is a reminder to please take a few minutes to respond to the e-journal questions by Monday at midnight at the following link:

<https://surveys.dal.ca/opinio/s?s=27225&i=785565&k=NLu9&ro=>

If you have any questions, please email me at sean.hennessey@dal.ca

Thank you for your commitment to this study!

Sean Hennessey, PhD Candidate
Dalhousie Wellness Study

Appendix Z Semi-Structured Interview Guide

Thank you for agreeing to participate in this study. I am interested in hearing about how your experiences since you have taken the Corporate Athlete Course. This includes what you have been thinking, feeling and doing associated with your 90-day training mission. This interview should take about 30-40 minutes. Do you have any questions before we begin?

1. Tell me about the highlights of your 90-day training mission since taking the course?
Potential prompts: Tell me more about...
What are your feelings about...?
What are your thoughts about...?
Can you think of an image or picture that describes...?
Why does that image resonate with you?
What else?
2. What are the main things that are getting in the way of your 90-day training mission?
Potential prompts: Tell me more about...
What are your feelings about...?
What are your thoughts about...?
What has helped you overcome these....?
3. If a genie were to grant you one wish related to your 90-day training mission, what would you wish for? Why?
4. What new skills have you learned or improved upon since taking the course?
Potential prompts: Tell me more about...
What are your feelings about...?
What are your thoughts about...?
What are you most proud of?
5. Have you experienced any pivotal or 'aha' moments either during or after the course?
Potential prompts: Tell me more about...
What are your feelings about...?
What are your thoughts about...?
Where were you when it happened?
What were you thinking?
How were you feeling?
What has been its impact?

6. Tell me a few highlights of your life coaching experience?
Potential prompts: How is life coaching supporting your self-care? What aspect of life coaching do you like the least?

7. Please tell me the impact the overall Corporate Athlete experience has had on the following parts of your life, on a scale of 1 to 7, with 1 being very unfavourable and 7 being very favourable. Why?
Areas of Life: Your work?
 Your family & friends?
 Your significant other?
 Your health?
 Your personal development?
 Your fun and recreation?

8. Is there anything else about your Corporate Athlete journey you would like to tell me about?

9. Do you have any questions before we finish?

Thank-you for sharing your story and for participating in our study.

Book a time in early January 2016 for interview #2

Appendix AA Supplemental Findings

Omnibus ANOVA. ANCOVA analysis revealed significant effects for Gender by time on Resilience [$F(2,120) = 3.8, p < .05, \eta^2 = .06$] with Females increasing Resilience more ($M = 10.93, SE = 4.06$) than Males ($M = 6.62, SE = 2.55$) and Gender by time for Physical Activity [$F(2.0,120.0) = 3.6, p < .05, \eta^2 = .06$] with Females increasing Physical Activity ($M = 724.72, SE = 825.85$) than Males ($M = -369.00, SE = 472.93$) between baseline and three months.

Thriving at Work (THAW) Scale. Separate repeated measures ANOVAs of the thriving subscales showed significant time effects for Vitality [$F(2,158) = 4.8, p < .01, \eta^2 = .06$].

Resilience at Work (RAW) Scale. Significant time effects were found for the following Resilience subscales: Living Authentically [$F(1.80,142.02) = 4.4, p < .05, \eta^2 = .05$]; Maintaining Perspective [$F(2,158) = 10.0, p < .001, \eta^2 = .11$]; Managing Stress [$F(2,158) = 19.8, p < .001, \eta^2 = .20$]; Interacting Cooperatively [$F(2,158) = 5.8, p < .005, \eta^2 = .07$]; and Staying Healthy [$F(1.87,147.6) = 5.2, p < .01, \eta^2 = .06$].

RAND SF-36 Health Survey (SF-36). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Vitality [$\chi^2(2) = 19.33, p < .001$], Role Emotional [$\chi^2(2) = 10.67, p < .01$], and Mental Health [$\chi^2(2) = 24.48, p < .001$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 0.85$], [$\epsilon = 0.92$], and [$\epsilon = 0.81$] respectively. Significant time effects were found for the following SF-36 subscales: Vitality [$F(1.69, 133.6) = 6.4, p < .005, \eta^2 = .08$]; Role Emotional [$F(1.83, 144.9) = 5.0, p < .05, \eta^2 = .06$] and Mental Health [$F(1.62, 128.2) = 4.4, p < .05, \eta^2 = .05$].

Work Limitations Questionnaire (WLQ). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Output Demands [$\chi^2(2) = 12.86, p < .005$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 0.90$]. Significant time effects were observed for the Presenteeism subscales for Output Demands [$F(1.79, 141.7) = 3.8, p < .05, \eta^2 = .05$].

International Physical Activity Questionnaire - Short Form (IPAQ-SF). The omnibus ANOVA confirmed the WWP course had significant effects on physical activity for both groups with time effects [$F(2.0, 120.0) = 5.3, p < .01, \eta^2 = .08$]. Significant time effects were observed for Vigorous Activity [$F(2,112) = 3.9, p < .05, \eta^2 = .06$]; and Sitting [$F(1.77, 99.2) = 3.2, p = .05, \eta^2 = .06$].

Nutrition Survey (NUTS). Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Starch and Grains [$\chi^2(2) = 8.90, p < .05$] and Water [$\chi^2(2) = 17.0, p < .001$] and required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity of [$\epsilon = 0.93$] and [$\epsilon = 0.86$] respectively. Significant time effect was found for Starches and Grains [$F(1.87, 147.6) = 4.1, p < .05, \eta^2 = .05$]; Fruits [$F(2,158.0) = 8.4, p < .001, \eta^2 = .10$]; Fats [$F(2,158.0) = 3.5, p < .05, \eta^2 = .04$]; and Water [$F(2,136.3) = 9.8, p < .001, \eta^2 = .11$].

Life Coaching. Using Pillai's trace as the criterion, the combined dependent variables showed significant effect between treatment and control groups over the 3 time periods of the study, Pillai's trace = .442, [$F(18,194) = 3.05, p < .001, 1 - \text{Wilk's lambda} = .396$]. Mauchly's Test of Sphericity indicated that the assumption of sphericity had been violated for Presenteeism - Productivity Loss [$\chi^2(2) = 7.2, p < .05$] and Physical Activity [$\chi^2(2) = 6.9, p < .05$] and both required degrees of freedom corrections using the Huynh-Feldt estimates of sphericity [$\epsilon = 1.0$]. Significant effects were observed for the following composite scales: Thriving for group by time interactions [$F(2,104) = 4.1, p < .05, \eta^2 = .07$]; Resilience for group by time interactions [$F(2,104) = 6.8, p < .005, \eta^2 = .12$]; Presenteeism - Productivity Loss for group by time interactions [$F(2.0,104.0) = 4.4, p < .05, \eta^2 = .08$]; Purpose in Life for group by time interactions [$F(2,104) = 4.5, p < .05, \eta^2 = .08$]; Physical Activity for time effects [$F(2.0,104.0) = 4.7, p < .05, \eta^2 = .08$] and group by time interactions [$F(2.0,104.0) = 4.1, p < .05, \eta^2 = .07$]; and Nutrition for group by time interactions [$F(2,104) = 6.7, p < .005, \eta^2 = .11$]. ANCOVA analysis revealed significant effects for Gender on Resilience [$F(2,104) = 3.2, p < .05, \eta^2 = .06$] and Physical Activity [$F(2.0, 104.0) = 3.5, p < .05, \eta^2 = .06$]. In addition to the original omnibus analysis, the following covariates showed significant effects for Marital Status on Purpose in Life [$F(2,104) = 5.1, p < .01, \eta^2 = .09$]; Years Employed on Purpose in Life [$F(2,104) = 3.4, p < .05, \eta^2 = .06$]; and Age on Physical Activity [$F(2.0,104.0) = 4.7, p < .05, \eta^2 = .08$].

Sales Revenue Findings. Using Pillai's trace as the criterion, sales credits showed significant time effect increases for treatment and control groups over the study period, Pillai's trace = .198, [$F(6,156) = 6.8, p < .001, 1 - \text{Wilk's lambda} = .198$]. This result showed the sales credit increases occurring in time 6 (February) and time 7 (March), which is driven by Canadian tax law pertaining to the March 15 cut-off date for the purchase of registered investments.