

Self-compassion and the self-regulation of exercise: Reactions to failure, fear of self-compassion
and gender differences

By

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Abstract

Self-compassion facilitates health behaviour self-regulation but only a few studies have examined self-compassion and exercise self-regulation. This online, cross-sectional study investigated self-compassion's relationship with exercise self-regulation in the context of an exercise failure and examined fear of self-compassion relative to the pursuit of exercise goals and gender differences. Adults (N = 105) who had experienced an exercise failure within the last six months completed baseline measures, recalled an exercise failure and completed questionnaires to assess self-regulation in this context. Self-compassion was negatively related to external motivation and state rumination after controlling for self-esteem. Self-compassion predicted unique variance, beyond self-esteem and age, in exercise goal re-engagement and negative affect experienced after an exercise failure. Exercisers reported low fear of self-compassion regarding self-regulating their exercise. Men reported slightly higher levels of self-compassion than women (N = 125). This research adds to the few studies that examine the role of self-compassion in exercise self-regulation.

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Chapter I

Introduction

Exercise offers multiple health benefits including reduced morbidity and mortality risk (Lee, Artero, Sui, & Blair, 2010) and favorable physiological, psychological and biochemical changes, all of which can improve an individual's level of physical fitness and health (Garber et al., 2011). However, only 15% of Canadians engage in levels of exercise that are sufficient to achieve these benefits at 150 minutes a week (Colley et al., 2011). This widespread lack of exercise does not only pose risks to inactive individuals, but also has societal repercussions. Numerous chronic diseases, such as hypertension and diabetes have a large economic impact. The estimated cost of low exercise adherence rates to the Canadian economy in 2009 was \$6.8 billion, which represented 3.8% of overall health care costs (Janssen, 2012).

Low exercise adherence rates and the associated large economic health spending have led researchers to examine ways to make exercise more manageable and attractive to Canadians, in an effort to improve adherence. Some researchers focus directly on individuals' ability to self-regulate exercise. Self-regulation is the capacity of an individual to manage emotions, thoughts and behaviours in order to achieve a desired goal (Van Damme, Crombez, Goubert, & Eccleston, 2009) and alter behaviour (Baumeister & Vohs, 2007). Therefore, being able to adaptively self-regulate is central to behaviour change (Baumeister & Vohs, 2007). Specifically, adaptive self-regulation is pertinent to exercise adherence (Buckley et al., 2014; McAuley et al., 2011). Self-regulating a complex behaviour - such as exercise, so that one maintains an active lifestyle is challenging (Mermelstein, & Revenson, 2013). To successfully self-regulate exercise, individuals need to create a clear and reasonable goal (a standard), observe their progress

towards that goal and notice when discrepancies arise (monitor). When discrepancies are brought to one's attention, individuals need to take reparative action to achieve the standard state (operate; Baumeister & Heatherton, 1996). Unfortunately, individuals' attempts at self-regulation can be impeded when they fail to engage in any of these self-regulation steps (Baumeister, Heatherton, 1996).

In light of the central role that self-regulation plays in exercise adherence, researchers have directed their interest to variables that impact self-regulatory efforts (de Ridder & de Wit, 2006). Among these variables, self-compassion, or treating oneself with kindness during times of challenge (Neff, 2003b) has been advanced as a variable associated with the adaptive self-regulation of health behaviours (Terry & Leary, 2011). Recently, researchers recognize that the self-regulatory benefits of self-compassion may be practically relevant in understanding sport and exercise behaviour. Most of these researchers have investigated the role of self-compassion among high school and university students in a sport context (Mosewich, Kowalski, Sabiston, Sedgwick & Tracy, 2011; Mosewich, 2013; Reis, Kowalski, Ferguson, Sabiston, Sedgwick & Crocker, 2015) and a few have examined self-compassion and exercise (Magnus, Kowalski & McHugh, 2010; Sirois, Kitner & Hirsch, 2015; Sirois, 2015). These studies point the self-regulatory benefits of self-compassion in sport and exercise contexts (Magnus et al., 2010; Mosewich et al., 2011; Mosewich, 2013; Reis et al., 2015; Sirois, 2015). However, only three studies, to my knowledge, have examined the role of self-compassion in a general exercise context. A greater understanding of the role of self-compassion in the self-regulation of exercise seems appropriate given claims (and early evidence) that this variable can positively impact successful exercise self-regulation (Sirois et al., 2015).

In the remainder of this chapter, I will review the literature beginning with a clear conceptualization of self-compassion and how it is distinct from global self-esteem. Next, I will review self-compassion's role in self-regulation in both the general and exercise context. Topics in this section include goal motivation, goal re-engagement, and regulating emotions. Next, I will provide an overview of the fear of self-compassion and improvement motivation. Lastly, I will discuss how self-compassion is relevant to each gender and review research that compares self-compassion levels among men and women. Finally, I will provide measurement considerations relative to self-compassion.

Literature Review

Self-Compassion

Self-compassion is the ability to be kind to oneself in the face of failure (Neff, 2003b). Although this construct originated centuries ago in Eastern philosophy, self-compassion is a relatively new concept in the West. This construct is composed of three facets: self-kindness versus self-judgement, common humanity versus isolation, and mindfulness versus over-identification or avoidance (Barnard & Curry, 2011; Neff, 2003a) and researchers have demonstrated stable differences in people's natural tendencies towards self-compassion (Neff, 2003a).

Self-kindness occurs when individuals respond to their flaws with gentleness and support instead of with harsh judgment and self-criticism (Neff, 2003b). This aspect of self-compassion involves acting with forgiveness, warmth and patience towards all of one's actions and thoughts (Gilbert & Irons, 2005; Neff, 2003a). It is an unconditional kindness with which one acknowledges that even in the face of failure one deserves affection, love and happiness

(Barnard & Curry, 2011). In contrast, self-judgment and self-criticism involve being hostile to one's self (Neff, 2003a) and are characterized by negative appraisals of the self (loss of self-approval due to failing to live up to standards; Powers et al., 2011). For instance, if an individual was self-critical or judgmental about their failures or inadequacies they would ruminate about the inadequacy, be focused on avoiding situations that would highlight their inadequacy and experience more negative affect when experiencing a failure (Powers et al., 2011).

Common humanity is the ability to recognize all humans (including oneself) are imperfect and individuals are not alone in experiencing imperfection, pain and suffering (Neff, 2003b; Neff & Vonk, 2009). That is, we are all connected in our sorrows, weaknesses and times of distress (Barnard & Curry, 2011). The opposite of judging oneself through a lens of common humanity is exhibited when, in times of pain and suffering, individuals isolate themselves because they feel they are alone, no one understands their pain and therefore they are different (Barnard & Curry, 2011).

Mindfulness, a third aspect of self-compassion, is the ability to be aware of the present moment in a clear and balanced manner (Neff, 2003b; Neff & Vonk, 2009). Mindfulness also involves acting in an affectionate manner to one's present experience (Kabat-Zinn, 2003). People tend to focus on and either ruminate about or distract themselves from their faults, mistakes or negative emotions. When being mindful, individuals are able to observe and label their thoughts and emotions in a balanced manner (Kabat-Zinn, 2003) instead of over focusing upon or avoiding how they are experiencing a situation. This balanced focus in turn enables the individual to enhance the understanding of oneself, facilitate self-improvement and rectify one's mistakes (Breines & Chen, 2012; Neff, 2003b).

Although the facets of self-compassion are separate constructs, individuals employ all three constructs harmoniously when facing a difficult situation. For example, when self-compassionate individuals miss an exercise session, they realize that this does not mark the end of their exercise goal because everybody misses a workout from time to time (common humanity). Further, these individuals refrain from judging themselves negatively and instead respond to their mistake gently and supportively (self-kindness). Finally, they are aware of how this situation makes them feel (e.g., they observe that they feel guilty), while not over identifying (ruminating) or under identifying (becoming overburdened) with these feelings and rather, they focus on what they can do differently next time (mindfulness).

Although self-compassion has been referred to as a stable trait (Neff, 2009), it has also been presented as a tool or strategy to use when one is faced with suffering (Neff, 2003a; Shapira & Mongrain 2010), which can be taught through self-compassion interventions (Bluth, Gaylord, Campo, Mullarkey & Hobbs, 2015; Smeets, Neff, Alberts, & Peters, 2014). Therefore, although one may not naturally act in a self-compassionate manner, it is a skill that they can develop and potentially use throughout their life. For instance, a randomized controlled study compared outcomes of a Mindfulness Self-Compassion (MSC) training program to those who were randomized to a wait list control group (Neff & Germer, 2012). Compared to controls, MSC participants demonstrated a significant increase in their self-compassion levels which were maintained at both six and one year follow-up (Neff & Germer, 2012). These increases in self-compassion were also associated with decreases in depression, anxiety, stress and emotional avoidance (Neff & Germer, 2012).

Self-Compassion's Distinction from Global Self-Esteem

Self-compassion researchers recognize similarities between self-compassion and global self-esteem, yet they also acknowledge important distinctions. In this next section, I explore the similarities and differences between these two constructs in order to situate self-compassion relative to global self-esteem. Doing so is also important given that the relationship between these two constructs has implications for research. Global self-esteem is an overall feeling of self-worth and is defined as the degree to which one judges oneself to be competent in life domains that the individual deems as important (James, 1890). Global self-esteem then, is largely influenced by individuals' evaluations of themselves (or the perceived evaluations of others; Cooley, 1902) relative to external standards. In contrast, self-compassion is not a type of evaluation, but instead a type of awareness and an orientation to care for oneself (Leary, Tate, Adams, Allen & Hancock, 2007; Neff, 2003b; Neff, Hseih & Dejitterat, 2005; Neff & Vonk, 2009). Instead of judging oneself relative to a standard, self-compassion allows individuals to be aware of the experience and treat themselves kindly, to be mindful of how the situation makes them feel and to realize that everyone makes mistakes and therefore they do not deserve any less compassion than any other human (Neff, 2003b).

Enduring research interest in global self-esteem has been driven by this variable's association with several positive outcomes (e.g., positive self-emotions, happiness, optimism; Lucas, Diner & Suh, 1996; Mosewich et al., 2011; Neff & Vonk, 2009). However, researchers are beginning to question the benefits of self-esteem as they identify ways in which this construct can be *detrimental* to growth and well-being. Self-esteem can fluctuate depending on whether or not behaviour falls in line with a particular standard (Neff & Vonk, 2009). Faced with this potential for fluctuation, individuals often seek to maintain their self-esteem, sometimes with

detrimental consequences. For example, individuals may dismiss negative feedback as unreliable or biased and resist taking responsibility for mistakes in order to protect their self-esteem (Sedikides, 1993). This response pattern prevents individuals from developing an accurate self-concept, which can limit growth and change (Sedikides, 1993). Although self-esteem can lead to positive illusions and in turn foster psychological well-being (Taylor & Brown, 1988), this bias can cause individual to believe they do not need to improve (Neff, 2011). In addition, individuals may engage in dysfunctional behaviours in defense of their self-esteem (Blaine & Crocker, 1993; Crocker & Par, 2004) such as anger and aggression towards those who threaten their ego (Baumeister, Smart & Boden, 1996; Twenge & Campbell, 2003) or downward social comparisons (Fein & Spencer, 1997). Some of these negative correlates of self-esteem just mentioned (e.g., anger and aggression) in addition to others (e.g., taking advantage of others, being overly sensitive of criticism; Doty & Fenelson, 2013) are characteristic of narcissism, which is, in itself, an undesirable correlate of self-esteem (Leary et al., 2007; Neff & Vonk, 2009). Taken together, these findings have led researchers to question the claim that self-esteem is the cornerstone of success and well-being.

Although self-compassion and global self-esteem are moderately correlated (Leary et al., 2007 (0.58); Neff & Vonk, 2009 (0.68), self-compassion predicts unique variance in many desirable states including low levels of depression, anxiety (Neff, 2003a), social comparison, public self-consciousness, self-rumination, anger (Neff & Vonk, 2009), catastrophizing, personalizing and greater feelings of equanimity (Leary et al., 2007) after controlling for self-esteem. In fact, Neff and Vonk (2009) suggest that for the majority of outcomes, self-esteem offers no benefits over and above those attributable to self-compassion. In addition, Neff and Vonk (2009) state that what is left of self-esteem after accounting for self-compassion is likely to

be just positivity of self-representations, which may not help when the self-representations are threatened.

Many researchers argue that self-compassion is a more useful tool to make individuals feel good about themselves than self-esteem (Neff, 2011). In particular, self-compassion is particularly constructive when a failure arises. Individuals with high levels of self-compassion are able to see their failures, faults and insecurities accurately, instead of either dismissing or over-identifying with them (Leary et al., 2007). Due to the ability to embrace their weaknesses as well as their strengths, individuals with high self-compassion do not need to inflate or defend their ego (as has been seen in self-esteem research; Sedikides, 1993) because being self-compassionate makes it possible to admit and accept mistakes and shortcomings (Neff & Vonk, 2009). Leary and colleagues (2007) demonstrated that individuals with high levels of self-compassion, compared to those participants with high levels of self-esteem, took more responsibility for their actions and more readily accepted undesirable aspects of their character and behaviour without obsessing, ruminating about them or getting defensive.

Some researchers have identified a form of self-esteem, called 'true self-esteem' that may be free from these negative associations. 'True self-esteem' is an autonomous and self-determined form of evaluation that is not contingent on external standards, evaluations or comparisons with others (Deci & Ryan, 1995). At first this description of true self-esteem may sound similar to that of self-compassion, but these two constructs are theoretically distinct (Neff, 2003a). Where true self-esteem emphasizes autonomy and self-determination (Deci & Ryan, 1995), self-compassion emphasizes kindness, common humanity and mindfulness (Neff, 2003a). To further this distinction, Neff (2003a) measured participants' levels of true self-esteem (by combining measures of self-determination, satisfaction for needs of autonomy, relatedness and

competence) and participants' levels of self-compassion and their results indicated that true self-esteem was positively correlated with narcissism, while self-compassion was not (Neff, 2003a).

In light of the relationship between self-esteem and self-compassion, and recent interest in their overlapping and unique effects, self-compassion researchers typically control for the influence of self-esteem when examining self-compassion's influence on outcomes (Leary et al., 2007; Neff & Vonk, 2009; Reis et al., 2015). Unless a researcher was to specifically control for self-esteem when examining self-compassion, they would not realize that self-compassion may be the important component of self-esteem that leads to these positive psychological variables (Leary et al., 2007; Neff & Vonk, 2009). In this thesis, I continued with this approach in order to determine what reactions, thoughts and outcomes are due to self-compassion over and above that of self-esteem.

Self-Compassion and Self-Regulation

In its simplest form, self-regulation is defined as the ability to set a goal, engage in goal-directed behaviour, monitor progress towards the goal and adjust behaviour when insufficient progress is made toward the goal (Baumeister & Heatherton, 1996; Terry & Leary, 2011). Because self-regulation is an individual's capacity to alter behaviour, it is central to behaviour change (Baumeister & Vohs, 2007), including exercise adherence (McAuley et al., 2011). Although self-regulation may seem like a simple task, many factors can limit an individual's ability to self-regulate including: the inability to set safe and effective goals, insufficient knowledge about how to achieve the desired goal, unrealistic expectations, the inability to disengage from unhealthy goals and re-engage in more appropriate goals, and/or the inability to re-engage in the goal after a failure or lapse occurs. Therefore, understanding factors that

influence self-regulation is important if we are to understand how individuals successfully self-regulate/adhere to certain behaviours, including exercise.

Recently, researchers have argued that effective self-regulation of health behaviours can be influenced by how *compassionately* an individual treats oneself (Sirois et al., 2015; Terry & Leary, 2011). Specifically, individuals that have high levels of self-compassion should be effective at selecting appropriate health goals, engaging in behaviour to reach the desired goal, monitoring goal progress, adjusting their behaviour or goal when sufficient progress is not being made (Terry & Leary, 2011), and regulating their emotions in constructive ways when inevitable setbacks occur (Mosewich et al., 2011; Neff et al., 2005; Sirois et al., 2015). In the next section I review how self-compassion can facilitate self-regulation in each of the ways listed above.

Goal Motivation

Self-compassion should lead people to set safe and realistic goals that are motivated by factors known to be optimal for self-regulatory success (Terry & Leary, 2011). Self-compassion is thought to enable individuals to recognize that they can improve over time and therefore self-compassionate individuals are less likely to set extreme or dangerous health goals (Terry & Leary, 2011). In addition, self-compassion is associated with setting goals that target improving one's well-being instead of goals that are set to improve one's self-image (Terry & Leary, 2011). To date, researchers have not specifically examined whether self-compassion is associated with safe and realistic goal setting, but instead have focused on motivational reasons behind why self-compassionate individuals pursue their goals. Self-determination theory provides context for understanding motivations behind goals.

According to self-determination theory (SDT), motivation is based along a continuum ranging from the pursuit of activities for reasons that are external to the self (e.g., gain a reward, avoid punishment) to reasons that are increasingly self-determined (e.g. because the activity aligns with core values or is inherently enjoyable), with intrinsic motivation representing the most self-determined form of motivation (Deci & Ryan, 2000; Thall, Buckworth, Habash, & Klatt, 2014). The pursuit and realization of self-determined goals is optimal; self-determined forms of motivation (e.g., intrinsic) are associated with increased effort, long-term motivation, increased psychological well-being (Deci & Ryan, 2000; Wilson et al., 2004) and, in some cases, greater goal achievement (Deci & Ryan, 2000; Sheldon & Elliot, 1998, 1999). Self-compassion has been associated with higher levels of intrinsic motivation for goals (Neff et al., 2003b; Neff et al., 2005) and this link has been demonstrated in sport and exercise contexts. For example, among women exercisers (Magnus et al., 2010) and women athletes (Mosewich et al., 2011), self-compassion was positively associated with exercising for intrinsic versus extrinsic reasons and negatively correlated with less desirable correlates such as obligatory exercise (physically and psychologically harmful exercise; Steffen & Brehm, 1999) and social physique anxiety (concern about one's physical appearance in the presence of others; Leary, 1992). Therefore, self-compassionate individuals set and pursue goals that are directed toward promoting *their* personal growth and well-being and not based upon external contingencies such as social approval or reward. In turn, self-compassionate people are well-positioned for self-regulatory success.

Taking Reparative Action

Unfortunately, set-backs and failures are a common experience during goal pursuit (Dishman et al., 1985). Being able to adaptively take reparative action after the failure means an

individual must adjust their behaviour to achieve their desired state or goal (Baumeister & Heatherton, 1996; Terry & Leary, 2011). Therefore, in order to successfully self-regulate after a failure or set-back, individuals need to either re-engage in the same or alternative goal and acknowledge and adaptively regulate their emotions without ruminating or disengaging from these feelings.

Goal re-engagement.

Self-compassion, specifically mindfulness, is associated with effective monitoring of goal progress (Neff et al., 2005). Effective monitoring of goal progress is paramount to being able to achieve a goal (Baumeister & Heatherton, 1996) and people often respond to failure or a threat to goal progress in ways that may undermine effective self-monitoring. If people reject or disengage from the threatening information, they may ignore the fact they did not reach their goal and continue on with the ineffective behaviour. Such responses will hinder adaptive self-monitoring by preventing individuals from accurately judging the situation (Neff et al., 2005) and engaging in adaptive coping and problem-solving techniques (Cohen & Sherman, 2014) needed in order to re-engage in a new or alternative goal.

Alternatively, being self-compassionate provides the emotional safety needed to engage in effective self-monitoring. Indeed, self-compassionate people should see the situation clearly, without criticizing oneself unfairly, which allows individuals to more accurately perceive and solve maladaptive patterns of behaviour, thoughts or feelings (Brown, 1999). For instance, in young women athletes, self-compassion was negatively associated with state self-criticism, concern over mistakes, catastrophizing and personalizing thoughts and was positively associated with initiative-taking (Ferguson et al., 2014; Mosewich et al., 2013; Reis et al., 2015). In

addition, researchers have shown that self-compassion is positively associated with goal re-engagement (Neely et al., 2009; Neff & Faso, 2014) and motivation to change the weakness (Breines & Chen, 2012); individuals that are high on levels of self-compassion respond to failures by re-engaging in an alternative goal (Neely et al., 2009; Neff & Faso, 2014). In a study examining parents raising Autistic children, Neff and Faso (2014) found that when parents were forced to change their life goals because of their child's health, self-compassion provided comfort, support and the emotional resources (effective emotional regulation) needed to re-engage in a new goal (Neff & Faso, 2014).

Regulating emotions.

Regulating emotions during goal pursuit is important as self-regulation can be thwarted when an individual experiences and does not adaptively deal with negative emotions (Baumeister & Heatherton, 1996). A key aspect to self-regulation is transcendence, being able to focus beyond the immediate stimuli. Negative emotions and rumination tend to bring the attention to the immediate situation, thereby preventing transcendence and making self-regulation difficult (Baumeister & Heatherton, 1996). For example, rumination can exacerbate feelings such as self-criticism and self-blame (Rimes & Watkins, 2005), and also decrease problem-solving skills and optimism (Rimes & Watkins, 2005). Self-compassion may provide individuals with a strategy to deal with negative affect associated with failure while also promoting a more positive state of mind (Choi, Lee, & Lee, 2014; Sirois et al., 2014; Terry & Leary, 2011). For example, self-compassionate individuals are mindful of their emotions (not over-identifying) and realize that all individuals make mistakes (common humanity). Self-compassion also helps individuals learn from, rather than ruminate about failure (Breines & Chen, 2012; Mosewich et al., 2013; Neff, Rude & Kirkpatrick, 2007; Reis et al., 2015). In study by Leary and colleagues (2007),

undergraduate students who scored high on levels of self-compassion experienced less negative affect when recalling a recent failure than those who reported lower levels of self-compassion. In addition, these self-compassionate students reported keeping the situation in perspective (not over-criticizing themselves for the failure), as well as the feeling that they handled the failure well (Leary et al., 2007).. Further, Neff and colleagues (2003a) conducted a study where undergraduate students were put through a self-compassionate exercise (Gestalt two-chair dialogue) and were followed up with one month later. Their results indicated that those who experienced an increase in self-compassion also experienced a decrease in rumination (Neff et al., 2003a).

Researchers are beginning to explore the relationship between self-compassion and affect after a failure or negative experience in sport and exercise contexts. Among young women athletes, self-compassion is positively associated with adaptive emotional regulation (Mosewich et al., 2011; Mosewich, 2013). Self-compassion has been referred to as a ‘buffer’ against some of the negative evaluative thoughts that women in sport may experience and can act as a resource in times of emotional pain and failure (Ferguson et al., 2014; Mosewich et al., 2011; Mosewich et al., 2013). For instance, when recalling or dealing with a hypothetical failure in sport, female athletes who scored higher on self-compassion had more equanimous thoughts and behavioural equanimity, and less total negative affect (Reis et al., 2015) than those who scored lower on self-compassion. In addition, other studies have shown that self-compassion is negatively related to shame proneness (Mosewich et al., 2011), concern over mistakes, state self-criticism and state rumination (Mosewich et al., 2013). Taken together, these findings suggest that self-compassion may be a useful tool for helping athletes adaptively deal with failures they experience in their sporting lives.

Overview of Self-Compassion and Self-Regulation

Self-compassion is associated with many adaptive aspects of self-regulation as outlined above. In way of a summary, I now provide an example that illustrates how self-compassion should aid in the self-regulation of a health behaviour. When self-compassionate individuals set a goal, the goal would be focused on their own health and well-being, they would adaptively monitor their progress towards the goal without ruminating or disengaging from their emotions when inevitable set-backs do occur, focus on self-improving by re-engaging in the same or alternative goal rather than becoming complacent and treat themselves with self-kindness, mindfulness and common humanity when a failure or set-backs occurs.

The aforementioned studies on exercise/sport and self-compassion are important; they provide preliminary support for the idea that a self-compassionate approach to exercise may be a cornerstone to promoting effective self-regulation, especially in the face of failures, and in turn may produce an increase in exercise adherence. However, more studies are needed to confirm and add to these preliminary findings (Sirois et al., 2015). Specifically, while several studies have focused on self-compassion generally (Leary et al., 2007; Neff et al., 2005; Shepherd & Cardon, 2009) and some within sport specifically (Mosewich et al., 2011; Mosewich et al., 2013; Reis et al., 2015), only three studies (Magnus et al., 2010; Sirois et al., 2015; Sirois, 2015) have examined self-compassion in an exercise context. None of these studies examined how self-compassion influences individuals' responses to recalled exercise failures. I examined if self-compassion is associated with individuals taking an adaptive approach to the self-regulation of their exercise and I examined this by studying participants' reactions to their exercise failures or set-backs.

Fear of Self-Compassion and Improvement Motivation

As researchers become more knowledgeable about the positive role self-compassion plays in self-regulation, they also realize that many individuals are hesitant to use or develop self-compassion given fears that being self-compassionate will lead to complacency (Breines and Chen, 2012). For example, some studies have shown that among chronic mental health patients (Gilbert & Procter, 2006), eating disorder patients (Kelly, Carter, Zuroff & Borairi, 2013), men (Reilly, Rochlen, & Awad, 2013) and female athletes (Ferguson et al., 2015; Ferguson et al., 2015) individuals first attempts towards treating themselves with self-compassion are often met with resistance and fear. According to researchers, this fear of self-compassion stems from participants' thoughts that they do not deserve self-compassion (Gilbert & Procter, 2006; Kelly et al., 2013), their view that self-compassion is a weakness, their lack of familiarity with the construct (Gilbert & Procter, 2006), the socialization patterns they grew up with that discredit the usefulness of self-compassion (Reilly et al., 2013) and/or fear that being self-compassionate would make them complacent (Ferguson et al., 2014). Indeed, the prototype of a successful person often brings to mind one who relentlessly holds themselves to tough standards, accepting nothing less than perfection. This formula for success leaves little room for self-compassion and in fact, leaves many people fearful of this way of relating to oneself.

An example of fear of self-compassion can be seen in the world of sport and competition. According to Ferguson and colleagues, having a self-compassionate approach is often seen as harmful to performance (2015). In their qualitative study, Ferguson et al. (2015) found many of their women athlete participants were not convinced that treating themselves with compassion in sport would always be in their best interest. According to these women athletes, their skepticism about self-compassion stemmed from their beliefs that self-criticism is a necessary tool for

success in sport because of its motivating power. Further, they feared being self-compassionate as they felt doing so meant accepting the failure and not caring enough to improve; therefore, becoming complacent (Ferguson et al., 2015). Unfortunately for these athletes, being fearful of using self-compassion in sport may have negative consequences. Specifically, the fear of self-compassion in sport is negatively correlated to eudaimonic sport well-being (autonomy, environmental mastery, personal growth, positive relatedness, purpose in life, and self-acceptance), and positively correlated to passive and self-critical reactions (Ferguson et al., 2015).

Although fear of self-compassion appears to be common, research suggests that this fear may be unwarranted. According to researchers, a self-compassionate approach to self-regulation is helpful (as already outlined; Terry & Leary, 2011) and can be implemented without people becoming complacent (Breines & Chen, 2012) or relinquishing their high standards (Neff, 2003b). In fact, self-compassion can promote what researchers term “self-improvement motivation” which represents a propensity to develop and learn from one’s mistakes (Breines & Chen, 2012). Drawing on similar arguments as self-regulation researchers (e.g., Brown, 1999; Terry & Leary, 2011), these researchers argue that self-compassion offers a non-judgmental and safe context in which mistakes and shortcomings can be considered objectively and without anxiety or judgment (Breines & Chen, 2012; Neff et al., 2005). From this non-threatening place, individuals are able to acknowledge the need for self-improvement, feel it is possible, and experience motivation to pursue change (Breines & Chen, 2012).

For example, in a group of undergraduate students who failed a written exam, those who were in a self-compassion induction group demonstrated self-improvement motivation; they studied more for a make-up exam after the induction and therefore scored slightly higher on the

re-test than those in both the self-esteem induction and control condition (Breines & Chen, 2012). In an exercise context, self-compassion was positively associated with young women athletes taking responsibility for their actions, positive emotions and thoughts, taking initiative, being actively involved in changing and developing as an athlete (Ferguson et al., 2015) and intrinsic motivation (Magnus et al., 2010; Mosewich et al., 2011; Thall et al., 2014). Individuals' fears that they will stagnate and possibly fail if they allow themselves to be self-compassionate are not supported by the research.

While fear of self-compassion has been identified as a real phenomenon in a variety of settings (e.g. chronic mental health patients; Gilbert & Procter, 2006, eating disorder patients; Kelly et al., 2013), including sport (Ferguson et al., 2015), no research has addressed the extent to which individuals fear that being self-compassionate will interfere with their ability to succeed at their exercise goals. Examining the extent to which individuals fear self-compassion will help determine whether this variable may need to be viewed and treated as a potential barrier to the promotion of self-compassion as a way to augment exercise self-regulation. Therefore, I explored fear of self-compassion in an exercise context as an objective of this thesis.

Self-Compassion and Gender

To the best of my knowledge, most self-compassion researchers within the sport or exercise literature have focused on women (e.g. Magnus et al., 2010; Mosewich et al., 2011; Mosewich et al., 2013; Reis et al., 2015). The reasons these researchers' focus has been on women may be due to the fact that in general women are more self-critical and use more negative self-talk than males (DeVore, 2013), they often prioritize the needs of others over their own (Ruble & Martin, 1998) and often have lower levels of self-esteem than men (Gentile et al.,

2009), which may make it difficult to act self-compassionately. While these reasons make the study of self-compassion relevant to women, there are also reasons why the construct may be relevant among men. Traditional male socialization patterns encourage emotional restrictiveness and stoicism (Levant, 2011), which is not conducive to being self-compassionate (Reilly et al., 2014). A recent meta-analysis was conducted to determine if self-compassion levels differ between men and women (Yarnell, Stafford, Neff, Reilly, Knox & Mullarkey, 2015). Although it was found that men reported higher levels of self-compassion than women, the difference was small (0.18 SDs higher; $p = <0.0001$). This finding suggests that even if men score slightly higher on self-compassion than women, their levels of self-compassion are not far off those of women and so research addressing self-compassion should not be reserved only for women. This finding points to the importance of including men in self-compassion research as it may also be as relevant among men as it is among women. Therefore, as men have been under-represented in both the self-compassion sport and exercise literature, this study was the third to examine self-compassion among a broad sample of *both* men and women (Sirois et al., 2015; Sirois, 2015), and the first to compare their levels of self-compassion exerted in an exercise context.

There is empirical and theoretical support for the idea that self-compassion may play a role in the adaptive self-regulation of exercise behaviour (Magnus et al., 2010; Mosewich et al., 2011; Mosewich et al., 2013; Sirois, 2015). However, there has yet to be a study which focuses on the role of self-compassion when attempting to self-regulate after an exercise failure/set-back. As studies have shown that an alarming 50% of individuals who start an exercise program will discontinue their activity within one year (Dishman, Sallis, & Orenstein, 1985; Nam, Dobrosielski, & Stewart, 2012), examining self-compassion's role in the adaptive self-regulation

of exercise after a failure/set-back seems appropriate. In addition, as researchers are becoming aware of the moderating role of fear of self-compassion in clinical interventions (i.e: eating disorders; Kelly et al., 2013), it seems appropriate that this concept should be studied in an exercise context as it may provide insight how to best structure exercise interventions to improve adherence. Lastly, self-compassion research within the sport/exercise context has focused primarily on women. In addition, as past research has indicated men report only *slightly* higher levels of self-compassion than women, it seems appropriate that men be included in self-compassion research within an exercise context. In light of these acknowledgements the overall purposes of this thesis are outlined below.

Research Questions and Hypotheses

Purpose: The **main and primary purpose** of this thesis is to determine if, in the face of an exercise failure or set-back that the participant considered to be their own fault, self-compassion is associated with affective and cognitive reactions that are indicative of adaptive self-regulation. The **secondary purpose** of this thesis is to examine the extent to which the fear of self-compassion is prevalent in an exercise context. The **tertiary purpose** of this thesis is to examine whether men and women differ in self-compassion levels in an exercise context. I draw upon both general and exercise/sport-related self-compassion literature to advance a number of research questions and, accompanying hypotheses.

To examine my primary research question, I investigated the relationship between self-compassion and individuals' reactions to recalling a past exercise failure or set-back in terms of a variety of indicators of adaptive self-regulation. These indicators are consistent with those outlined in the literature review and by Terry and Leary (2011) and include: (1) motivation

behind exercise goals, (2) taking reparative action and (3) affective reactions to goal challenges. The research questions outlined below addressed these indicators of adaptive self-regulation and in so doing, the primary purpose of this study.

Question 1: When individuals recall a recent exercise failure or set-back that they deem to be their fault, is self-compassion positively associated with their pursuit of exercise goals that are adaptive in nature after said failure, over and above self-esteem?

Hypothesis 1: After controlling for self-esteem, self-compassion will be positively associated with the extent to which participants report pursuing self-determined exercise goals (a marker of adaptive goals) after the exercise failure or set-back.

Question 2: When individuals recall a recent exercise failure or set-back that they deem to be their fault, is self-compassion positively associated with the ability to re-engage in an exercise goal after the failure or set-back, over and above self-esteem?

Hypothesis 2: Self-compassion will be positively associated with participants' ability to re-engage in an exercise goal after their exercise failure or set-back, over and above self-esteem.

Question 3: Is self-compassion associated with adaptive emotion regulation after a recent exercise failure or set-back that they deem to be their fault, over and above self-esteem?

Hypothesis 3: Participants' levels of self-compassion will be negatively related to state rumination and the negative affect they report relative to a personal exercise failure or set-back after controlling for self-esteem.

To examine a **secondary purpose** regarding the extent to which the fear of self-compassion is prevalent among people pursuing exercise I pose this research question:

Question 4: To what extent are people fearful of being self-compassionate within the context of self-regulating their exercise?

Given that the fear of self-compassion has only been quantified in clinical and sport settings, I did not advance a research hypothesis but instead I examined the levels of the fear of self-compassion in an exercise context.

To examine the **tertiary purpose** regarding whether males and females differ in the self-compassion they report exerting when self-regulating their exercise, I pose the following research question:

Question 5: Do men and women differ on the level of self-compassion they report using in relation to self-regulating their exercise behaviour?

Hypothesis 5: Based on past research in other contexts, I expect that men will have slightly higher levels of self-compassion compared to women.

Expected Contributions

To the best of my knowledge, this research is only the fourth study to look at self-compassion in an exercise context (Magnus et al., 2010; Sirios et al., 2015, Sirios, 2015) and is the first to examine individuals' reactions to a personal exercise failure or set-back. The majority of self-compassion research has focused on self-compassion in academic (Neely et al., 2009; Neff et al., 2005) and sport contexts (Ferguson et al., 2014; Mosewich et al., 2013; Mosewich et al., 2011; Reis et al., 2015), while focusing mainly on women (Magnus et al., 2010) and rarely addresses fear of self-compassion. Drawing on relevant theory and research, this study builds on past self-compassion literature by (i) exploring the role of self-compassion in self-regulation in

an exercise setting, (ii) exploring the extent to which fear of self-compassion is prevalent in an exercise context, and (iii) exploring if there is a difference in the level of self-compassion between men and women in an exercise context. By switching the focus of the study to an exercise context, expanding the age range, including the aspect of fear of self-compassion and including men, this research stands to increase the generalizability of past findings, while also providing new information which will contribute to the self-compassion and exercise literature. In addition, this research has practical implications for exercise adherence. Gaining a better understanding of how self-compassion influences an individual's thoughts and feelings surrounding their exercise pursuits may aid health professionals to create effective programs to keep individuals on track with their exercise goals. In addition, understanding how individuals feel about using self-compassion in their exercise pursuits may assist researchers and health professionals when designing self-compassion interventions. If one is deemed fearful of using self-compassion in this context, researchers and health professionals may need to target the fear of self-compassion before attempting to increase an individual's level of self-compassion.

Chapter II

Methods

Design

For this thesis, I employed a cross-sectional design and collected self-reported data using an online survey. I chose to administer this study online because this method of data collection is convenient and accessible for participants, making it more likely that they will participate. Further some potential participants may feel hesitant meeting face-to-face, especially while recalling past exercise failures or set-backs (Wright, 2005), therefore having the study online allowed participants to complete the questions in a comfortable environment at their own pace when thinking through exercise failures and emotions accompanying these failures.

Participants

I aimed to recruit a minimum of 100 participants to achieve 80% power, with a two-sided 5% significance level (Hulley, Cummings, Browner, & Newman, 2013). This power calculation is based on an effect size derived from a study by Reis and colleagues (2015), which found an effect size of 0.31 between self-compassion and negative affect experienced after participants recalled a past sport failure. Data from 105 participants aged 18-64 years was gathered to answer the primary purpose of this study, while data from 125 (18 – 64 years old) participants was gathered to inform the secondary and tertiary research questions¹. The chosen age range reflects the representative age of ‘adults’ within the 2013 Canadian Physical Activity Guidelines (Canadian Society for Exercise Physiology, 2013). This broad age focus expanded upon the

¹ In order to increase the number of men in my sample a second recruitment wave was initiated, which provided an additional 20 men.

narrow age focus that characterizes previous self-compassion research in sport and exercise (Ferguson et al., 2015; Magnus et al., 2010; Mosewich et al., 2011; Mosewich et al., 2013; Reis et al., 2015). In addition, participants met the following criteria: freedom from a current injury that could limit their exercise participation, Canadian citizenship, proficiency with reading and writing in English, no current competitive sport team affiliation, and the ability to recall a past personal exercise failure or set-back as having occurred within the past six months which they believed was their fault. I recruited participants with a range of experiences with exercise because I assumed that people with all types of exercise experiences (e.g. those struggling to be physically active to those who are regularly active) may have experienced an exercise failure or set-back. Therefore, I did not place any restrictions on participation based on exercise behaviour. However, I included the requirement that participants could recall a recent exercise failure or set-back that the participant considered was their fault and as having occurred within the past 6 months because some of the research questions I posed dealt with individuals' reactions to such events. In order to control for the potential differences in outcomes (i.e. emotional responses) between recalling scenarios that were (did not make time to exercise) versus were not (became injured) the participants' fault, I decided to get participants to recall a past exercise failure that they perceived to be their fault. In addition, as most of the self-compassion research has been focused on athletes (Mosewich et al., 2011; Mosewich et al., 2013; Reis et al., 2015) and not on general exercisers, I placed the restriction that participants must not be part of a competitive sport team in order to be deemed eligible to participate.

Baseline Measures

Demographics. Participants were asked to provide the following information: gender, age, cultural background, marital status, education level, current exercise level, current

employment and an indication of the province or territory in which they live. This information provided an overall description of the sample, which is necessary to inform future researchers and the general public to whom these results can be generalized. In addition, age was considered as a covariate in this thesis given that our sample involved a larger age range than previous studies.

Self-Compassion. The self-compassion scale (Neff, 2003b) was used to measure participants' self-compassion. This measure consists of 26-items that use a 5-point Likert scale ranging from 1 (almost never) to 5 (almost always). The scale covers six different subscales; self-judgment, self-kindness, common humanity, isolation, mindfulness and over-identification. These 6 different subscales measure the three main components of self-compassion: self-kindness (versus self-judgment), common humanity (versus isolation) and mindfulness (versus over identification) and therefore contribute to an overall self-compassion score. Items with negatively phrased subscales are reversed scored and then a mean is calculated for each of the 6 subscales. A grand mean is then calculated which represents an overall level of self-compassion in accordance with instructions by Neff (2003b). Self-compassion scale scores in past research demonstrate a test-retest reliability over a three week period ($r=0.80-0.93$) on the six subscales and an internal consistency of 0.92 (Neff, 2003b). In addition, the self-compassion scale has been successfully used in a wide range of populations, from young women (Ferguson et al., 2015; Magnus et al., 2010; Mosewich et al., 2011; Mosewich et al., 2013) to older adults (Allen, Goldwasser, & Leary, 2012; Phillips & Ferguson, 2012). Two example questions from the Self-Compassion Scale are "I'm disapproving and judgmental about my own flaws and inadequacies" and "When I'm going through a very hard time, I give myself the caring and tenderness I need". Within the present study, this scale demonstrated high internal consistency with an alpha of 0.95.

Self-Esteem. Self-esteem was treated as a control variable in this study and was measured using The Rosenberg Self-Esteem Scale (Rosenberg, 1965). This scale consists of 10-items and responses can range from 0 (strongly disagree) to 3 (strongly agree). Negatively worded items are reversed scored and then a sum of the ten items is calculated. The higher the total score, the higher the level of self-esteem. Many other researchers have used this scale in self-compassion research (Magnus et al., 2010; Mosewich et al., 2011; Neff et al., 2007) and they report that items have strong internal consistency (0.87, 0.96, 0.87 respectively). In addition, among a general population, the Rosenberg self-esteem scale has been shown to have acceptable internal consistency (Sinclair et al., 2010) and has demonstrated concurrent, predictive and construct validity using known groups (Rosenberg, 1979). Two example questions from the Rosenberg Self-Esteem Scale include, “On the whole, I am satisfied with myself” and “I feel I do not have much to be proud of”. Within the present study, this scale showed high internal consistency between items with an alpha level of 0.90.

Exercise Specific Self-Compassion. To assess self-compassion that participants typically employ *in an exercise context*, I used the self-compassion short form scale (Raes, Pommier, Neff & Van Gucht, 2011). This scale is a 12-item Likert scale that measures level of self-compassion. This scale asks participants to rank how they typically act towards themselves from 1 (almost never) to 5 (almost always). To compute a total self-compassion score, negative sub-scale items are reverse scored, then a total mean is calculated. The self-compassion short form scale has a near perfect correlation with the full self-compassion scale ($r > 0.97$; Raes et al., 2011). In order to make the scale specific to our research question regarding exercise specific self-compassion levels among men and women, the following instructions were given to participants: “Difficulties and set-backs will sometimes occur when trying to work toward an exercise goal.

For each item, please indicate how often you behave in the stated manner when difficulties or setbacks occur while trying to reach your exercise goal. Please read each statement carefully before answering”. The practice of asking about self-compassion relative to a specific context or activity and the wording of the altered instructions is consistent with recent research by Schelleberg and colleagues (2016). Within this study, the scale shows high internal consistency between items with an alpha level of 0.93.

Exercise Specific Fear of Self-Compassion. To measure fear of self-compassion, I used the 15-item Fear of Self-Compassion scale (Gilbert, McEwan, Matos & Ravis, 2011) which uses a 5-point Likert scale ranging from 0 (don't agree at all) to 4 (completely agree). Items of the scale are totaled and then an overall mean is calculated. Higher scores are indicative of higher fear of self-compassion levels. This scale asks participants to rate their agreement with statements regarding expressing compassion and kindness to oneself. The scale demonstrates a strong internal consistency with a Cronbach's alpha of 0.95 (Kelly, Carter, Zuroff, & Borairi, 2013). An example question from the Fear of Self-Compassion scale is “I worry that if I start to develop compassion for myself I will become dependent on it”. In order to make the scale specific to my research question regarding the extent to which individuals fear self-compassion in an exercise context, I asked participants to consider their struggles while attempting to exercise when completing these items. This practice is again based on previous work by Schellenberg and colleagues (2016). Fear of self-compassion scores were computed by averaging all the items from the scale (Schellenberg, Bailis, & Mosewich, 2016). Within this study, the scale showed high internal consistency between items with an alpha level of 0.94.

Reactions to Exercise Failures or Set-Backs

Pursuit of adaptive goals. I conceptualized the self-regulatory aspect of pursuing adaptive goals through the pursuit of goals that should be within individuals' best interest and well-being after an exercise failure.

Situational Motivation. To measure participants' typical motivation to re-engage in exercise after failures or setbacks, I used an adapted version of the 16-item Situational Motivation Scale (SIMS; Guay, Vallerand, & Blanchard, 2000). This scale uses a 7-point Likert scale ranging from 1 (corresponds not at all) to 7 (corresponds exactly). Self-Determination Theory was used to create this scale which determines how internally (self-determined) motivated individuals are towards their specific goal pursuits (Guay et al., 2000). The original scale has four different sections measuring intrinsic motivation (4-items), identified regulation (4-items), external motivation (4-items) and amotivation (4-items). In this thesis, I used an altered version which has been previously used in exercise research and includes all the aforementioned motivations in addition to introjected regulation (4-items) (Guerin & Fortier, 2012). Each sub-scale is summed to create a total score and then a mean is calculated for each type of motivation. The Situational Motivation scale was chosen because I wanted to examine a participants' *specific* motivation to re-engage in an exercise goal after an exercise failure/set-back. In a previous study using the altered 20-item Situational Motivation scale, all five subscales (intrinsic motivation, identified regulation, introjected, external regulation and amotivation) internal consistencies are in the acceptable range with Cronbach's alpha of 0.95, 0.80, 0.85, 0.86 and 0.77 respectively (Guerin & Fortier, 2012). Within this study, all subscales showed acceptable internal consistency with alpha levels of 0.87, 0.80, 0.67, 0.79, 0.73 respectively. In order to make the questionnaire specific to our research question regarding the

motivation behind the possibility of re-engaging in an exercise goal, the instructions that appeared prior to the questionnaire stated: “When you think back to your exercise failure/set-back that you experienced within the last 6 months, when you thought about getting back on track afterwards, which of the following reasons for re-engaging in exercise applied to you?” An example of a question from the SIMS is “Because I thought that the goal/activity is interesting”.

Taking Reparative Action. I conceptualized taking reparative action through three self-regulatory actions: (i) goal-re-engagement, (ii) affective reactions to failure and (iii) level of state rumination.

Goal Re-engagement. Goal re-engagement was measured using a slightly altered version of the goal re-engagement scale (Wrosch et al., 2003), which is a 6-item scale that measures the extent to which individuals generally re-engage in another new goal if/when they face barriers in other goal pursuits. In this thesis, the wording was slightly altered to capture both the possibility that participants may re-engage in *new* exercise goals or resume the *same* exercise goals after experiencing the exercise failure or set-back. Two example questions from the altered questionnaire include, “I restarted working on an exercise goal” and “I sought out other exercise goals”. The scale is measured using a 5-item Likert scale ranging from 1 (almost never true) to 5 (almost always true). The scores were summed and a mean was calculated to determine the overall goal re-engagement score. The original 6-item scale showed a Cronbach’s alpha of 0.86 (Wrosch et al., 2003). Within this study, the scale showed good internal consistency with an alpha level of 0.84.

State Rumination. To measure the extent to which participants recalled ruminating about their recalled exercise failure or set-back I used the 3-item State Rumination scale (Mosewich et

al., 2013; Puterman, DeLongis, & Pomaki, 2010). This scale uses a Likert scale ranging from 1 (not at all) to 5 (a lot). Items of the scale were adapted to address an exercise failure or set-back and items include, “Did you find it hard to stop thinking about the exercise failure/setback afterward?”, “When thinking about the exercise failure/setback afterward, did your thoughts tend to dwell on negative aspects of it, or how badly you felt about it?”, and “Does thinking of the exercise failure/set-back tend to make it seem worse or make you feel worse about it?”. This scale was chosen as it has been used in past self-compassion and sport research which asked athletes to recall the most negative event that occurred during their sport (such as a failure/setback; Mosewich et al., 2013). The original items of the scale reflected a Cronbach alpha of 0.90 (Puterman et al., 2010). Within this study, the scale showed high internal consistency between items with an alpha level of 0.90.

Negative Affect. To measure negative affect that participants may feel following an exercise failure or set-back, I used a negative affect scale (Leary et al., 2007) which has 20 items and employs a Likert scale ranging from 1 (not at all) to 7 (extremely). This scale was created to measure the degree to which people experience 20 different feelings, which assess five emotions: sadness (sad, dejected, down, depressed), anxiety (nervous, tense, worried, anxious), anger (angry, irritated, mad, hostile), embarrassment (embarrassed, humiliated, disgraced, ashamed), and feelings of incompetence (incompetent, worthless, stupid, self-conscious). A total negative affect score can be calculated. Evidence of acceptable reliability has been shown ($\alpha > 0.75$; Leary et al., 2007). Within this study, the scale showed high internal consistency between items with an alpha level of 0.97. In order to make the scale specific to our research question regarding the amount of negative affect experienced by a participant after an exercise failure/set-back, the following instructions were given to participants: “Please keep the exercise failure or

set-back that you just recalled in mind as you respond to the next set of questions. When you think back to how you felt after the exercise failure/set-back please indicate the extent to which you experienced each emotion. Please read each question carefully.” The wording of these instructions is slightly altered from previous studies using this scale to examine negative affect in different contexts (Leary et al., 2007; Reis et al., 2015). Some sample questions include, “After the exercise failure/set-back, what degree did you feel sad?” and “After the exercise failure/set-back, what degree did you feel worthless?”. We chose this questionnaire as it has been used in previous self-compassion research (Leary et al., 2007; Reis et al., 2015).

Manipulation check.

In order to ensure participants were following instructions when recalling their past exercise failure/set-back, written responses were read to ensure the participants were recalling an exercise failure/set-back that had occurred within the last 6 months that they deemed was their fault. If a participant did not follow the outlined instructions, they were not included in future analyses.

Procedures

Recruitment and Eligibility Screening. Upon approval from the Nursing/Education Ethics Review Board at the University of Manitoba, participants were recruited using posters/advertisements placed at the University of Manitoba, Winnipeg fitness facilities such as Reh-Fit, the Wellness Institute, and Shapes Fitness Centre, community malls such as St. Vital and Polo Park shopping centre, and social media outlets such as Facebook, and Kijiji. In addition, participants from a previous research study examining women and heart health at the St. Boniface Hospital (H2014:224), who had provided permission to be contacted about future

studies, were emailed information about this study. Recruitment materials included a summary of the study, general eligibility requirements and a website address devoted to my study (see Appendix E). This website was housed on the University of Manitoba server. Upon logging onto this website, potential participants completed eligibility questions (Appendix A) and provided consent (Appendix F). If participants were deemed eligible and consenting, they were directed to the study questionnaire. First, participants were asked to provide baseline and demographic information. Next, participants were asked to answer questionnaires related to the secondary and tertiary research questions (i.e. exercise specific self-compassion and fear of self-compassion levels; Appendix B). After, participants were asked to recall a time in which they experienced an exercise failure/set-back that they deemed was their fault and provide an in-depth description of the personal exercise failure or set-back. I chose to have participants recall a past exercise failure/set-back instead of using hypothetical scenarios as past research has demonstrated that recalled scenarios activate a more personal and emotional response than hypothetical scenarios (Mclatchie, Giner-Sorolla, & Derbyshire, 2016). As this thesis asked participants to recall emotions felt during their exercise failures/set-backs, a recalled versus hypothetical scenario was a better suited research design. I drew upon similar research for this aspect of the study. Wording from Leary et al's (2007) study, which had participants recall a past failure or set-back, was slightly altered to apply to an exercise context (Appendix C). Participants were provided with examples of exercise failures or set-backs to show what would constitute as an exercise failure (Appendix C). Examples included, signing up for a race and not being able to complete the race, or having an exercise related goal that was not reached or only partially reached. If participants failed to provide a detailed response (as determined by word-count), they were prompted, one time, to provide a more detailed response. This type of

approach of providing examples of a failure/set-back and letting participants otherwise define what would be a failure to them is consistent with past self-compassion research (Leary et al., 2007; Reis et al., 2015). Lastly, participants then completed a battery of questionnaires pertaining to their reactions to their exercise failure/set-back (i.e. situational motivation, goal re-engagement; Appendix D). After participants had completed all the questionnaires they were debriefed on the study (Appendix G), they were thanked for their time and provided a \$5 gift card to either Starbucks or Chapters-Indigo (their choice).

Analytical Plan

To address our five research questions, numerous analyses were performed as outlined below. Many of the analyses involved semi-partial correlations. Consistent with similar past research, I have chosen this analysis because semi-partial correlations are often used in psychological research because they account for a *unique* contribution of a predictor after partialling out the effects from other predictors. In this thesis, my aim is to examine the unique contribution of self-compassion on the dependent variables after partialling out the effects from self-esteem. In addition, age was treated as a covariate in analyses where it was significantly correlated with the outcome of interest (goal re-engagement and negative affect). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, multicollinearity and linearity. Afterwards, two hierarchical multiple regressions were employed to determine if self-compassion contributed unique variance over and above self-esteem and age for the outcome variables goal re-engagement and negative affect.

Statistical analysis.

Analysis One: To answer the first research question, “When individuals recall a recent exercise failure or set-back, is self-compassion positively associated with their pursuit of exercise goals that are adaptive in nature after said failure, over and above self-esteem?” five separate semi-partial correlations were employed, while controlling for self-esteem, to determine the relationship between general self-compassion and each of the five different types of goal motivations (intrinsic, identified, introjected, external and amotivation).

Analysis Two: To answer the second research question, “When individuals recall a recent exercise failure or set-back that they deem to be their fault, is self-compassion positively associated with the ability to re-engage in an exercise goal after the failure or set-back, over and above self-esteem?” a hierarchical multiple regression was employed. Post-hoc analysis determined age was negatively correlated with goal re-engagement ($r = -0.200, p = 0.002$) and therefore a hierarchical multiple regression examined the relationship between general self-compassion and the ability to re-engage in an exercise goal after a failure/set-back, while controlling for age and self-esteem.

Analysis Three: To answer the third research question, “Is self-compassion associated with adaptive emotion regulation after a recent exercise failure or set-back that they deem to be their fault, over and above self-esteem?” a hierarchical multiple regression analysis and a semi-partial correlation were employed. Post hoc analysis determined age was negatively correlated with negative affect ($r = -0.564, p < 0.001$) and therefore the association between general self-compassion and negative affect was assessed using a hierarchical multiple regression while controlling for both age and self-esteem. The semi-partial correlation examined the relationship between general self-compassion and state rumination while controlling for self-esteem.

Analysis Four: To address the fourth research question, “To what extent are people fearful of being self-compassionate within the context of self-regulating their exercise?” descriptive statistics were examined.

Analysis Five: To address the final question, “Do men and women differ on the level of self-compassion they report using in relation to self-regulating their exercise behaviour?” the Welch’s t-test was employed, which compared the mean exercise specific self-compassion level of women to the mean exercise specific self-compassion level of men. The use of the Welch’s t-test is recommended in scenarios where there are unequal sample sizes between groups, as was the case in the present thesis (30 men versus 95 women; Kohr & Games, 1974).

Chapter III

Results

Data Management

Recommendations by Tabachnick and Fidell (2007) as well as Pallant (2010) guided the data cleaning and preparation process. Data were assessed for correct entry and composite scores were created. Missing data were examined; mean level of self-compassion had 8.6% missing data while all other variables had less than 5%. Data were then assessed for univariate outliers. First, the standardized values were converted to z-scores. Z-scores above 3.29 and below -3.29 were considered univariate outliers. When outliers were detected the original values for these scores were altered to be one unit larger or smaller than the next most extreme score. Missing Value Analysis was implemented and results indicated that the data was missing at random. Missing data were then replaced using Multiple Imputations. Next, the distribution of each continuous variable was assessed for normality (skewness and kurtosis). Transformations were applied to those variables that were not normally skewed (following recommendations by Tabachnick & Fidell, 2007).

Description of Participants

A total of 230 individuals logged onto the study website and began the eligibility questionnaire; 120 of those individuals did not meet eligibility requirements, leaving 110 participants eligible. Results from the manipulation check showed five individuals did not follow instructions for recalling a past exercise failure/set-back and their data were excluded from analyses. These five individuals either mentioned exercise failures due to injury (not their fault) or could not recall an exercise failure/set-back. The remaining 105 participants with a

mean age of 42.94 ($SD = 17.18$) completed the online questionnaire. This sample consisted of 95 (90.5%) women and 10 (9.5%) men, 81.9% were Caucasian, 55.2% were married, 95.2% lived in Manitoba and had a mean score of 2.99 ($SD = 0.75$) on the self-compassion scale (range = 1 to 5). Furthermore, 32% have completed a university undergraduate course, 31.4% are full time employees and 32% of participants learned about the study from email or ‘other’ sources. This sample was used for the primary purpose of this study, which examined individuals’ reactions to their past exercise failure/set-back. In order to include more men in the sample to address the secondary and tertiary research questions, a second recruitment wave looking for only men began. These men were only asked those questionnaires which pertained to self-compassion, self-esteem, fear of self-compassion and exercise specific self-compassion to increase recruitment response rate, as recruiting men had proved difficult to that point. An additional 20 men completed this survey. This sample consisted of 125 participants with a mean age of 41.89 ($SD = 16.33$), 75% (95) women, 25% (30) men, and a mean of 3.04 ($SD = 0.74$) on the self-compassion scale (range = 1 to 5). This level of self-compassion is consistent with past research examining community and student samples (mean range = 2.84 to 3.14; Sirios et al., 2015). A summary of additional participant demographics and baseline variable means, standard deviations and ranges are reported in Table 1 and 2, respectively.

Table 1

<i>Participant Demographics (n = 105)</i>		
Variable	<i>N</i>	<i>%</i>
Gender		
Male	10	9.50%
Female	95	90.50%

Education

High school	28	26.70%
Undergraduate	34	32.40%
College	18	17.10%
Master's	12	11.40%
PhD	4	3.80%
Professional	9	8.60%
<hr/>		
Marital Status		
Single	33	31.40%
Married	58	55.20%
Divorced	8	7.60%
Common-Law	5	4.80%
Widowed	1	1.00%
<hr/>		
Employment		
Full Time	33	31.40%
Part Time	23	21.50%
Student	8	7.60%
Retired	25	23.80%
Self-Employed	7	6.70%
Out of Work	1	1.00%
Unable to Work	2	1.90%
Other	2	1.90%
<hr/>		
Province		
Manitoba	100	95.20%
British Columbia	1	1.00%
Ontario	4	3.80%
<hr/>		
Cultural Background		
Caucasian	86	81.90%
Multi-Racial	4	3.80%
Chinese	3	2.90%
Latin American	3	2.90%
South Asian	3	2.90%
South East Asian	1	1.00%
Filipino	1	1.00%

Korean	1	1.00%
Other	3	2.90%

Table 2

Means and Standard Deviations of Baseline Variables

Variable	Range	M	SD
Self-Compassion	1 – 5	2.99 (3.04)	0.74 (0.74)
Self-Esteem	0 – 3	20.05 (20.33)	5.7 (5.78)
Fear of Self-Compassion	0 – 4	0.99 (0.97)	0.89 (0.85)
Exercise Self-Compassion	1 – 5	3.14 (3.23)	0.93 (0.88)

Note. Bolded values indicate a sample size of n = 125

Manipulation Check

To determine whether a participant recalled an exercise failure that they considered to be their fault, written online responses were read. Results indicated that five participants did not follow instructions. Specifically, two participants recalled a failure due to injury (not their fault) while three participants were not able to recall a past exercise failure or set-back. These five participants consisted of all women and had a mean age of 27.60. All other characteristics were not statistically different from the larger sample (n = 125). These five participants were excluded from analyses.

Main Analysis

The first analyses employed were five semi-partial correlations which were used to examine the relationship between self-compassion and motivation, while controlling for self-esteem. Self-compassion was negatively related to external motivation ($r = -0.207, p = 0.034$) and negatively related to introjected motivation, which neared significance ($r = -0.180, p = 0.077$). Therefore, as levels of self-compassion increased, levels of external motivation for an

exercise goal after an exercise failure or set-back decreased. There was no significant relationship between self-compassion and intrinsic motivation ($r = 0.026, p = 0.810$), identified motivation ($r = -0.003, p = 0.971$), or amotivation ($r = 0.061, p = 0.542$). A summary of variable means and standard deviations can be found in Table 2 and 3. In addition, the semi-partial correlation coefficients for self-compassion, self-esteem and the outcome variables can be found in Table 4.

Table 3

Responses to Exercise Failure/Set-back

Variable	Range	M	SD
SIMS			
Intrinsic	1 – 7	4.57	1.47
Identified	1 – 7	6.17	0.74
Introjected	1 – 7	4.5	1.5
External	1 – 7	3.82	1.5
Amotivation	1 – 7	1.68	0.81
Goal Re-Engagement	1 – 5	3.99	1.14
State Rumination	1 – 5	3.39	1.25
Negative Affect	1 – 7	3.24	1.58

n = 105

Table 4

Semi-Partial Correlation Analysis for Responses to an Exercise Failure/Set-back with Self-Compassion and Self-Esteem

Variable	Self-Compassion ^a	Self-Esteem ^b
Motivation		
Intrinsic	0.03	0.24 *
Identified	0.00	0.25 *
Introjected	-0.18	0.02
External	-0.21*	0.00
Amotivation	0.06	- 0.26*
State Rumination	- 0.39**	0.00

n = 105

* $p < 0.05$, ** $p < 0.01$ ^a Controlling for Self-Esteem^b Controlling for Self-Compassion

For the second analysis a hierarchical multiple regression analysis was employed to examine the relationship between self-compassion and the ability to re-engage in an exercise goal after an exercise failure or set-back, after controlling for age and self-esteem. Age and self-esteem were entered into Step 1, explaining 6% of the variance in goal re-engagement. After entry of self-compassion at Step 2 the total variance explained by the model as a whole was 13% ($F(3, 101) = 4.03, p = 0.002$). Self-compassion explained an additional 7% of the variance in goal re-engagement after controlling for age and self-esteem ($R^2 \text{ change} = 0.067, F \text{ change}(1,101) = 7.6, p = 0.02$). In the final model only age ($\beta = -0.30, p = 0.005$) and self-compassion ($\beta = 0.41, p = 0.02$) were statistically significant correlates. Therefore, self-compassion predicted unique variance in goal re-engagement after an exercise failure/set-back, over and above self-esteem and age. A summary of variable means and standard deviations can be found in Table 2 and 3. In addition, beta, r^2 , F -statistics and their significance are summarized in Table 5.

Table 5

Summary of Hierarchical Regression analysis for Goal Re-engagement and Self-Compassion

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Age	-0.02	0.01	-0.26*	-0.02	0.01	0.37**
Self-Esteem	0.04	0.02	0.18	-0.02	0.03	-0.14
Self-Compassion				0.63	0.27	0.41**
R^2		0.06			0.07	
<i>F for R^2 Change</i>		3.40*			7.62*	

n = 105

* $p < 0.05$, ** $p < 0.01$

For the third analysis, a hierarchical multiple regression analysis was used to examine the relationship between self-compassion and negative affect after an exercise failure or set-back, while controlling for age and self-esteem. Age and self-esteem were entered into Step 1, explaining 50% of the variance in negative affect. After entry of self-compassion at Step 2 the total variance explained by the model as a whole was 53% ($F(3, 101) = 37.46, p < 0.001$). Self-compassion explained an additional 4% of the variance in negative affect after controlling for age and self-esteem ($R^2 \text{ change} = 0.036, F \text{ change} (1,101) = 7.75, p = 0.01$). In the final model, all three variables were statistically significant: age ($\beta = -0.34, p < 0.001$), self-esteem ($\beta = -0.24, p = 0.04$), and self-compassion ($\beta = -0.31, p = 0.01$). Therefore, self-compassion predicted unique variance in negative affect after an exercise failure/set-back, over and above age and self-esteem. A summary of variable means and standard deviations can be found in Table 2 and 3. In addition, β , r^2 , F -statistics and their significance are summarized in Table 6.

Next, a semi-partial correlation was employed to examine the relationship between self-compassion and state rumination while controlling for self-esteem. Results indicated self-compassion was negatively related to state rumination ($r = -0.391, p < 0.001$). Therefore, as self-compassion levels increased, state rumination after an exercise failure/set-back decreased. A summary of variable means and standard deviations are listed in Table 2 and 3. In addition, semi-partial correlations among variables are presented in Table 4.

Table 6

Summary of Hierarchical Regression analysis for Negative Affect and Self-Compassion

Variable	Model 1			Model 2		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Age	-0.03	0.01	-0.37**	-0.03	0.01	-0.34**
Self-Esteem	-0.13	0.02	-0.46**	-0.07	0.03	-0.24*
Self-Compassion				-0.65	0.25	-0.31**
R^2		0.50			0.04	
<i>F</i> for R^2 Change		49.01**			7.75**	

* $p < 0.05$, ** $p < 0.01$

Next, I examined descriptive statistics to determine the level of fear of self-compassion among individuals pursuing exercise goals. On a scale from 0 to 4, participants reported a mean level of fear of self-compassion of 0.99 ($SD = 0.88$), indicating these general exercisers experience low levels of fear of self-compassion while pursuing their exercise goals. These results are presented in Table 2.

Lastly, I used Welch's t-test to examine whether men and women differed on the level of self-compassion they used while setting and attempting to reach their exercise goals ($N = 125$). The results indicate there is a significant, small difference between men and women, with men scoring higher on the exercise self-compassion scale ($M_{\text{men}} = 3.6$, $M_{\text{women}} = 3.0$; $F(1, 67.3) = 12.9$, $p < 0.01$, $n^2 = 0.07$). Descriptive statistics for exercise specific self-compassion among both genders is presented in Table 7.

Table 7

Mean and Standard Deviation for Exercise-Specific Self-Compassion Levels Among Gender

Gender	<i>N</i>	<i>M</i>	<i>SD</i>
Men	30.00	3.60	0.68
Women	95.00	3.00	0.90
Total	125.00	3.23	0.88

n = 125

Chapter IV

Discussion

The purpose of this thesis was to determine if self-compassion is associated with the adaptive self-regulation of exercise behavior. Specifically, I examined whether individuals' level of self-compassion was associated with their reactions to a past exercise failure or set-back that they deemed to be their fault. In addition, I examined the extent to which individuals are fearful of extending themselves self-compassion in an exercise context. Lastly, I compared men and women on their levels of self-compassion in an exercise context. Self-compassion was, for the most part, associated with indicators of adaptive exercise self-regulation after an exercise failure or set-back. In addition, participants reported low levels of fear related to extending themselves compassion when setting and attempting to reach their exercise goals. Lastly, there was a significant difference between the level of self-compassion used in an exercise context among men and women, with men reporting slightly higher levels of self-compassion than women.

Self-Compassion and Goal Motivation

As individuals' self-compassion increased, they recalled experiencing lower levels of extrinsic motivation (external and introjected²) for getting back on track with their exercise goal after an exercise failure/set-back. As self-compassion is associated with setting goals that enhance one's happiness and wellbeing (Neff et al., 2005; Neff et al., 2007), it is not surprising that self-compassion was negatively correlated to extrinsic forms of motivation. Indeed, these

² The semi-partial correlation between self-compassion and introjected motivation neared significance according to the traditional cut-off for statistical significance of a p-value of 0.05.

forms of motivation are driven by external factors that may be inconsistent with self-compassion such as a sense of obligation or to attain a specific reward/outcome (Deci & Ryan, 2000). Further, this result aligns with past research by Magnus and colleagues (2010) who found, among general female exercisers, self-compassion was negatively associated with less self-determined or extrinsic types of motivation for exercise goals (introjected, external; Magnus et al., 2010). A practical implication of these results is that self-compassion may buffer people against extrinsic forms of exercise motivation for goal attainment, which may be associated with a host of negative outcomes including reduced interest, value of and investment in a goal, increased tendency to disown responsibility for negative outcomes (i.e., more likely to blame others), higher levels of anxiety and poor coping with failures (Ryan & Connell, 1989).

Contrary to my hypothesis, self-compassion did not relate to an individuals' level of situational, self-determined forms of motivation to get back on track with an exercise goal after an exercise failure or set-back. This is surprising given that Neff and colleagues (2005) argue that self-compassion should be associated with self-determined reasons for exercise including, task improvement, enhanced well-being, and mastery goal setting (Neff et al., 2005). While past research has generally supported self-compassion's association with more self-determined types of motivation (intrinsic; Magnus et al., 2010; Neff et al., 2003b; Neff et al., 2005), only *one* study has examined self-compassion's relationship with motivation, using Self Determination Theory, in an exercise context among a *female* sample (Magnus et al., 2010).

A difference between the previous study (Magnus et al., 2010) and the present study that may account for the inconsistent findings regarding intrinsic motivation is that motivation was measured differently. The study by Magnus and colleagues (2010) measured exercisers' motivation to participate in exercise generally, and in doing so reflected an individual's usual

motivation within the exercise context. In the present study, I measured exercisers' motivation to re-engage in a *specific* exercise goal *after* a failure or set-back. Therefore, a participant's motivation for participating in a *specific* exercise goal may be different than their general motivation to participate in exercise. For example, Self Determination Theory posits that humans have three basic needs that need to be satisfied: competence, autonomy and relatedness (Ryan & Deci, 2000). When these three needs are met, intrinsic motivation for a task or goal is enhanced (Ryan & Deci, 2000). When a failure situation arises (i.e. an exercise failure), these needs can be threatened and therefore, motivation may be affected (Blanchard, Mask, Vallerand, de la Sablonniere & Provencher, 2007). For example, an exerciser who experiences a failure/set-back may no longer believe they are competent to pursue a specific exercise related goal, thereby affecting their level of self-determined motivation for that goal.

It is quite possible that self-compassion's trait like characteristics may be more helpful in a general exercise context, but it may be other factors (such as competence) that are more influential on one's situational exercise motivation (i.e. motivation after an exercise failure). As this idea is only speculative, future research should examine whether there is a difference between self-compassion's role in general exercise motivation and situational exercise motivation, such as after an exercise failure. These findings may help determine how and in what context self-compassion may facilitate more self-determined types of exercise motivation.

Self-compassion and Taking Reparative Action

Self-compassion related positively to exercise goal re-engagement and negatively to rumination about a failure or set-back. These findings align with my hypothesis that self-compassion would relate to participants' ability to effectively monitor and adjust their exercise

goals. The positive relationship between self-compassion and goal re-engagement has been noted previous; specifically, among students (Neely et al., 2009) and parents raising autistic children (Neff & Faso, 2014). The present study is the *first* to examine and demonstrate self-compassion's positive relationship with goal re-engagement after an exercise failure/set-back. This is an important finding, as goal re-engagement plays an important role in adaptive self-regulation (Wrosch et al., 2003). For example, goal re-engagement is positively correlated with feelings of self-mastery and purpose in life, while negatively correlated with perceived stress and intrusive thoughts (Wrosch et al., 2003). Therefore, having the ability to re-engage in a valued exercise goal may alleviate some of the negative consequences associated with an exercise failure.

Other studies have also shown a negative correlation between self-compassion and rumination (Ferguson et al., 2015; Mosewich et al., 2013; Neff et al., 2007). Ruminating about past failures can have devastating consequences to goal progress; rumination can accentuate negative cognitive processes such as self-blame, self-criticism (Rimes & Watkins, 2005), and depressive symptoms (Jones et al., 2009) following a failure. In addition, rumination tends to decrease motivation, problem-solving skills and optimism (Rimes & Watkins, 2005), which may make it difficult to re-engage in another goal. According to Neff (2003b) mindfulness may play an important role in reducing ruminative thoughts. Specifically, it allows individuals to acknowledge their feelings in a situation, without ruminating or over-identifying with these feelings (Neff, 2003b). This pattern of response to failure, in this study, may have allowed exercisers to more accurately perceive when a discrepancy exists between their behavior and their desired goal and to initiate problem-solving techniques to fix their behavior (Brown, 1999) and re-engage in an exercise goal.

Self-compassion was inversely related to the negative affect people felt after a recalled exercise failure or set-back. These findings align with my hypothesis and are consistent with previous research. For example, Sirois and colleagues (2015) found that self-compassion was negatively correlated with negative affect among both community and student samples in the context of health behaviours. In addition, self-compassion was positively related to emotion focused coping strategies and negatively related to negative emotions and avoidance-oriented strategies after an exam failure (Neff et al., 2005).

Self-compassion's association with adaptive emotional responses after a failure may have important implications for self-regulation. When people experience negative emotions about an event (e.g., exercise failure or set-back) these emotions may cause them to remain overly focused on the immediate stimuli, thereby affecting their ability to focus on their long-term goal (Baumeister & Heatherton, 1996). When individuals experience negative affect they often try to manage their emotions (i.e., engaging in unhealthy behaviours; Yi & Baumgartner, 2004; Bruyneel, DeWitte, Franses & DeKimpe, 2009) which requires self-regulation. Self-regulation is a finite resource, which when over-extended can lead to self-regulatory failures (Baumeister, Bratslasky, Muraven & Tice, 1998). When people extend self-regulatory efforts to emotion management, they may have little self-regulatory resources left to devote towards re-engaging with their exercise goals (Bruyneel et al., 2009). Self-compassion may work as a 'buffer' against these negative self-regulatory consequences of negative emotions during times of distress. In the present thesis, self-compassion may have reduced the negative affect experienced by participants after their exercise failure/set-back. Experiencing less negative affect after their exercise failure/set-back may have allowed participants to transcend beyond the immediate failure situation and instead, focus on their long-term exercise goal.

In summary, these findings suggest that self-compassion may assist with adaptive self-regulation after an exercise failure/set-back. Specifically, a self-compassionate individual may be more mindful of their emotions instead of ruminating or over-identifying with them and may experience less negative affect and extrinsic motivation for exercise goals after their exercise failure/set-back. In addition, a self-compassionate individual may be more likely to re-engage in an exercise goal after an exercise failure/set-back. As this was the first study to examine self-compassion's role in self-regulating after an exercise failure/set-back, future research should add to these preliminary findings.

Fear of Self-Compassion

Although the fear of self-compassion has been noted among female athletes (Ferguson et al., 2015; Ferguson et al., 2015) in this sample of exercisers, people were not very fearful of extending themselves compassion when setting and attempting to reach their exercise goals ($M = 0.99$, $SD = 0.88$, range = 0 - 4). The difference between samples may arise from differences in the level of competition and weight placed on goals in sport versus in a general exercise setting. Sport participation can promote evaluative opportunities such as self-evaluations, evaluations by others, and social comparisons (Fraser-Thomas, Cote & Deakin, 2005; Mosewich, Vangoor, Kowalski & McHugh, 2009). These types of evaluative experiences may be less formalized in an exercise context (e.g., less explicit competition and comparison). Therefore, athletes may experience greater pressure to succeed and perform to a certain standard (Ferguson et al., 2014; Mosewich et al., 2013; Mosewich et al., 2011) than exercisers. According to Ferguson and colleagues (2014), these athletes may answer this pressure to succeed with self-criticism when they do fail, and a general sense that self-compassion will make them complacent and therefore lower their standards (Ferguson et al., 2014). In contrast, exercisers, who are under less

formalized pressure to succeed, may view the idea of treating themselves kindly in the face of an exercise failure or set-back in a less jeopardizing manner.

The results of this study regarding the fear of self-compassion are promising. As self-compassion has been shown to assist with the adaptive self-regulation of exercise goals, both in this study and others (Magnus et al., 2010), creating interventions that focus on increasing individuals self-compassion may be helpful in improving exercise adherence, especially after an exercise failure or set-back. As such, it is important to know that general exercisers are typically not fearful of using self-compassion, and therefore would be open to learning how to use self-compassion while attempting to reach their exercise goals.

Gender Differences

While some argue that men have their own set of reasons for not being self-compassionate (e.g., emotional restrictiveness, subject to traditional male socialization patterns; Levant, 2011), I found that in an exercise context, men were slightly more self-compassionate than women ($M_{\text{men}} = 3.6$ versus $M_{\text{women}} = 3.0$, range: 1 - 5). These findings may not be surprising given that women tend to be more self-critical, use more negative self-talk (DeVore, 2013) and have lower levels of self-esteem (Gentile et al., 2009) than men. In addition, women exercisers report higher levels of social physique anxiety (the need to protect the presentation of oneself in the presence of others; Leary, 1992), extrinsic motives for exercise (Frederick, & Morrison, 1996) and, in the case of obligatory exercisers, motivation by negative factors such as guilt for stopping, the feeling of being addicted and needing an escape (Slay, Hayaki, Napolitano & Brownell, 1998). In the present study, men's higher levels of self-compassion may position them to set exercise goals that are focused on their health and well-being, be kind to themselves

when failures/set-backs arise, keep the failure/set-back in perspective by not ruminating or disengaging from their emotions and realize that everyone encounters exercise failures/set-backs.

The results from the present study supports previous studies' findings stating that although men report higher levels of self-compassion than women, the difference is not large. As such, it may be important to include men in future research examining self-compassion and exercise. In addition, since this is the first study to examine whether the genders differ on the self-compassion they use while setting and attempting to reach their exercise goals, more research should be conducted to add to these preliminary findings.

Self-Compassion and Self-Esteem

The findings of this thesis support the idea that although self-compassion and self-esteem are strongly correlated ($r = 0.78$), they are separate constructs. Specifically, self-compassion accounted for variance over and above that of self-esteem in some of the outcome variables (goal re-engagement, state rumination, negative affect). In addition, self-esteem was positively correlated with self-determined forms of exercise motivation (intrinsic and identified) after their exercise failure/set-back even when self-compassion was not. Therefore, in a general exercise context, it appears both self-esteem and self-compassion have their own distinct roles when experiencing an exercise failure/set-back. These results are at odds with previous research which states that self-esteem may offer no benefits over and above those attributable to self-compassion (Neff & Vonk, 2009). Instead, this study supports the tenant that self-compassion and self-esteem may be complementary to one another (Magnus et al., 2010) in the context of experiencing an exercise failure/set-back.

Study Strengths

There are several strengths of this thesis. A first strength is that it offers advancements to the current literature. To the best of my knowledge, only three other studies have previously examined self-compassion in the context of exercise self-regulation (Magnus et al., 2010; Sirois et al., 2015; Sirois, 2015); two of these studies examined health-promoting behaviours in general (exercise, sleep, healthy eating; Sirois et al., 2015; Sirois, 2015), while the other study focused on young, women exercisers who were university students (Magnus et al., 2010). My study extends these past studies by examining the self-regulation of exercise among women of a larger age range and among males from a community sample. In addition, this was the *first* study to examine self-compassion's role in the self-regulation of exercise after an exercise failure/set-back. As previous studies point to self-compassion's positive role in dealing with failures in other contexts (academic, sport; Neff et al., 2005; Reis et al., 2015), it is important to examine if these positive benefits also apply to the context of exercise. This was also the *first* study to examine the level of fear of self-compassion among general exercisers. Lastly, this study added to the existing literature by examining the difference between men and women on their levels of exercise-specific self-compassion.

Study Limitations and Future Considerations

The limitations of this thesis should be noted to guide interpretation of findings and future research on self-compassion's role on the self-regulation of exercise. First, there were a few methodological constraints that were limiting. Naturally, the cross-sectional design did not allow us to determine cause-and-effect (i.e.: high self-compassion causes individuals to have less negative affect after an exercise failure), but instead only provided information on the extent to

which one variable (self-compassion) varies directly or indirectly with another variable (goal re-engagement, rumination; Portney & Watkins, 2009). However, this cross-sectional test of self-compassion reactions to an exercise failure/set-back is an appropriate test of proof-of-concept (Czajkowski, Powell, Adler, Narr-King, Reynolds, Hunter, et al., 2015) at this early stage of research in this area. Further, this cross-sectional research provides a foundation for more complex research designs that should be used in future research (i.e.: experimental design) to determine whether increasing self-compassion leads to an increase in adaptive self-regulatory skills in a general exercise context (ie: goal re-engagement, decreased rumination etc).

Although conducting studies online has many benefits (Winett, Anderson, Wojcik, Winett, Moore, & Blake, 2011; Wrosch, 2005; van Stralen, de Vries, Muddle, Bolman, & Lechner, 2011), there are some drawbacks that were evident in this thesis. Firstly, glitches in the online survey system caused some questionnaires to not be visible to some participants, and therefore increased the amount of missing data throughout the data set (8.6%). Secondly, participants did not have the ability to ask questions about study instructions, which may have affected their ability to accurately answer the questionnaires. Lastly, my sample was restricted to only those who could navigate their way through an online survey, which may have introduced sample bias (i.e.: younger individuals with higher levels of education; Blasius & Brandt, 2010). In the future, researchers may want to conduct in-lab sessions with participants to reduce or eliminate some of these drawbacks.

Another limitation to this thesis was that individuals had to recall a past exercise failure/set-back that may have occurred as long as six months previously. This time lag may have affected participants' ability to recall exactly how they felt, or the extent of what they felt after their failure/set-back, and may have over- or under-represented their emotions. As this

study followed the design of past self-compassion research (Leary et al., 2007; Reis et al., 2015), future research may want to focus on the immediate reactions of individuals following an exercise failure or set-back.

Lastly, although our goal was to recruit equal numbers of men and women, over 80% of the sample used for the primary purpose consisted of Caucasian women. As the majority of Manitoban's self-identify as Caucasian (Statistics Canada, 2006), having a high sample of Caucasians is not surprising. The reason why the sample consisted mostly of women, may have been due to my recruitment strategies. Specifically, participants were recruited (in addition to other recruitment strategies) from a previous study (H2014:224) which consisted entirely of women. These women proved to be extremely interested in research, as a recruitment rate of 80% was seen. Other recruitment strategies that were used which had a more proportionate number of men and women, unfortunately did not yield as many interested participants (i.e.: speaking to exercise and university classes, putting up posters at local grocery stores). This problem is not unique to the present study; self-compassion research has also had an imbalance between men and women (Hall, Row, Wuensch & Godley, 2013; Neff et al., 2005; Sirois et al., 2015; Sirois, 2015). Therefore, although past studies have also found that men report slightly higher levels of self-compassion than women, these results need to be interpreted with care. It may be the case men who voluntarily participate in research have more self-compassionate qualities than those men who do not. Future researchers should focus on men in contexts where the traditional male socialization patterns may be more apparent and normalized (i.e., competitive sport, business executives etc) where there may be more hesitation to use a self-compassionate approach among these men.

Conclusion

This thesis' aim was to examine and provide information on self-compassion's role in exercise self-regulation after an exercise failure/set-back, while acknowledging the potential level of fear of self-compassion and gender differences that may arise within an exercise context. The results indicate that self-compassion may assist with adaptively self-regulating exercise behaviour after an exercise failure/set-back. Specifically, self-compassion may provide a strategy to deal with negative emotions, decrease rumination and extrinsic motivation for an exercise goal and re-engage in an exercise goal after an exercise failure/set-back. In addition, individuals appear to be open to engaging in a self-compassionate mindset in the context of their exercise goals. Lastly, this thesis provides support for previous research, which found that men report slightly higher levels of self-compassion than women (Yarnell et al., 2015) in the context of self-regulating their exercise.

As the majority of Canadians are not active enough to achieve the desired health benefits known to accrue from participating in exercise (Colley et al., 2011; Lee et al., 2010), it is important to establish what variables may assist with improving exercise adherence. As adaptive self-regulation is paramount to maintaining a complex behavior, such as exercise (Buckley et al., 2014; McAuley et al., 2011), establishing which variables assist with this adaptive process is extremely important (de Ridder & de Wit, 2006). Therefore, this research stands to contribute to this literature by acknowledging self-compassion's role in the adaptive self-regulation of exercise behavior.

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Appendix A: Eligibility Screening

1. Please tell us your age.

2. Is your health status such that you are able to participate in exercise? (Free of any injury/health conditions).
Y/N
3. Are you comfortable reading in English?
Y/N
4. Are you comfortable writing in English?
Y/N
5. Where do you live?
Canada/Not Canada
6. Are you part of a sport team?
Y/N
7. If you answered yes to the above question, what is the main reason you participate in your sport?
 - a) To Exercise
 - b) To Compete
 - c) Social Reasons
 - d) Other
 - e) Not Applicable
8. If you answered 'other', please specify:

9. Again, if you answered yes to being part of a sport team, would you say your participation in sport is:
 - a) Recreational
 - b) Competitive
 - c) Not Applicable
10. In the last 6 months have you experienced an exercise failure/set-back related to your exercise goals (ie: missing an exercise session, not completing a race...) that you

consider to be your fault (i.e. not making time) that you could provide an in-depth description about?

- a. Yes
- b. No

Appendix B: Baseline Measures

Measure 1: Demographic Measures

1. Please indicate your gender.
_____ Male
_____ Female

2. How did you hear about the study?
 - a. Through Facebook
 - b. Email
 - c. University of Manitoba advertisement
 - d. Community advertisement
 - e. Other

3. Please indicate your cultural background.
 - a. Caucasian
 - b. Aboriginal
 - c. Hispanic
 - d. African American
 - e. Asian
 - f. Other

4. Please indicate your marital status.
 - a. Single
 - b. Common-law
 - c. Married
 - d. Separated
 - e. Divorced

5. What is the highest level of education that you have completed?
 - a. Elementary
 - b. Secondary
 - c. College/vocational school
 - d. University
 - e. Postgraduate

6. What is your current employment situation?
- a. Stay at home parent
 - b. Student
 - c. Employed full time
 - d. Employed part time
 - e. Unemployed and not in school
 - f. Retired
7. Please indicate the province or territory in which you live.
- a. Yukon Territory
 - b. Saskatchewan
 - c. Quebec
 - d. Ontario
 - e. NW Territories
 - f. Nova Scotia
 - g. Newfoundland
 - h. New Brunswick
 - i. Manitoba
 - j. British Columbia
 - k. Alberta
 - l. PEI

9a. Considering the past 7-day period (a week), how many times on the average did you do STRENUOUS EXERCISE (heart beats rapidly, i.e. running, jogging, hockey, football, soccer) for more than 15 minutes during your free time?

9b. On average, how long were these sessions (in minutes)?

10a. Considering the past 7-day period (a week), how many times on the average did you do MODERATE EXERCISE (not exhausting i.e. fast walking, baseball, tennis, easy bicycling) for more than 15 minutes during your free time?

10b. On average, how long were these sessions (in minutes)?

11a. Considering the past 7-day period (a week), how many times on the average did you do MILD EXERCISE (minimal effort i.e. yoga, archery, fishing, bowling) for more than 15 minutes during your free time?

11b. On average, how long were these sessions (in minutes)?

Measure 2: Self-Compassion Scale

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

1(Almost never) ----- 2 ----- 3 ----- 4 ----- 5 (Almost Always)

____ 1. I'm disapproving and judgmental about my own flaws and inadequacies.

____ 2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.

____ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.

____ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.

____ 5. I try to be loving towards myself when I'm feeling emotional pain.

- ___ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
- ___ 7. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.
- ___ 8. When times are really difficult, I tend to be tough on myself.
- ___ 9. When something upsets me I try to keep my emotions in balance.
- ___ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
- ___ 11. I'm intolerant and impatient towards those aspects of my personality I don't like.
- ___ 12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
- ___ 13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
- ___ 14. When something painful happens I try to take a balanced view of the situation.
- ___ 15. I try to see my failings as part of the human condition.
- ___ 16. When I see aspects of myself that I don't like, I get down on myself.
- ___ 17. When I fail at something important to me I try to keep things in perspective.
- ___ 18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
- ___ 19. I'm kind to myself when I'm experiencing suffering.
- ___ 20. When something upsets me I get carried away with my feelings.
- ___ 21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
- ___ 22. When I'm feeling down I try to approach my feelings with curiosity and openness.
- ___ 23. I'm tolerant of my own flaws and inadequacies.
- ___ 24. When something painful happens I tend to blow the incident out of proportion.
- ___ 25. When I fail at something that's important to me, I tend to feel alone in my failure.
- ___ 26. I try to be understanding and patient towards those aspects of my personality I don't like.

Measure 3: Self-Esteem Scale

Instructions: Below is a list of statements dealing with your general feelings about yourself. To the left of each item, indicate how much you agree with the statement using the following scale:

SA = Strongly Agree A = Agree D = Disagree SD = Strongly Disagree

- ___ 1. On the whole, I am satisfied with myself.
- ___ 2.* At times, I think I am no good at all.
- ___ 3. I feel that I have a number of good qualities.
- ___ 4. I am able to do things as well as most other people.
- ___ 5.* I feel I do not have much to be proud of.
- ___ 6.* I certainly feel useless at times.
- ___ 7. I feel that I'm a person of worth, at least on an equal plane with others.
- ___ 8.* I wish I could have more respect for myself.
- ___ 9.* All in all, I am inclined to feel that I am a failure.
- ___ 10. I take a positive attitude toward myself.

Measure 4: Exercise Specific Self-Compassion Scale

Instructions: Difficulties and set-backs will sometimes occur when trying to work toward an exercise goal. For each item, please indicate how often you behave in the stated manner when difficulties or setbacks occur while trying to reach your exercise goal. Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

1(Almost Always) ----- 2 ----- 3 ----- 4 (Almost Never)

- ___ 1. When I fail at my exercise goal I become consumed by feelings of inadequacy
- ___ 2. I try to be understanding and patient towards those aspects of my personality I don't like in regards to my exercise.
- ___ 3. When something painful happens during my exercise I try to take a balanced view of the situation.
- ___ 4. When I'm feeling down about my ability to exercise, I tend to feel like most other people are probably happier than I am.
- ___ 5. I try to see my exercise failures/set-backs as part of the human condition.
- ___ 6. When I'm going through a very hard time with trying to reach my exercise, I give

myself the caring and tenderness I need.

___ 7. When something about my ability to exercise upsets me I try to keep my emotions in balance.

___ 8. When I fail at my exercise goals, I tend to feel alone in my failure.

___ 9. When I'm feeling down about my ability to exercise I tend to obsess and fixate on everything that's wrong.

___ 10. When I feel inadequate in regards to my exercise, I try to remind myself that feelings of inadequacy are shared by most people.

___ 11. I'm disapproving and judgmental about my own flaws and inadequacies when it comes to my ability to exercise.

___ 12. I'm intolerant and impatient towards those aspects of my personality I don't like in regards to my ability to exercise.

Measure 5: Exercise Specific Fear of Self-Compassion Scale

Instructions: When answering the following questions, please think about how you feel while setting and attempting to reach your exercise goals. To the left of each item, indicate how much you agree with the statement, using the following scale:

0 (Don't agree at all) ----- 1 ----- 2 ----- 3 ----- 4 (Completely agree)

___ 1. I worry that if I start to develop compassion for myself I will become dependent on it.

___ 2. I fear that if I become too compassionate to myself I will lose my self-criticism and my flaws will show.

___ 3. I fear that if I develop compassion for myself, I will become someone I do not want to be.

___ 4. I fear that if I am more self-compassionate I will become a weak person.

___ 5. I fear that if I am too compassionate towards myself bad things will happen.

___ 6. I fear if I become kinder and less self-critical to myself then my standards will drop.

___ 7. I fear that if I become too compassionate to myself others will reject me.

___ 8. I would rather not know what being 'kind and compassionate to myself' feels like.

___ 9. I fear that if I start to feel compassion and warmth for myself, I will feel overcome with a sense of loss/grief.

___ 10. When I try and feel kind and warm to myself I just feel kind of empty.

___ 11. I have never felt compassion for myself, so I would not know where to begin to develop these feelings.

___ 12. I feel that I don't deserve to be kind and forgiving to myself.

___ 13. If I really think about being kind and gentle with myself it makes me sad.

___ 14. Getting on with life is about being tough rather than compassionate.

___ 15. I find it easier to be critical towards myself rather than compassionate.

Appendix C: Recalling Exercise Failures

Instructions: For this next section, please ensure you put all distractions away and read the question very carefully. Please think through and answer the question with as much detail as possible as there will be questions afterward. **Think back to a time you have experienced an exercise failure or set-back within the last 6 months that you consider to be *your* fault (i.e. you did not make time for exercise, you chose going out with friends instead, you slept in...).** An example of an exercise failure could be a time you signed up for a race but were not able to complete the race, or you set an exercise goal (such as going to the gym 3 times a week) but life got in the way and you stopped going. Please provide a detailed description of an example of an exercise failure or set-back you have experienced below. Again, please ensure all distractions are away and please take your time responding to this question.

In the big scheme of things, how bad was this exercise failure/set-back to you?

1 (not bad at all) **2** (slightly) **3** (somewhat) **4** (moderate) **5** (very) **6** (extremely)

Appendix D: Measures of Reactions to Exercise Failures

Measure 1: Situational Motivation Scale

Instructions: When you think back to your exercise failure/set-back that you experienced within the last 6 months, when you thought about getting back on track afterwards, which of the following reasons for re-engaging in exercise applied to you? To the left of each item, indicate how much the statement applied to you, using the following scale:

1 (Corresponds not at all) ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7 (Corresponds exactly)

- ___ 1. Because I thought that this activity was interesting
- ___ 2. Because I was doing it for my own good
- ___ 3. Because I was supposed to do it
- ___ 4. There may be good reasons to do this activity, but personally I didn't see any
- ___ 5. Because I would feel bad not doing it
- ___ 6. Because I thought that this activity was pleasant
- ___ 7. Because I thought that this activity was good for me

- 8. Because it was something that I had to do
- 9. I did this activity but I was not sure if it was worth it
- 10. Because I would feel guilty not to do it
- 11. Because this activity was fun
- 12. By personal decision
- 13. Because I didn't have any choice
- 14. I don't know; I didn't see what this activity brings me
- 15. Because I wanted to avoid feeling guilty
- 16. Because I felt good when doing this activity
- 17. Because I believed that this activity was important for me
- 18. Because I felt that I had to do it
- 19. I do this activity, but I was not sure it was a good thing to pursue it
- 20. Because I would regret not doing it

Measure 2: Goal Re-Engagement Scale

Instructions: Once again, please keep the exercise failure/set-back that you just recalled in mind as you respond to the next set of questions. When you experienced the exercise failure/set-back, to what extent did each of these statements apply to you? To the left of each item, indicate how much the statement applied to you, using the following scale:

1 (Almost never true) ----- 2 ----- 3 ----- 4 ----- 5 (Almost always true)

- 1. I thought about new exercise goals to pursue
- 2. I sought out other exercise goals
- 3. I convinced myself that my exercise goals are meaningful
- 4. I told myself that I have a number of exercise goals to draw on.
- 5. I restarted working on an exercise goal.
- 6. I put effort toward an exercise goal.

Measure 3: State Rumination Scale

Instructions: Please keep the exercise failure/set-back that you just recalled in mind as you respond to the next set of questions. When you experienced the exercise failure/set-back, to what extent did each of these statements apply to you? To the left of each item, indicate to what extent the statement applied using the following scale:

1 (Not at all) ----- 2 ----- 3 ----- 4 ----- 5 (A lot)

- 1. Did you find it hard to stop thinking about the failure/set-back afterwards?
- 2. When thinking about the failure/set-back afterward, did your thoughts tend to dwell on negative aspects of it, or how badly you felt about it?

___ 3. Does thinking of the failure/set-back tend to make it seem worse or make you feel worse about it?

Measure 4: Affect Scale

Instructions: Please keep the exercise failure or set-back that you just recalled in mind as you respond to the next set of questions. When you think back to how you felt after the exercise failure/set-back please indicate the extent to which you experienced each emotion. Please read each question carefully. To the left of each item, indicate to what extent you felt each emotion using the following scale:

1(Not at all) ----- 2 ----- 3 ----- 4 ----- 5 ----- 6 ----- 7 (Extremely)

- ___ 1. After the exercise failure/set-back, what degree did you feel **sad**?
- ___ 2. After the exercise failure/set-back, what degree did you feel **dejected**?
- ___ 3. After the exercise failure/set-back, what degree did you feel **down**?
- ___ 4. After the exercise failure/set-back, what degree did you feel **depressed**?
- ___ 5. After the exercise failure/set-back, what degree did you feel **nervous**?
- ___ 6. After the exercise failure/set-back, what degree did you feel **tense**?
- ___ 7. After the exercise failure/set-back, what degree did you feel **worried**?
- ___ 8. After the exercise failure/set-back, what degree did you feel **anxious**?
- ___ 9. After the exercise failure/set-back, what degree did you feel **angry**?
- ___ 10. After the exercise failure/set-back, what degree did you feel **irritated**?
- ___ 11. After the exercise failure/set-back, what degree did you feel **mad**?
- ___ 12. After the exercise failure/set-back, what degree did you feel **hostile**?
- ___ 13. After the exercise failure/set-back, what degree did you feel **embarrassed**?
- ___ 14. After the exercise failure/set-back, what degree did you feel **humiliated**?
- ___ 15. After the exercise failure/set-back, what degree did you feel **disgraced**?
- ___ 16. After the exercise failure/set-back, what degree did you feel **ashamed**?
- ___ 17. After the exercise failure/set-back, what degree did you feel **incompetent**?
- ___ 18. After the exercise failure/set-back, what degree did you feel **worthless**?
- ___ 19. After the exercise failure/set-back, what degree did you feel **stupid**?
- ___ 20. After the exercise failure/set-back, what degree did you feel **self-conscious**?

Appendix E: Recruitment Communication



Health, Leisure & Human
Performance Research
Institute

PARTICIPATE IN EXERCISE RESEARCH

We are looking for participants to be involved in our ONLINE EXERCISE study.

You MAY be eligible if:

- You can recall a past exercise failure/set-back within the last 6 months (i.e. not reaching an exercise goal)
- You are an adult (18-64) living in Canada
- Your health status is such that you may engage in exercise

Note: A few eligibility questions will be asked to ensure that individuals meet the study's eligibility criteria. Time committed associated with the study is approximately 45 minutes.

You will receive:

- A \$5 gift card to Chapters-Indigo or Starbucks (your choice!)

Your help is greatly appreciated!

This research has been approved by the Education and Nursing Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122 or humanethics@umanitoba.ca.

Reactions to Exercise Failures or Set-Backs

Appendix F: Consent Form

Consent Form

You have just completed the eligibility screening. We are pleased to inform you that you are eligible to participate in the study! Below is the consent form containing important information about the study. It is important that you indicate your consent at the bottom.

Exercise Study - Consent Form

Please read this form carefully and feel free to contact the researchers via phone or email if you have any questions.

Principal investigator

Brittany N. Semenchuk

Master's Student, University of Manitoba, Faculty of Kinesiology and Recreation Management

Advisor

Dr. Shaelyn Strachan

Assistant Professor, University of Manitoba, Faculty of Kinesiology and Recreation Management

Invitation to Participate: You are invited to participate in the online research study conducted by Brittany Semenchuk and her advisor Dr. Shaelyn Strachan.

This consent form, a copy of which will be left with you for your records and reference, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Purpose of the Study: The purpose of this study is to increase the understanding of how exercise failures or set-backs effect people's thoughts and feelings about exercise.

Participation: Your participation will consist of completing a series of online questionnaires which will take you approximately 45-50 minutes.

Risks: Your participation in this study will involve you recalling a past exercise failure/set-back, which may make you feel uneasy or stressed. If this is the case, please do not hesitate to contact Health Links at (204) 788-8200, or stop the questionnaire at any point.

In addition, we will be asking you to disclose personal information, for example your age, gender, and marital status and this may cause you to feel slightly uneasy. However, it is acknowledged that all of the

information provided will be kept in strict confidence, and no one other than the researchers will be able to trace your answers back to you.

This study may influence some participants to engage in exercise. Participating in exercise may, for some people, lead to temporary physical responses such as muscular discomfort or fatigue. Furthermore, exercise may aggravate underlying medical conditions.

A final risk is that the time commitment may be an inconvenience for some participants.

These risks associated with this study are not expected to surpass the risks associated with daily life.

Benefits: You may be helping to contribute to the understanding of factors that influence exercise participation and adherence. If you are interested, you can ask for the study results once they are available. Finally, you may also learn more about exercise. It should be noted that these benefits are not guaranteed.

Confidentiality and anonymity: If you participate in this study, the information that you share will remain strictly confidential. Your information and data will only be used to examine the research questions of this study. Also, the principal researcher and the advisor will merge your data with that of the other participants and once the data analyses have been completed and the project is finished, your contact information will be dissociated from your responses. Aggregated data stemming from this research will be presented as a Master's thesis at the University of Manitoba. In addition, aggregated data could be presented at academic conferences and/or published in academic journals. Your contact information responses will be kept on a password-protected computer in the advisor's locked lab. Any hard copies of your data will be kept in a locked filing cabinet in the advisor's locked lab as well. Neither your name nor contact information will appear in any publications stemming from this research.

Conservation of data: As explained above, the electronic data will be stored on the principal researcher's password-protected computer and on a USB mass storage device in the advisor's locked office or lab. The USB key will also be kept in a locked filing cabinet in the advisor's office or lab, as will any hard copies of the data. When the project is completed, the electronic data files stored on the computer will be destroyed. The USB mass storage device with the downloaded original data and any hard copies of this data will then be stored in a locked filing cabinet in the advisor's locked office or lab for five years. The principal investigator and the advisor will have access to this data. After this five-year period (December 2022), all electronic data will be permanently deleted and any hard copies will be cross-shredded.

Compensation: A \$5 Chapters-Indigo/Starbucks (your choice) gift card will be provided to you at the completion of the study to thank you for participating.

Voluntary Participation: You are under no obligation to participate and if you choose to participate, you can withdraw from the study at any time and/or refuse to answer any questions, without suffering any negative consequences. If you wish to withdrawal from this study, you can exit the online survey at any point and/or you may contact the researcher. If you choose to withdraw, you can ask that all of your data gathered until the time of withdrawal be deleted from computer files and the USB mass storage device, for hard copies to be cross-shredded, and for none of your data to be used in data analyses.

Debriefing: At the end of the study you will be debriefed on the study details. At the end of the study you will be provided with the opportunity to leave your contact information and, when available (approximately December 2017), a summary of results will be emailed to you, if you so wish.

Research Dissemination: For dissemination all data will be presented in aggregate form and neither your name nor contact information will appear in any publications stemming from this research. The findings will be presented at the University of Manitoba as part of the researcher's Master's defense. In addition, the findings may be presented at academic conferences to other researchers and academics in the field and/or published in academic journals.

Your signature on this form indicates that you have understood to your satisfaction the information regarding participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and /or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

The University of Manitoba may look at your research records to see that the research is being done in a safe and proper way.

This research has been approved by the Education and Nursing Research Ethics Board. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 474-7122 or by email at humanethics@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

Participant Signature _____ **Date** _____

Researcher and/or Delegate's Signature _____ **Date** _____

Should you choose to withdraw from this study do we have your permission to contact you to ask whether or not we can still use your data?

- Yes
 No

Do you wish to receive to receive a summary of results at the end of the study?

Yes

No

If so, please provide mailing or email address that you would like these results sent to:

Appendix G: Debriefing Form

Thank you very much for participating in this study! Your participation is very valuable and contributes greatly to this research. We ask that you please not share the information in this form with others who may be participating in this study. It is important that participants complete the study without knowledge of its specific purpose.

Up to this point you were told that the study was to increase the understanding of how exercise failures or set-backs effect people's thoughts and feelings about exercise. Now that you have completed the study we can give you more specific information about it. The purpose of this study was to increase the understanding of the role of self-compassion in the self-regulation of exercise after an exercise failure. During the online study, measurements were taken to see if individuals' level of self-compassion was associated with more adaptive responses to a recalled exercise failure or set-back, such as continuing with an exercise goal, less rumination and less negative emotions after the exercise failure or set-back. In addition, we were interested in how fearful you are of using self-compassion while setting and following through with your exercise goals. Lastly, we were also interested in whether males and females differed in their level of self-compassion in an exercise context.

We do not yet have all the study results, but we look forward to seeing how our research may contribute to the knowledge about self-compassion and self-regulation after exercise failures or set-backs. We estimate that a summary of the results will be available by December 2017. If you would like a summary of these results please indicate that here as well as how you would like to be contacted with that summary of results when they become available.

As some information about the true purpose of the study has been kept from you until this point, you have the right to withdraw your data. In this case, your data will be destroyed and not used in the analyses. Choosing to withdraw will not lead to any negative consequences for you. If you want your data removed, please contact the principal investigator.

If you have questions or comments about this study, please contact the principle researcher (contact information listed below). Again, we ask that you not share the information presented here. It is possible that if participants know the whole purpose of the study, the results may be affected.

Thanks again!

Principal Investigator:

Brittany N. Semenchuk
Master's Student, University of Manitoba, Faculty of Kinesiology and Recreation Management

Advisor:

Dr. Shaelyn Strachan
Assistant Professor, University of Manitoba, Faculty of Kinesiology and Recreation Management

We would also like to assure you that the University of Manitoba Education/Nursing Research Ethics Board has approved of this research. If you have any questions regarding your rights as a participant, you may contact the Human Ethics Coordinator at: (204) 474-7122 or humanethics@umanitoba.ca.