A Study Evaluating the Feasibility of a Self-Compassion Meditation on Body Image in Retired Athletes

Sarah Beverly Eileen Hough
Bachelor of Science, University of Ottawa, 2021

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We acknowledge and respect the Lək^{w}əŋən (Songhees and X^{w}sepsəm/ Esquimalt) Peoples on whose territory the university stands, and the Lək^{w}əŋən and W̱ SÁNEĆ Peoples whose historical relationships with the land continue to this day.

Supervisory Committee

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Supervisory Committee

Dr. Ryan Rhodes, UVic Department of Health
Supervisor

Dr. Colette Smart, UVic Department of Psychology
Committee Member

Abstract

Background: Retirement from sport is a major life transition that can result in emotional and psychological distress, particularly regarding body image. Former athletes with strong athletic identities may face heightened vulnerability to negative body image and related psychological difficulties. Despite growing interest in interventions for practicing athletes, body image interventions for retired athletes remain scarce. Self-Compassion meditations have shown to improve self-compassion and body appreciation, as well as decrease body shame, contingencies of self-worth based on appearance, as well as body dissatisfaction in some populations, however no research has studied its effects on retired athletes.

Purpose: This study aimed to evaluate the feasibility of a three-week, 20-minute self-compassion meditation intervention adapted by Albertson et al. (2015) for retired athletes experiencing body image concerns. The primary goal was to assess recruitment, retention, and satisfaction with the intervention. Secondary outcomes included changes in self-compassion, body dissatisfaction, body shame, body appreciation, and appearance-contingent self-worth.

Methods: A mixed-methods feasibility trial was conducted with retired athletes who engaged in a 21-day self-guided online self-compassion meditation intervention. 32 participants aged 18+ who had competed in sport at the collegiate, provincial, or national level were recruited. Participants enrolled throughout the recruitment period determined recruitment rate, and the participants remaining at the end of the intervention determined retention rate. Quantitative data were analyzed using ANCOVAs controlling for baseline values to assess exploratory secondary outcomes. Qualitative feedback was assessed through thematic analysis of open-ended responses from the satisfaction survey to assess acceptability.

Results: The study demonstrated highly feasible retention (86.49%), and low recruitment (10 participants/month). Participants who completed the intervention reported improvements in body appreciation (d=0.83) and self-compassion (d=1.43), and reductions in body dissatisfaction (d=-0.54), body shame (d=-1.36), and contingent self-worth based on appearance (d=-0.59). Qualitative themes revealed increased body awareness, positive shifts in self-perception, and high acceptability of the intervention content and format.

Conclusion: The self-compassion meditation intervention appears to be a feasible and acceptable strategy for addressing body image concerns in retired athletes. Preliminary outcomes suggest promising psychological benefits. To better assess its effectiveness and long-term impact, a larger scale randomized controlled trial is warranted. Future research would benefit from employing more objective measurement tools, enhancing recruitment strategies, and increasing sample diversity.

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Dedication

First, I would like to dedicate this thesis to my parents, Joanne and Allan Hough. Mom and dad, the greatest constant in my life has been the love and support you both have given me. Thank you for the endless encouragement and support through all the wins and hardships that accompanied more than a decade of competitive figure skating. Thank you for encouraging me in every new direction I've decided to take since. One memory that will always stay with me is when I set off to move across the country to Victoria; Just four hours into the drive, I was convinced my car was breaking down. Without hesitation, you both dropped everything, met me where I had stopped driving, and swapped vehicles so I could keep going – never swapping back. That moment captured exactly who you guys are – generous, selfless, and always there when I need you most. Thank you for your endless patience, understanding and belief in me throughout this degree. I wouldn't be here without you.

I would also like to dedicate this thesis to my brother Jeff Hough. Jeff, for many years you had compassion for me when I did not have the space to have it for myself. Thank you for always being my loudest supporter and showing me by example that when you set your mind to something, anything is possible. And of course, thank you for the many years of tutoring. I'm sorry that despite your best efforts, I still pray to never take a calculus class again.

Lastly, I'd like to dedicate this thesis to those athletes who have struggled with body image both throughout and after competitive sport. I hope that over time this pain becomes less consuming, and that research in the field continues to recognize and work towards more favourable environments for those who have and who currently struggle

Chapter 1

The culture of competitive sport is one that provides individuals with a sense of purpose; it creates identity through having role models (Ishigami, 2019), increasing self-esteem (Matheson et al., 2023), feelings of accomplishment (Lieberman et al., 2023), and carries benefits such as better well-being (Napolitano et al., 2021), meeting physical activity guidelines (Wilson et al., 2022), and better academic success (Vasold et al., 2020). Alongside these benefits, it is important to note that sport participation may have equally long-term consequences which can negatively impact quality of life. In 2021, one in five retiring athletes reported experiencing crisis in the retirement transition, which is characterized by lack of adjustment, ongoing psychological distress, depression, and low self-esteem (Cosh et al., 2021). Crisis in retirement transition is experienced by athletes who are undergoing "athlete retirement". This can be defined as "the process of transition from participation in competitive sport to another activity or set of activities" (Mannes et al., 2019). This process is inevitable and may be extremely distressing as athletes contend with the social, vocational, financial, occupational, and/or emotional changes that accompany retirement (Giannonne et al., 2017; Galli et al., 2022).

Athletic Identity and Psychological Vulnerability

Many athletes dedicate countless years of their life to improving within their sport and consider the role of being an athlete to be a crucial part of their identity. During adolescence, a time which is critical for identity development, some individuals may even submit to athletic identity foreclosure – A phenomenon characterized by strongly committing to the athletic role without exploring other identity alternatives (Brewer & Petitpas, 2017; Claes et al., 2025). Athletic identity foreclosure can then lead to athletic ruminative exploration, which occurs when an athlete repeatedly worries about sport-identity related choices (rather than other forms of

identity choices) and is associated with higher levels of depressive symptoms and more exercise to control weight (Claes et al., 2025). This can further be cause for concern, as upon athlete retirement individuals who identify with stronger, more exclusive athletic identities (the degree to which one identifies with the athletic role) are more susceptible to experience emotional and psychological difficulties (Giannonne et al., 2017; Papathomas et al., 2018; Beamon, 2012). Further problematic, this is the same population that has been found less likely to seek psychological help when in need (Giannonne et al., 2017). Athletes transitioning out of sport have described this transition as a traumatic life event, accompanied by stress, identity crisis, and feelings of loss (Pica et al., 2019). Negative outcomes experienced through athlete retirement have also been found to persist one to six years after sport participation has ceased, meaning this issue is more than just a temporary adjustment barrier (Filbay et al., 2019). More possible psychological difficulties experienced by retiring athletes include depression/anxiety (van Ramele et al., 2017; Shander & Petrie, 2021), poor coping skills (Menke & Germany, 2019), alcohol abuse (van Ramele et al., 2017; Shander & Petrie, 2021), sleep disturbances (van Ramele et al., 2017; Shander & Petrie, 2021), and negative body image (Giannonne et al., 2017; Grove et al., 1997).

Body Image

Negative body image relates to all characterizations of crisis in retirement transition and especially to retiring athletes (Mannes et al., 2019; Vani et al., 2021; Ahadzadeh et al., 2018). The term “body image” describes a multidimensional construct that includes how one sees, thinks, feels, and behaves related to their body’s appearance and function (Cash & Smolak, 2011; Vani et al., 2021). Body image may be seen through a positive or a negative facet, where positive body image encompasses the body with love and respect and is associated with positive

outcomes (Albertson et al., 2015), and negative body image involves anxiety from one's body, as well as embarrassment from being seen by others, and is associated with negative outcomes (Osumi et al., 2014). Body image is not simply positive or negative; it has four different dimensions and while one may be affected negatively, another dimension may still remain positive. These dimensions, as defined by Cash and Smolak (2011) include the (1) perceptual dimension (how one sees and describes their body appearance and function); (2) cognitive/attitudinal dimension (which represents thoughts, feelings beliefs, and evaluations about one's body appearance and function); (3) affective dimension (an individual's feelings and emotions about body appearance and function); (4) behavioral dimension (decisions and actions which results from perceptions, thoughts and/or feelings about body appearance and function).

These dimensions may further be positively or negatively affected based on certain moderators. Body image moderators may be dependent on the population being studied. However, some examples include gender, to which women are more at-risk of negative body image than men (Voges et al., 2022), social media usage which is positively correlated with negative body image (Thompson & Harringer, 2023), weight fluctuation which is positively correlated with negative body image (Winter, 2014), and sport participation, which is further divided in to its own subset of moderators (Ouyang et al., 2020). If one were to use athletes as a population, sport-specific moderators could include (1) sporting intensity, which has been positively correlated with negative body image (Kong & Harrison, 2015); (2) athlete identity (positive correlation with negative body image when identities are more exclusive, especially throughout retirement) (Papathomas et al., 2018), 3) sport type (where aesthetic, lean-sport and individual athletes are more at-risk for negative body image) (Firrozjah et al., 2022), 4) sport-related pressures (where more pressure frequency and intensity creates more risk for negative

body image) (Hardie et al., 2022), and 5) athlete retirement, where the athlete shifts from a "performer" role, to beginning the life of an "ordinary person" and develop a greater risk for poor body image (Hardie et al., 2022; Galli et al., 2022). Athlete retirement also comes with its own subset of unique moderators within body image.

In addition to the unique body image concerns experienced during sport, retiring athletes face their own distinct challenges related to body image. Components of body image in retirement include the following; (1) Years of trained/learned norms and the influence of coaches in the sport context may encourage athletes to adopt unhealthy messages, (2) retiring athletes must often completely relearn what a "normal" body and "normal" fitness routine looks like, (3) as they experience inevitable social comparisons, social acceptance, and social pressures, they are not only navigating tensions between normalized body 'ideals' and their current social networks and identities, but also their identification with the body that they worked for and identified with for the majority of their lives (Hardie et al., 2022; Rudd & Carter, 2006). As a result, former athletes may develop a heightened sensitivity to even small body-related changes (Carrigan et al., 2015; Kerr et al., 2006; McMahon & Penney, 2013). There are also many influential factors to retirement (injury, involuntary retirement, finances, motivation, excessive commitment), and the reason for an athlete's retirement may be heavily correlated with their body image perceptions (Fernandez et al., 2006; Hardie et al., 2022); A former athlete who retired due to injury and is no longer physically capable of training to previous intensities is more susceptible to having body image issues compared to an athlete who retired in order to spend more time with family (Sinclair & Orlick, 1993; Fernandez et al., 2006). This, however, is not to say both athletes cannot experience equal or inverse changes in body image perceptions due to the simple act of leaving their sport (Galli et al., 2022). As Hardie et al., (2022) stated, body

image is influenced by “an interwoven and ever-evolving combination of factors at multiple levels”.

Thematic Patterns in Retired Athlete Body Image

Although experiences of retirement may vary greatly based on the individual, Papathomas et al., (2018) found three common themes experienced by retiring athletes: (1) Western body ideals are dominant throughout retirement from sport; (2) Athletes often feel “fat, flabby, and ashamed”; and (3) athletes often stay committed to the former self. Having a greater understanding of these themes is important, as negative outcomes such as poor body images can become obsessive, and hinder an individual’s daily functioning (Vani et al., 2021). Negative body image has been linked to further issues such as body image pathologies (characterized by inaccurate perceptions of flaws, related to the body and its characteristics which are dysfunctioning to an individual’s quality of life) (Vani et al., 2021). Disordered eating can further be derived from body dysmorphia, which elicits irregular eating habits such as excessive dieting, binge eating, and inappropriate weight-loss techniques (Vani et al., 2021). The onset of eating disorders would then be more likely, which can be defined as a recognized mental disorder characterized by disordered eating (Prnjak et al., 2022; Doumit et al., 2016; Vani et al., 2021; American Psychiatric Association, 2013).

Gaps in Support and Intervention

As a professional athlete progresses within their career, many resources are available to them in order to maximize performance (physiotherapists, mental performance consultants, sport psychologists, nutritionists, etc). When an athlete retires however, resources to manage distress are limited, notably regarding body image (Gouttebarge et al., 2019). Most research regarding body image in sport focuses on practicing athletes, and not athletes who have undergone

retirement (Cosh et al., 2021). Although body image is still a major issue for athletes currently competing in their sport, research has shown that athletes who are no longer competing tend to be neglected in this regard (Barrett & Petrie, 2020). Early interventions for retiring athletes who experience negative body image could prevent the onset of further negative issues (e.g., eating disorders) and greatly improve their quality of life. Effective body-image interventions could be life-changing for former athletes, however, there are no current experimental studies regarding body image interventions for this population (Stephan & Billard, 2003; Hardie et al., 2022). Some experimental studies, however, have measured body image interventions within the scope of other populations such as practicing athletes (Perelman et al., 2022), in-patients with eating disorders (Caddy & Richardson, 2012), pregnant and postpartum women (Papini et al., 2022) or individuals who have undergone cancer treatment (Zhao et al., 2023). This information is useful as examining treatments used within other populations may provide a starting point for potential interventions within former athletes.

Meditation and Self-Compassion Interventions

One body image intervention that has been used for athletes is the practice of meditation, otherwise defined as a technique which "focuses on the interactions between the brain, mind, body and behavior at an intensity at which behavioral, spiritual, mental, and emotional factors can directly influence the overall health status of individuals" (Oliveira et al., 2023). This cost-effective remedy has been associated with greater attentional orienting and executive control (Wachholtz et al., 2017), reductions in migraines (Tsai & Chou, 2016), reductions in body dissatisfaction (Albertson et al., 2015; de Wet et al., 2020; Papini et al., 2022), body shame (Albertson et al., 2015; Papini et al., 2022), contingent self-worth based on appearance (Albertson et al., 205; Papini et al., 2022), as well as gains in self-compassion and body

appreciation (Albertson et al., 2015; de Wet et al., 2020; Papini et al., 2022). Many different forms of meditation exist and differ in terms of physical and mental stimulation, as well as overall goal; it has been described to have been adopted into contemporary culture with "a broad spectrum of practices, processes, and characteristics" (Todd & Aspell, 2022). One particularly effective form of meditation is self-compassion training in the form of meditation.

Self-compassion training (SCT) is an acceptance-based approach; It is a fundamental component of Buddhist teachings formed of three interconnected elements: mindfulness, self-kindness, and common humanity (Toole & Craighead, 2016). SCT assumes greater benefit of approaching imperfections with care and kindness rather than harsh self-criticism, shame, or perfectionism - the same characteristics which are likely to cause and/or maintain body image distress (Toole & Craighead, 2016). Self-compassion may alleviate body image distress in a variety of fashions: it may give individuals a different way of relating to themselves, it may increase gratitude, well-being, life satisfaction and optimism, and finally it may provide greater capacity to effectively deal with psychological stressors (Toole & Craighead, 2016; de Wet et al., 2020; Albertson et al., 2015). Research has also indicated that self-compassionate individuals are psychologically healthier than those who lack self-compassion; Self-compassionate individuals score lower on scales of pathology for depression, anxiety, and stress and demonstrate higher scores of happiness, emotional intelligence, optimism, curiosity, and personal initiative (Albertson et al., 2015; Heffernan et al., 2010; Hollis-Walker & Colosimo, 2011; Neff et al., 2007). Self-compassion may also act in form of protection, as it can mediate negative states (such as guilt) and instead create a context where those negative states become motivating, and in-line with an individual's identity (Strachan et al., 2025). For athletes, practicing self-compassion has been found to buffer emotionally difficult sport experiences (Reis et al., 2019).

Given these findings, it is encouraging that male athletes have also described willingness and acceptance for self-compassion training if it will bring them closer to their desired outcomes (Reis et al., 2022).

Aim and Contributions

The purpose of this study was therefore to examine the feasibility of a three-week, 20-minute self-compassion meditation podcast focused on body image and initially adapted by Albertson et al. (2015). This study determined whether this intervention would be feasible for individuals undergoing athlete retirement. To progress in to a larger-scaled randomized control trial, progression criteria had to meet previous literature guidelines in order to be considered feasible (Czajkowski et al., 2015). The primary outcomes were recruitment rate, retention, and satisfaction. Secondary outcomes were also explored to support the recommendation whether to progress, and included scores on self-compassion, body dissatisfaction, body shame, body appreciation, and contingent self-worth based on appearance. It was hypothesized that while recruitment rate and retention may be low due to the nature of the participants being studied [(low body image, therefore likely to have poor mental health and be less motivated to participate in studies) (Firth et al., 2016; Lederman et al., 2020; Sylvia et al., 2013)], that acceptability would be high, and body image would show signs of improvement via the secondary outcomes.

Research Questions and Progression Criteria

The purpose of conducting a phase II feasibility study was to ensure the intervention would be viable for this population, before spending larger sums of resources on a larger randomized control trial. Further, feasibility studies enable researchers to discover potential barriers in the study before moving on to a larger trial. Primary feasibility outcomes of this trial included

recruitment rate, retention rate, and satisfaction. Secondary outcomes included self-compassion, body dissatisfaction, body shame, body appreciation, and contingent self-worth based on appearance. It was predicted that recruitment and retention would be lower than other feasibility trials using this intervention due to the nature of participants being studied (poor body image, often associated with poorer mental health and can therefore experience a lack of motivation in study participation) (Firth et al., 2016; Lederman et al., 2020; Sylvia et al., 2013). Thus, a feasible recruitment rate accounting for this factor was 30 participants within 60 days (60-days = moderate feasibility; >90 days = low feasibility) (Turk et al., 2022). Retention rate was deemed feasible at greater than or equal to 70% (Which will be calculated by taking individuals who completed the three-week intervention and deviding by the number of individuals enrolled in the study including dropouts) (Thomas et al., 2004; Sandgreen et al., 2022). Similar to previous feasibility studies in body image, treatment acceptability was assessed via the proxy of retention rates (100% = high, 80% = moderate, <80% = low) (Turk et al., 2022). Further, acceptability was measured using a seven-point satisfaction survey score where 1 (i.e., Strongly Disagree) indicates high levels of dissatisfaction and 7 (i.e., Strongly Agree) indicates high levels of satisfaction. As such, a mean score of ≥ 3.5 for greater than 50% of the intervention participants was deemed acceptable (Lambert et al., 2018). Finally, it was expected that participants who completed the intervention would have greater scores in self-compassion and body appreciation, as well as lower scores in body dissatisfaction, body shame, and contingent self-worth based on appearance compared to their scores at baseline. As this study is a feasibility study, the secondary outcomes were examined as exploratory rather than by power.

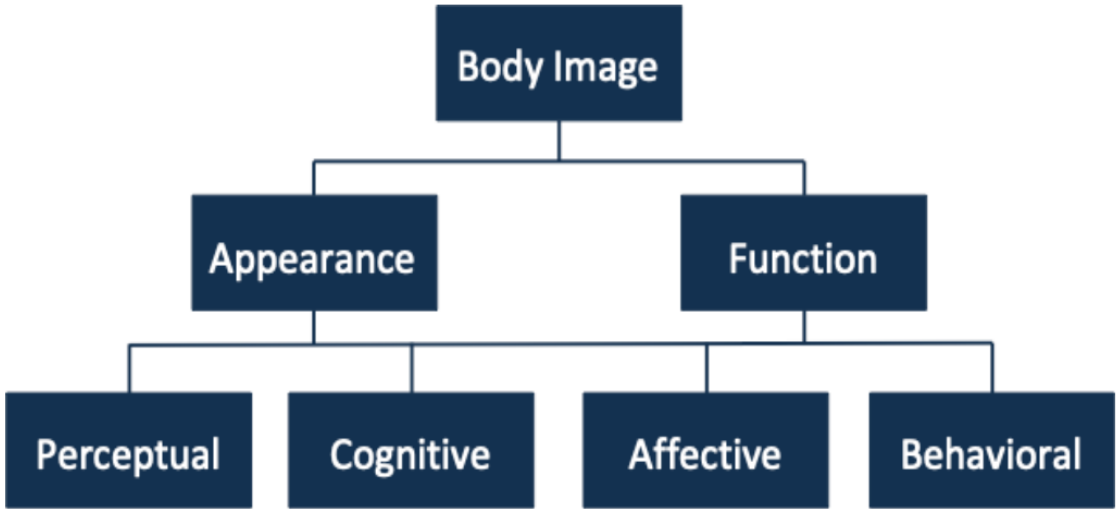
Chapter 2: Literature Review

2.1 Body Image

As per its definition, body image is a multidimensional construct that includes how one sees, thinks, feels, and behaves related to their body's appearance (what the body looks like) and function (what the body can do) (Cash & Smolak, 2011; Vani et al., 2021). Although the body's appearance and function are often related, these facets are also independent from one another as shown in the general representation of body image for all individuals in Figure 1 (Vani et al., 2021). Any individual can experience body image ideals, but their culture, age, gender, religions, and beliefs are some of the factors which will influence these perceptions (Kleinwort, 2011). One of the reasons body image is so complex is due to its many dimensions and moderators (Miller et al., 2000). A dimension of body image can be perceptual, cognitive/attitudinal, affective, or behavioral whereas a moderator of body image may be defined as something that interacts with individual differences or situational factors to predict varied body-image outcomes (Vani et al., 2021; Choma et al., 2009). There are a large variety of moderators (ex: sexual orientation, exercise status, anxiety) which can be more or less relevant to a given population (Boroughs & Thompson, 2002; Doumit et al., 2016). For example, long-term sporting influence would be a moderator specific to athletes and former athletes, but not to someone who has not participated in sports. The moderators of body image also are able to affect one or more of the dimensions of body image independently (Vani et al., 2021). For example, social media is a moderator which could affect and individual's perceptual dimension of body image, but not their behavioral dimension.

Figure 1

A Figural Representation of Body Image



Note. From "A Figural Representation of Body Image" by Vani, M. F., Murray, R. M., & Sabiston, C. M. (2021). Body image and physical activity. In Z. Zenko & L. Jones (Eds.), *Essentials of exercise and sport psychology: An open access textbook* (pp. 150–175). Society for Transparency, Openness, and Replication in Kinesiology.

2.1.1 Dimensions of Body Image

2.1.1.1 Perceptual Dimension.

The perceptual dimension of body image relates to how one sees and describes their body appearance and function, and is measured by the accuracy with which people estimate their body size (Sabiston et al., 2019; Rajagopalan, 2020). Although there is a physical reality to someone's mass, how an individual perceives their size may still be inaccurate (Vani et al., 2021). Perceptual outcomes that are positive predict positive outcomes (such as positive well-being) and negative perceptions predict negative outcomes (such as depressive symptomatology) (Doumit et al., 2016). Researchers studying this dimension of body image examine how individuals perceive their bodies and then compare the person's subjective experience of their body to an objective

measurement of their body (Rajagopalan, 2020). The perceptual dimension of body image is also bi-directionally associated with sport and exercise behaviors and experiences (Sabiston et al., 2019; Vani et al., 2021). For example, Porter et al. (2013) found adolescent female competitive swimmers to wish their appearance was different (ex: taller, slimmer) in order to improve their functionality in sport. The perceptual dimension of body image does not indicate the thoughts, satisfaction, dissatisfaction, or feelings that are attributed to the perceived self (Vani et al., 2021). Therefore, although the studied swimmers may perceive their body as less functional toward their sport, they might not necessarily have body image dissatisfaction, which relates to the cognitive dimension of body image.

2.1.1.2 Cognitive/Attitudinal Dimension.

Body image is most commonly assessed through the cognitive dimension, which represents thoughts, beliefs, and evaluations about one's body appearance and function (Sabiston et al., 2019; Vani et al., 2021). Cognitive body image includes body dissatisfaction or satisfaction assessments (Vani et al., 2021). Evaluations regarding appearance (dis)satisfaction measures ask participants to indicate their (dis)satisfaction with particular body parts (eg., torso, face, legs) or attributes (e.g., thinness, weight, muscularity); while evaluations regarding functional dis(satisfaction) assess physical functioning elements such as strength and endurance (Vani et al., 2021). Discrepancies between cognitions of one's own current appearance and desired appearance, and discrepancies between the cognitions held by others, (such as peers, coaches and evaluators), may play an important role in understanding body image within the scope of former athletes (Rajagopalan, 2020). One inductive thematic analysis of female competitive figure skaters' experiences of weight pressure demonstrates discrepancies of cognitions held by others, as Volker & Reel (2015) found weight-pressure experiences first

occurred between 7 and 14 years of age and involved coaches, parents, skating partners, and other aspects of the skating environment. Discrepancies in the cognitive dimension can in turn affect feelings and emotions about the appearance and function of the body, otherwise known as the affective dimension of body image (Sabiston et al., 2019).

2.1.1.3 Affective Dimension.

The affective dimension of body image includes the individual's feelings and emotions about body appearance and function (Sabiston et al., 2019). "These feelings and emotions are commonly assessed as social-physique anxiety (anxiety an individual feels as a consequence of perceived or actual judgments from others) and body-related self-conscious emotions (i.e., shame, guilt, embarrassment, envy, pride)" (Vani et al., 2021). Among body-related emotions, pride is the only emotion with a positive effect (Vani et al., 2021). Body-related pride may be divided into two sub-groups: authentic pride (derived from the satisfaction and achievement of their own behaviors, effort and/or hard work) and hubristic pride (viewing body-related function or appearance as superior to others) (Vani et al., 2021).

Body-related embarrassment is often experienced following an individual's perception of a public violation of social standards in relation to appearance of function; One example includes exposure of the body in public and another example includes negative body commentary (Vani et al., 2021). Both of these examples are commonly experienced by athletes in particular; For example, gymnasts may be subjectively evaluated based on aestheticism and bodily appearance on stage, by themselves, in tight uniform, in front of many spectators (i.e., both exposing their body, and receiving criticism in its regard) (Harriget et al., 2014).

Negative body commentary is also commonly experienced by athletes. This is shown in a study by Murray et al. (2022) regarding problematic body commentary which referees hear in

adolescent girls' sport. Through thematic analysis, Murray et al. (2022) found the following themes: (1) susceptibility for all (athletes are susceptible to problematic body commentary regardless of body type); (2) coupling of weight and performance whereby weight comments are often closely tied with performance); (3) referees undertake some responsibility (i.e. penalization of athletes who engage in problematic body commentary) but also acknowledge many comments go undetected. Negative body commentary can lead to internalization of such comments, which can lead to body shame (Mills et al., 2021).

The term "Body Shame" has a global focus on the self, and may be understood as a feeling that one is a bad person if sociocultural body standards are not met (Vani et al., 2021; McKinley, 1996; Albertson et al., 2015). Body shame has even been described as "normative discontent" due to its prevalence in females of Western society (Rodin et al., 1985; Strigel-Moore & Franko, 2002; Albertson et al., 2015). In the sporting context, a former athlete may experience body shame if they feel as though they are not meeting the body standards to be successful within their sport. For example, when studying eating pathology in female gymnasts, Harriger et al., (2014) found gymnasts who reported more pubertal development (defined as an increase in body fat and broadening of hips) had higher levels of body shame (Harringer et al., 2014). When someone experiences body shame, this may lead them to make decisions or actions regarding their shame, such as diet restriction or excessive exercise. These actions would relate to the behavioural dimension of body image.

2.1.1.4 Behavioural Dimension.

The behavioural dimension of body image encompasses decisions and actions which result from perceptions, thoughts, and/or feelings about body appearance and function (Sabiston et al., 2019). An example of a body-image related behaviour is appearance fixing [ex: body

checking, wearing loose fitting clothes, and engaging in behaviors to control appearance (such as physical activity, dieting, substance abuse, cosmetic surgery)] (Vani et al., 2021). Body checking is related to body satisfaction such that as body checking increases, body satisfaction decreases (Fortes et al., 2017). Examples of this behavior include self-weighing and pinching or measuring one's body to assess fatness (Vani et al., 2021). Body checking is prevalent to athletes in the sense that they are commonly encouraged to take part in body checking, for example by participating in weigh-in activities. This however is problematic, as athletes who participate in weight-class sports (where weigh-ins are more likely to occur) are more likely to be symptomatic of eating disorders and more likely to engage in pathogenic eating and weight control behaviors (Chatterton & Petrie, 2013). This would also explain why male athletes' disordered eating and muscle-building behaviours have been found to be influenced by sport-specific psychosocial pressures (Galli et al., 2017).

Body image-related behaviors however are not always negative. For athletes, a trusting athlete-coach relationship, awareness of self-care, and a well-rounded athlete support programme are factors which increase positive behaviors (Schubring et al., 2023). These positive behaviors have been used to reduce pressure at competition, precompetitive anxiety, and other mental hardships of sports players (Kim & Kim, 2021). Schubring et al. (2023) however describes that most athletes have a "narrow, functional understanding of health" and tend to compromise practices of self-care to reach sporting success, which leads to negative body image.

2.1.1.5 Positive and Negative Facets.

Each of the dimensions of body image can be perceived as either positive or negative (Vani et al., 2021). Positive body image is defined as encompassing the body with love and respect (Albertson et al., 2015); Similarly, body appreciation is derived from positive body

image and refers to the attitude of liking, accepting, and respecting one's body despite one's weight or shape (Avalos et al., 2005; Albertson et al., 2015). Positive body image has been positively correlated with better academic success (Torres et al., 2022), lower risk of eating disorders (Godoy-Izquierdo & Díaz, 2021), well-being (West, 2021), and happiness (West, 2021). Negative body image is defined as "anxiety arising from looking at one's own body, embarrassment from being seen by others, and recognition of one's own body not conforming to an established idea of a desirable appearance" (Halliwell, 2013; Osumi et al., 2014). Negative body image has been associated with increased substance abuse (Nieri et al., 2005), worse academic performance (Lopez-Agudo & Marcenaro-Gutierrez, 2021) and eating disorders (Vani et al., 2021). While one dimension of body image may be negative, it is still possible for another dimension to be considered as positive (Vani et al., 2021). If one or multiple dimensions of body image are considered negative however, this leads to the risk of developing body image pathologies and/or eating disorders (Vani et al., 2021).

2.1.1.5.1 Body Image Pathologies and Eating Disorders.

One important concept relating to the dimensions of body image is their relation to eating disorders - in fact, body image dissatisfaction has been recognised as one of the strongest predictors of disordered eating and eating disorders (Attie & Brooks-Gunn, 1989; Rajagopalan, 2020). Eating disorders and body image pathologies are often used interchangeably, however it is important to note their differences; a body image pathology has been recognized by psychiatric standards as having excessive frequent and intensive negative thoughts about one's appearance (Vani et al., 2021). An example of a body image pathology is body dysmorphia, defined as "an over-exaggerated and inaccurate perception of flaws related to body parts and characteristics and a preoccupation with flaws that severely limits and individual's daily functioning and quality of

life" (Vani et al., 2021; American Psychiatric Association, 2013). Symptoms of body dysmorphia among athletes include obsession over high-quality foods (Brytek-Matera & Donini, 2018; Donini et al., 2023), excessive exercise (Donnelly, 2025), withdrawal from others (Vani et al., 2021) or constant need for reassurance from coaches, teammates, personal trainers, or other individuals within leadership positions (Vani et al., 2021). Body dysmorphia often centers around one aspect of the body (such as the nose or thighs) and muscle dysmorphia ("characterized by a preoccupation that one's body is too small or insufficiently muscular") typically indicates distress regarding the overall body size and/or shape (Prnjak et al., 2022). These dysmorphias are often precursors to disordered eating (irregular eating habits which include excessive dieting, binge eating, and inappropriate weight loss techniques such as vomiting, or using diuretics and laxatives for weight loss) (Vani et al., 2021; Flatt et al., 2020). Disordered eating can further lead to a diagnosed clinical eating disorder (defined as "a recognized mental disorder characterized by abnormal eating habits resulting in insufficient or excessive consumption of food") (Prnjak et al., 2022; Doumit et al., 2016; Vani et al., 2021; American Psychiatric Association, 2013). The three most commonly known eating disorders are anorexia nervosa (AN), bulimia nervosa (BN), and binge eating disorder (BED) (Feng et al., 2023). The following disorders are defined by Feng et al., (2023) as (1) AN: "disturbing experiences of weight or size, inappropriate influence of size and weight on self-assessment, or lack of awareness of the seriousness of current low body weight"; (2) BN: "repeated and inappropriate compensatory behaviors to avoid weight gain"; (3) BED: "eating more food in short time periods than most people would eat in similar time periods and similar circumstances" (Feng et al., 2023).

Sporting environments have been described as a "breeding ground" for body dysmorphia (Ahlich et al., 2019; Leone et al., 2005). The culture of competitive sport can lead athletes to be more susceptible to body image pathologies, disordered eating, and/or eating disorders; For example, although in 2012 eating disorders only affected 5% of the population, the prevalence of disordered eating in 2013 was 45% for female athletes, and 19% in male athletes, with nearly one third of female-identified athletes screening positive for an eating disorder (Bratland-Sanda & Sundgot-Borgen, 2012). The concern for body image and eating pathologies remain throughout retirement, as Barrett & Petrie (2020) found retired athletes who were less satisfied with their bodies were more likely to partake in restrictive eating. Qualitative research on retired athletes has found similar findings, noting increased disordered eating practices among this population in particular (Lavallee & Robinson, 2007; Stirling et al., 2012; Warriner & Lvallee, 2008; Plateau et al., 2017). Decreasing the prevalence of poor body image in sport could in turn prevent the development of body dysmorphia within sporting environments and decrease the prevalence of eating disorders in both practicing and retired athletes. Part of decreasing the prevalence will involve understanding what causes the onset of poor body image and eating disorders, as well as determining the moderators and mediators which could have a further effect on the matter.

2.1.2 Moderators and Mediators of Body Image

2.1.2.1 Gender.

One commonly discussed moderator within body image is gender differences; for example, women reportedly dislike their body shape more and appreciate it less than men, and are often pressured to conform to a body ideal where slenderness is considered to be maximally attractive (Papathomas et al., 2018). In 2003, the Canadian Mental Health Association found that

at any given time, 70% of women were dieting in comparison to only 35% of men (Canadian Mental Health Association, 2003). Girls also report higher levels of appearance-based teasing while engaged in sport (Voges et al., 2022). Rudd and Carter (2006) support these claims by identifying female athletes as more at-risk than male athletes to endure negative body image; Similarly, Papathomas et al. (2018) and Stephan & Bilard (2003) found retired female aesthetic athletes to be at greatest risk of enduring psychologically distressing body image issues after retirement compared to all other males and females of different sporting types.

Body image in cisgender men is more positive than their cisgender women and transgender women counterparts (Wilchek-Aviad et al., 2022). Because women are at greater risk of experiencing negative body image, the majority of studies on body image pertain to women rather than men (Warren, 2008; Arkenau et al., 2020). This, however, is not to say that body image concerns are not a pressing issue within the male population. Cordes et al., (2016) for example found that although men were more content with their bodies within a sporting context, they focused on the negative aspects of their bodies outside of the sporting context. Through open-ended surveys to 75 current and former football athletes, Hogans & Seock (2022) found that former football players experienced actual-ideal body discrepancies (also known as the gap between the actual body and the desired body), that sociocultural images and comments from others strongly influenced their perceptions of their bodies, and that football athletic uniforms affected their body images. Many of the comparisons experienced by these athletes and former athletes may be attributed to the male Western body ideal, which places central importance on one's physical appearance and prioritizes being muscular, fit, and tall (Warren, 2008). Transgender men also describe developing a "masculine" physical shape as a main driver

to participate in resistance-training activities; a motivation driven by this Western ideal (Oliveira et al., 2022; López-Cañada et al., 2021).

An increasing number of youth are openly identifying as transgender and nonbinary, which must also be considered in the context of body image (Heiden-Rootes et al., 2023). Transgender individuals have heightened risk factors for body dissatisfaction and body-related concerns specific to trans-gender people (Romito et al., 2021). Studies have shown that both gender dysphoria (defined as the sense of incongruity between one's gender identity and that which was assigned at birth) and social factors such as bullying by peers are associated with negative body image in transgender and nonbinary individuals (Heiden-Rootes et al., 2023; Joy et al., 2022). Factors related to body image dissatisfaction in transgender youth and young adults include self-criticism and social distress, while factors related to body image satisfaction include self-acceptance and social acceptance (McGuire et al., 2016). Today, social media is one example of a source of social distress, in addition to other factors which can lead to negative body image (Thompson & Harringer, 2023).

2.1.2.2 Social Media.

One of the most influential, problematic and pressing issues within moderators of body image according to researchers and society at large is social media, so much that its environment has been described as "psychologically threatening, antagonistic, confrontational, and supportive of harassment" (Thompson & Harringer, 2023; Kavanagh et al., 2023). The sociocultural theory highlights the causal role of the social discourse glorifying thinness, and holds that repeated exposure to unattainable appearance ideals in the media lead to unrealistic expectations related to one's own appearance (Rodgers, 2016; Rodgers et al., 2020). In other words, repeated exposures of the "ideal body" found through the media (often depicted through apps like Instagram,

Facebook and TikTok) may cause increased discrepancies within the dimensions of body image and lead to body dissatisfaction. Meta-analyses have additionally linked mass media images depicting thin body ideals within the female population to body dissatisfaction, internalization of a thin ideal, negative mood, and eating disorder symptomatology (Bjornsen & O'Connor, 2023). When internalization of unrealistic body standards occur, this can lead to appearance-contingent self worth, otherwise described as individuals placing their self-worth as dependent on their body (de Wet et al., 2020). According to Thompson & Harringer (2023), social media (in particular) has "deleterious" effects on body image; supporting this claim, McComb & Mills (2022) used Instagram imagery exposure on 402 female undergraduate students and found comparisons to body-ideal imagery resulted in greater weight and appearance dissatisfaction, as well as less overall body satisfaction relative to their control condition. Individuals who engage in "fitness inspiration" content (a subject likely consumed by athletes or former athletes) via social media additionally show higher than average levels of mental health concerns, disordered eating, and body dissatisfaction (Bjornsen & O'Connor, 2023).

In Germany, longer daily social media usage was additionally connected to increased negative affect and eating patterns in adolescent athletes (Fiedler et al., 2023). Supporting these claims, Bjornsen & O'Connor (2023) found ratings of body image pressure in sport to be stronger in social media compared to those from parents, coaches, or teammates and peers; additionally, pressures and internalization of body image ideals shown in the media and by star athletes predicted higher levels of eating disorder symptomatology among athletes 18 years of age and older (Bjornsen & O'Connor, 2023). Hardie et al. (2023) explained one of the reasons for this outcome to be the sexualization of female athletes in the media, which forms a new basis for how female athletes evaluate themselves, especially when images show athletes in the same

sport as the consumer. Athletes and former athletes in this day and age have more exposure to the media through social apps and the internet (Hardie et al., 2023). Additionally, the absence of competition has been associated with increased social media usage in athletes (Buckley et al., 2021). This puts former athletes at a higher risk of greater social media consumption, which could result in more negative body image perceptions. Social media usage has been linked to depression (Aalbers et al., 2019), and depression has been associated with weight loss and weight gain (Faulconbridge et al., 2009; Rubin, 2020). Weight fluctuation is another important factor to consider when discussing body image.

2.1.2.3 Weight Loss and Weight Gain.

As body image relates to the perceptions of one's configuration, it is clear that weight fluctuation can and/or will impact one's body image. Weight fluctuation comes naturally with age (Dutton et al., 2016) and amongst major life changes such as unexpected stressors (e.g., loss of a loved one) (Wijnhoven et al., 2014), having children (Bjørnarå et al., 2014), changing of seasons (Fahey et al., 2020), and retirement from sport (Holowko et al., 2019). Even though weight fluctuation is normal, it can often lead to poor body image and unhealthy compensatory behaviors. For example, mothers who experienced poor body image throughout pregnancy due to weight gain were more likely to restrict both themselves and their infants from food (Winter, 2014).

Athletes are often pressured by their coaches and superiors to maintain a certain body configuration; this may sometimes lead to activities such as weigh-ins, which may further increase pressure for the athlete not to lose or gain weight (Chatterton & Petrie, 2013). For example, when studying eating pathology in female gymnasts, Harriger et al. (2014) found gymnasts who reported more pubertal development (defined as an increase in body fat and

broadening of hips) engaged in higher levels of body surveillance and body shame. Stukenborg et al. (2021) looked at the body image impact of weight surveillance in active duty U.S. soldiers; soldiers must often meet body composition and physical fitness standards within the military, which was found to increase their likelihood of negative body image. The researchers found that negative body image within the studied soldiers was also associated with greater weight cycling (a repetitive cycle of weight loss and weight regain). Therefore, it is possible that weight pressures (often experienced by athletes) may cause greater weight fluctuation, which may in turn worsen body image. This is also concerning, as former athletes also express pressure to remain consistent to their former athletic body composition (Papathomas et al., 2018). Upon retirement from sport, especially sports in which muscular strength and body mass are important in performance, former athletes have been found to gain weight, or even become overweight and/or obese due to the lack of physical activity and diet modification post-retirement (Holowko et al., 2019). Female athletes who report gaining weight have described themselves as feeling neither athletic nor feminine, which was consequently detrimental to their self-worth (Papathomas et al., 2018). Weight-related issues and negative body image ideals are a major issue in sport with many different moderators to be considered.

2.1.2.4 Interoception.

Interoception may be a potential mediator of body image outcomes in meditation; however, the limited and sometimes contradictory research makes this relationship unclear. Interoception, the process by which the nervous system senses, interprets, integrates, and regulates internal bodily signals to create a continuous awareness of the body's internal state (Todd & Aspell, 2022) is believed by some to be necessary in order to develop mindfulness (Farb et al., 2015; Hanley et al., 2017), but has also been shown to improve through meditation

(Kok & Singer, 2017; Jonathan et al., 2015). Interoception is associated with internal senses from the body such as hunger, pain, breathing, slow-stroking touch and heartbeat detection (Craig, 2002). Additionally, some studies suggest it mediates the effects of specific contemplative practices (Gibson, 2024).

Kok & Singer (2017) wanted to reduce the ambiguity regarding the psychological changes associated with meditation practices on state change in affect, mind-wandering, meta-cognition and interoception. They studied 229 adults (mean age of 41) and found that a body scan meditation led to the greatest state increase in interoceptive awareness, which they measured using self-report of "how their body felt". There was a lesser effect in interoception for the other meditations, which were a loving-kindness meditation, and an observing-thought meditation. Similarly, Jonathan et al., (2015) used a Vipassana meditation to investigate its ability to improve interoceptive awareness. Throughout this intensive study, 57 participants would attempt each day to determine their own heart rate without taking a pulse – a practice often used to determine one's interoception. Jonathan et al., (2015) observed that the intervention group significantly improved their interoceptive awareness. Interestingly, some studies do not believe the relationship between interoception and meditative practices end there. Some studies further believe that interoception may act as a mediator for other effects in relation to meditation Gibson et al., (2024). Finally, interoception may be a broad-based marker for various forms of psychopathology (Murphy et al., 2017; Duquette, 2017); Individuals may become hypervigilant to their bodies, thus interoception may contribute to symptoms in disorders such as anorexia or bulimia nervosa (Steward et al., 2018). Research has found that interoception may span beyond internal body signaling, and influence cognitive processing (such as in response to food cues) in eating disorders such as anorexia nervosa (Nandini et al., 2025). Thus, interoception may be a

facet in body image which there should be a “sweet spot”; An awareness and acknowledgment of the body without over-analyzation or hyper-awareness.

2.2 Body Image in Sport

2.2.1 Sport Intensity

Many different forms of sport exist, which can be practiced at various intensities ranging from beginners, to the elite or pro level. An elite or high-performance athlete is considered to be “any athlete within the performance pathway ranging from junior and senior elite level and including para and able-bodied athletes” (Wells et al., 2020). It is no secret that sport participation and body image may have positive correlations; Studies have shown that individuals who participate in sport tend to report more positive body image, and meta-analyses have found that physical activity is associated with reduced body dissatisfaction and enhanced body image (Ouyang et al., 2020; Sabiston et al., 2019). It is also known however, that sport participation can equally be associated with negative body image, and it has been speculated that sport intensity could be at fault. For example, Kong & Harrison (2015) explains that athletes may alter their eating patterns in regard to achieving optimal sporting performance (with elite athletes being the most likely to engage in this behavior). Many studies have found that elite athletes report higher prevalence of eating disorders and engage in disordered eating more frequently than their recreational or non-athlete counterparts (Wells et al., 2020; Smolak et al., 2000, Martisen & Sundgot, 2012; Williams, 2012). However, not all research supports this, as Kantanista et al. (2018) found that level of competition only accounted for 0.9% of variance in body image and was deemed nonsignificant.

2.2.2 Athlete Identity

When an individual's life revolves around their exercise regimen, negative consequences are likely to occur (Gapin et al., 2011). This is a concerning statement in regard to athletes, as this population (particularly at the elite level) often pursue their sport as their career, and spend the majority of their day partaking in activities which relate to their sport (whether that be directly or indirectly, such as physiotherapy appointments, resistance training, practice sessions, etc.). Identities make "much of the content of the self-concept and refer to who or what one is" (Beamon, 2012; Gecas & Burke, 1995). Athletic identity may be defined as the degree to which one identifies with the athletic role and has been associated with drive for thinness, disordered eating, and perfectionism (Giannonne et al., 2017; Gapin et al., 2011). Athletes participating in high-level sports are more likely to have exclusive athletic identities which rely on athletic participation and success to define their self-definition and self-worth (Beamon, 2012). In 2011, minority males in football and basketball were identified as having the highest rates of identity foreclosure, defined as a commitment to one identity before exploring other options such as other exploratory behaviors, career exploration, or joining social clubs or interest groups (Harrison et al., 2011; Scales, 1991; Beamon, 2012)

One case-study regarding a former elite swimmer whose career was disrupted and ultimately terminated due to an eating disorder illustrates how "the creation of strong athletic identity led to a vulnerable sense of self, which, when disrupted, critically contributed to the development of an eating disorder" (Jones et al., 2005). This paper discussed how an elite athlete's investment in sport may lead them vulnerable to criticism of their abilities, as it may be perceived as a direct reflection of their total worth (Jones et al., 2005).

Athletic identity is an extremely important concept in regard to sport retirement. Upon retirement from sport, athletes are often "relatively young" and feel as though they must re-

define their self and social identity (Beamon, 2012). Exercise and eating regimens are also often drastically changed which threatens the athletic body, a facet closely related to the athletic identity (Papathomas et al., 2018). Upon retirement from sport, athletes who identify themselves with stronger, more exclusive athletic identities are more likely to experience negative body image (Giannonne et al., 2017; Papathomas et al., 2018; Beamon, 2012).

2.2.3 Sport Type

Variety in sport type may cause variety in body composition demands; for example, a gymnast who is evaluated with an aesthetic component of performance may experience greater body pressure than a hockey player, to which body pressures are more performance-based rather than aesthetic-based (and therefore rely less on Western body ideals). Sports also require different uniform demands which could lead to body image concerns, as research suggests revealing sport uniforms can be "ill-fitting", objectifying, and contribute to decreased body esteem (Matheson et al., 2023; Steinfeldt et al., 2013). Sport categories can be divided into six different subgroups: (1) aesthetic; (2) weight-dependent; (3) endurance sports; (4) ball game; (5) power sports; (6) technical sports (Firoozjah et al., 2022). Of these categories, aesthetic, weight-dependent, and endurance sports may be categorized as "lean" sports; whereas ball game, power, and technical sports may be categorized as "non-lean" sports (Firoozjah et al., 2022). There are mixed findings regarding sport type and body image. For example, one meta-analysis conducted by Burgon et al., (2023) states that there are no reliable differences between body image and types of sport, while some other research would disagree (Miligan et al., 2006; Limbers et al., 2018; Kong & Harris, 2015; Mancine et al., 2020; Firoozjah et al., 2022).

A quote in Porter et al., (2013)'s research on adolescent female competitive swimmers explains "Athletes' bodies are often scrutinized for performance potential based on size, shape

and weight. The common belief that leaner and lighter athletes are faster and perform better can lead to self-objectification and pathogenic weight control practices to lose weight and lower body composition". This quote provides a description as to why much of the research regarding body image in current and former athletes refer to aesthetic-sport athletes as being most at-risk of negative body image perceptions (Rudd & Carter, 2006; Papathomas et al., 2018; Porter et al., 2013). Aesthetic sports may be defined as sports which are dependent on evaluations of the athletes body shape and size, whereby leanness is considered advantageous (Reina et al., 2019). Aesthetic sports are more commonly individual rather than team-based sports; this is another factor to consider when discussing body image (Firoozjah et al., 2022).

When comparing athlete identity in team sports versus individual sports, those who participate in individual sports tend to tie their identity more to their appearance, weight, and attribution (Firoozjah et al., 2022). Most individual sports tend to value leanness for performance success (e.g. track and field, gymnastics, martial arts), meaning most individual sports will fall into the "Lean Sports" category. Most research is consistent with this statement; for example, D'Anna et al. (2023) found preference for team sports may be associated with reduced eating disorder symptom concerns. Similarly, Firoozjah et al., (2022) found individual athletes have significantly higher scores on subscales focused on preoccupation with food and impulses to binge and purge, feelings regarding one's appearance, perceptions of others evaluations about one's appearance, and weight satisfaction. These findings are supported by many other researchers (Limbers et al., 2018; Pamuk et al., 2020; Heradstveit et al., 2020; Firoozjah et al., 2022). Although weight-related pressures are present during sport participation, they often remain present when an athlete retires from their respective sport (Kerr & Dacyshyn, 2000; Filbay et al., 2019; Hardie et al., 2022).

2.2.4 Retirement

Alfermann (2000) estimated that about 15-20% of elite retired athletes experience transition distress and require mental health services to cope with this significant life change. Retirement often faces a harsh reality that the athlete can no longer perform to the degree they once could, which entails losing a large piece of their identity and having to "reformulate how they narrate the story of their bodies and lives" (Gairdner, 2019). Barrett & Petrie (2020) describe the "athletic body transition", as a concept where retired athletes perceive the loss of their athletic body as negative. This negative perception then leads the former athlete to be more dissatisfied and less accepting of themselves, which leads to practices of maladaptive or compensatory behaviors (i.e. disordered eating, excessive exercise, binge eating) (Barrett & Petrie, 2020). Gairdner (2019) explains how this could be due to a lack of autonomy over the body; how athletes may feel as though they are at the mercy of their bodies rather than being in control. Autonomy has been described as one of the three innate psychological needs, along with competence and relatedness (Ntoumanis, 2001). As athletes spend years of hard work gaining control of their body's skills, it is to no surprise that upon retirement, they may experience diminished feelings of autonomy. Gairdner (2019) supports this claim, by stating the reality of diminishing bodies with time may be more "harshly" felt by elite athletes, who have consistently felt the result of their concrete physical efforts toward building their bodies and skills. This loss of autonomy may therefore cause loss of identity, which as previously discussed has been associated with more negative outcomes, such as poor body image (Giannonne et al., 2017; Papathomas et al., 2018; Beamon, 2012). The loss of autonomy is only one possible reason for diminished body image in sport retirement; various researchers have found common themes within sport retirement which lead to negative body outcomes such as (1) Western body ideals

throughout retirement; (2) feeling ashamed of one's body after retirement; (3) staying committed to the former athletic self; (4) the long-term influence of sporting culture persisting through retirement (Papathomas et al., 2018; Carrigan et al., 2015; Kerr et al., 2006; McMahon & Penney, 2013).

2.3 Common Themes in Sport Retirement

2.3.1 Western Body Ideals vs. Athletic Body

"Female athletes have acknowledged the importance of being muscular and report feeling empowered by their strong bodies, yet also want to avoid being perceived as being too muscular for fear of violating social norms of traditional femininity" (Steinfeldt et al., 2014). This statement is representative of a concept called the "Female Athlete Paradox" which was developed by Krane et al. (2004). The female athlete paradox represents a conflict between sports women living in two separate cultures; one that embraces strength and muscularity for performance, and one that solely represents "hegemonic femininity" (which prioritizes slenderness), also known as the Western feminine body ideal (Papathomas et al., 2018). In some power sports such as rugby, the athletic ideal may rely on muscularity which results in athletes being placed in an "untenable" position in attempt to "serve two masters" (i.e. cultural norms of feminine beauty vs. functional demands of sport) (Papathomas et al., 2018). Building on this concept, Papathomas et al. (2018) came up with the "Retired Female Athlete Paradox" to explain the dominance of the Western feminine body ideal once an athlete has retired. The retired female athlete paradox touches on the conflicting ideals between the athletic body (which is determined by the functional demands of a given sport and can be overly muscular) and the Western feminine body ideal (Papathomas et al., 2018). In a mixed-methods thematic analysis of qualitative data, Papathomas et al. (2018) used closed- and open-ended questions to explore

bodily changes since retirement in 218 female athletes from aesthetic sports. Papathomas et al., (2018) found that although weight differences throughout years of retirement were nonsignificant, and the majority of former athletes described themselves as being of 'normal weight' (74.3%), over half of the athletes indicated they were dissatisfied with their current weight (55%) and/or trying to lose weight (59.6%).

To demonstrate the "dominance and inescapability" of the Western feminine ideal, Papathomas et al., (2018) discussed the experiences of one former gymnast and one former swimmer who experienced loss of muscularity after retirement, resulting in improved body image. This was the first study to demonstrate some perceived improvement in body satisfaction postretirement from sport (Papathomas et al., 2018); however, subsequent themes by Papathomas et al. (2018) as well as findings from other reviews (Buckley et al., 2019; Galli et al., 2022; Greenleaf, 2002; Hardie et al., 2022) explain why this outcome is not the case for the majority of former athletes. Athletes who undergo retirement are more often subject to feeling "fat, flabby and ashamed", feel a commitment to their former selves which drives them to engage in negative compensatory behaviors, and/or maintain ideals which were taught throughout the course of their sporting careers, resulting in internalized pressure to remain consistent to their previous athletic bodies (Papathomas et al., 2018).

2.3.2 "Feeling Fat, Flabby and Ashamed"

The second identified theme by Papathomas et al. (2018) was "Feeling Fat, Flabby, and Ashamed". The majority of participants fell into this group, where perceived loss of muscle mass equated to increased body fat. This therefore did not align with the athletic body nor the Western feminine ideal; Papathomas et al. (2018) attributed this to the reason over half of participants were dissatisfied with their current weight.

Buckley et al. (2019) supported this idea in their systematic literature review exploring compensatory behaviors and body change in retired athletes. In their review, the authors found three common themes, one of them being 'body dissatisfaction and grief'. Nine of their sixteen reviewed studies fit into this theme, which encompassed how body dissatisfaction in former athletes was related to the construct of body idealization and the changing body in athletic retirement. Buckley et al. (2019) explained how in Western society, experiencing bodily changes (independent from an increase in weight or body mass index) can be a risk factor for maladaptive eating and exercise behaviors. When an athlete retires, it is extremely difficult to maintain the same training regimen, which increases the likelihood of experiencing such bodily changes. Galli et al. (2022) found that even athletes who maintained healthy diets and exercise patterns throughout the retirement phase noticed an increased discrepancy between their current and former bodies. Further, Buckley et al. (2019) found former athletes who experienced more noticeable bodily changes were more likely to experience heightened levels of body dissatisfaction.

Galli et al. (2022) also found that heightened levels of body dissatisfaction caused a detrimental actual-ideal body discrepancy. As a result of this discrepancy, former athletes may revert to their former athletic patterns in an attempt to stay committed to the former self, and retrieve their past athletic figure. Feeling "fat, flabby and ashamed" is therefore related to the affective dimension of body image as it relates to feelings about one's body. As previously discussed, negative feelings about one's body can lead to compensatory actions within the behavioral dimension of body image. Reverting back to former athletic regimens throughout retirement and staying committed to the former self is an example of a negative behavior within the behavioral dimension of body image.

2.3.3 Commitment to a Former Self

Sport participation at a competitive level takes years of dedication, with most professional and collegiate athletes specializing in their sport in childhood or adolescence (Buckley et al., 2017). Athletic identity can therefore be constructed for many years, with daily training regimens and conforming to athletic norms becoming a part of an athlete's every-day life. During exploratory interviews with former competitive female athletes, Greenleaf (2002) found participants' thoughts and feelings about their current bodies to be dependent on their former competitive athletic bodies. Across various studies, comparisons to the former athletic body was a common precursor to negative body image (Greenleaf, 2002; Papathomas et al., 2018; Buckley et al., 2019; Buckley et al., 2021). Papathomas et al., (2018) listed one of the common themes in their study as a "commitment to a former self". This theme contained two additional sub-themes: "constructing a new athletic body" and "non-normalized body image ideal". The first sub-theme, "constructing a new athletic body" reflected two participants who increased in muscularity postretirement via practicing CrossFit, defined as "a fitness trend characterized by high-intensity functional movements" (Papathomas et al., 2018). This was described to be impactful through self-improvement and transformation and participants in this sub-group experienced positive body-image. This outcome would be quite rare, as according to Barrett & Petrie (2020), less than 1% of elite athletes will continue to pursue sports of similar intensity after retirement. Papathomas et al. (2018) additionally stated that it was unclear whether CrossFit was a helpful coping mechanism for former athletes, or whether it was merely a way of "adapting, reinforcing and intensifying" conceptions of the feminine ideal by substituting the sport being practiced (i.e. remaining an athlete) (Papathomas et al., 2018).

The second sub-theme within the "commitment to a former self" was "non-normalized body image ideal". This sub-theme was more common and more problematic, as although participants acknowledged their perceived athletic ideal as unrealistic and burdensome, they remained consistent to the ideal. This commitment to the former self resulted in negative/compensatory behaviors, characterized by stringent diets, meal skipping and bouts of extreme exercise (Papathomas et al., 2018; Buckley et al., 2019). Few strategies in this subgroup were successful, and were therefore associated with emotional disturbance (Papathomas et al., 2018).

Buckley et al. (2019) additionally listed continuing athletic identity and establishing unrealistic expectations related to nutritional and body composition changes as key drivers for a poor relationship with food and body in retired athletes; a factor causing eleven of their sixteen reviewed studies to fit into the theme 'disordered eating and compensation'. Letting go of the former self within the athletic context can often mean relearning what a "normal" body and a "normal" fitness routine encompasses (Hardie et al., 2022). This can be quite difficult, especially after years of commitment to the sporting culture and the ideals which come along with it. Sporting ideals that lead former athletes to stay committed to the former self might include internalized feelings of pressure coming from the athletic environment such as coaches, teammates, judges and/or scouts. The long-term influence of sporting culture is therefore an important subject to be considered when discussing body image in former athletes.

2.3.4 Long-Term Influence of Sporting Culture

Both male and female athletes have reported body-related pressures within their sport. For example, Voelker & Reel (2015) studied the experiences of female competitive figure skaters and found body-related pressures (such as encouragement to use unhealthy weight-

management strategies and promoting body-image concerns) came from coaches, parents, skating partners, and other aspects of the skating culture. Another study revealed 40% of male collegiate athletes felt pressure to change their weight and/or eating habits for their sport (Pruchnik et al., 2019). Body image pressures may be long-lasting and present from as young as seven years of age (Voelker & Reel, 2015). It is therefore unlikely that upon retirement, such sport-related body image pressures should magically disappear. Consistent with this statement, Barrett & Petrie (2020) found that despite no longer being exposed to sport pressures that contribute to eating disorders, former NCAA division-I female collegiate athletes who were retired for two to six years still experienced such symptoms long into retirement. The same is true for retired competitive gymnasts, who claim their sport led them to have a poor relationship with food accompanied by an intense fear of weight gain that persisted throughout retirement (Kerr & Dacyshyn, 2000).

Further supporting this claim, Buckley et al. (2019) found heightened levels of objectification and increased body monitoring to be derived from norms of the former athlete's sporting context. The term "athletic norm" refers to "various behaviors, thought processes, beliefs, and modes of operation that participants developed as a direct result of societal pressures, occupational cultures, and/or the norms of the sport and fitness environment they were trained in" (Hardie et al., 2022). These norms would often come from the influence of coaches, who's opinions and thinking on bodies and body image were foundational not only to how former athletes began to perceive their own body image, but also to how their body image ideals persisted over time (Hardie et al., 2022). Additional norms include seeking external validation (via try-out processes, male commentary regarding bodies, and coaching comments) and linkage

between weight and performance (maintaining a certain body figure to exceed in a given sporting context) (Hardie et al., 2022; Rudd & Carter, 2006).

An athlete who is conditioned to the norms of sport may develop a heightened sensitivity to even small body-related changes which can stay with them through retirement (Carrigan et al., 2015; Kerr et al., 2006; McMahon & Penney, 2013). If an athlete experiences negative body image throughout the course of their sport, it is therefore likely that these feelings will remain throughout retirement, especially if/when their body undergoes changes due to decreased training levels and/or altered eating patterns. The body dissatisfaction that former athletes experience is associated with stress, depression, and shame (Barrett & Petrie, 2020). Further, these negative emotions are precursors to greater issues such as eating disorders and/or disordered eating (Jappe et al., 2014; Kenny et al, 2021; Nechita et al., 2021). Finding an effective intervention for negative body image both throughout the course of sport and throughout retirement could therefore prevent further issues for athletes and increase their quality of life.

2.4 Body Image Interventions

Becker et al. (2012) used a randomized exploratory investigation to study athlete-modified dissonance prevention (AM-HWI) paired with healthy weight interventions on 157 female Division III college athletes; Results in this study indicated reduced bulimic pathology, shape concern, and negative affect at 1-year follow up. This study however had to be randomized at the individual level within sport teams, which increased the likelihood of spillover effects and may have obscured quantitative difference in outcome; the study also claimed that these findings could not be generalized to other populations (such as more competitive athletes, or former athletes) (Becker et al., 2012).

Another intervention by Bloomgarden & Calogero (2008) studied eye movement desensitization and reprocessing (EMDR) on women receiving standard residential eating disorders treatment (SRT) and concluded EMDR may be used to treat specific aspects of negative body image in conjunction with SRT, however more research would be necessary. This study would be difficult to apply to former athletes, as SRT is an intensive treatment typically delivered in hospitals (Bloomgarden & Calogero, 2008). Further, an EMDR specialist would likely have to be present, which may limit the availability and flexibility of this intervention.

A case-control efficacy study by Artoni et al. (2021) looked at mirror exposure and body perception treatment interventions for participants with eating disorders, finding these interventions to have significantly better clinical results; this study additionally found it necessary to develop and improve specific therapies for the perceptive component of body image. This intervention however is meant to be performed in group settings, which also limits flexibility, and may be mentally challenging for individuals to vocalize their insecurities in front of others. This form of intervention would also be most beneficial with a mental health professional present to facilitate.

Finally, one case report by Metral & Mailliez (2018) studying an individual woman suffering from anorexia nervosa found certainty appraisal to improve all body image measures after protocol. Similar to Becker et al. (2012), this study claimed their findings not to be generalizable to other populations. It should additionally be noted that while cognitive and behavioral therapy are effective for treating many psychiatric disorders, these methods often fail to treat body image distortions, as stated by Metral & Mailliez (2018) while studying patients diagnosed with eating disorders. Although these interventions may not be feasible or accessible

enough for the intentions of this study, mindfulness is one form of intervention which has shown promise in terms of its accessibility and flexibility to those who practice.

2.5 Mindfulness

Over the past three decades, mindfulness has gained exponential popularity in research (Cresswell, 2017). Mindfulness is a concept which aims to foster greater awareness of the present moment and has been described as "to know, shape, and achieve freedom of the mind" (Creswell, 2017; Kabat-Zinn, 2015). Achieving mindfulness can often go against our daily life experiences, however when achieved, it has been shown to have benefits such as stress reduction (Cresswell, 2017), better dietary behaviors (Arch et al., 2016; Mason et al., 2015), improve self-reported markers of sleep (Black et al., 2015), and promote smoking cessation (Brewer et al., 2011). Mindfulness can be taught in a variety of fashions such as non-judgmental awareness, or paying attention to the present moment in a specific way, such as meditation (Creswell, 2017; Kabat-Zinn, 2015).

2.5.1 Meditation

Meditation has been described as "the systematic and intentional cultivation of mindful presence, and through it, of wisdom, compassion, and other qualities of mind and heart conductive to breaking free from the fetters of our own persistent blindness and delusions" (Kabat-Zinn, 2015). In other words, meditation gives us the tools to stop the thoughts and ideas which hold us back.

Meditation interventions have ranged from 2-3 week programs to 3-4 day lab-based interventions (Kabat-Zinn, 2015). Although psychological well-being from meditation is positively associated with length and weekly frequency (Oliveira et al., 2023), its effects are still present when practicing at as little as once per week (Lemay et al., 2019). Reports on compliance

within mediation interventions are mixed; although Eysenbach (2005) described attrition rates to be higher for studies conducted over the internet (particularly regarding self-help), one feasibility study of an app-based meditation intervention for firefighters with psychological distress and burnout reported high compliance, with 94% of the participants completing the post-intervention self-report assessments, and 80% of participants completing all segments of the app (Pace et al., 2022). Similarly, another feasibility trial using meditation on emergency clinicians during the COVID-19 pandemic had 31 completed training and follow-up assessments of 32 enrolled participants (Azizoddun et al., 2021).

Examples of meditation include spiritual meditation, focused attention meditation, open-monitoring meditation, and guided meditation (Wachholtz et al., 2017; Tsai & Chou, 2016; Nãdrag & Buzarna-Tihenea, 2022). In guided meditation, the purpose is to “train the mind to focus on the imaginative journey and avoid distractions and worries" (Nãdrag & Buzarna-Tihenea, 2022). Imaginative journeys may be defined by the individual, based on their particular needs. For example, the journey of a former athlete may be to begin experiencing feelings of positive body image. One potential intervention to alleviate negative body image guided meditation with focus on self-compassion (Albertson et al., 2015).

2.6 Self-Compassion

Self-compassion (characterized by treating oneself in a caring and empathetic way) has been positively correlated with psychological strengths such as happiness, emotional intelligence, optimism, wisdom, curiosity, and personal initiatives (Heffernan et al., 2010; Hollis-Walker & Colosimo, 2011; Neff et al., 2007; Albertson et al., 2015). Self-Compassion has also been identified as a protective factor against body image concerns, and has been positively correlated with body appreciation (Young & Kotera, 2022). This makes sense, as one component

of teaching self-compassion is having the learner develop self-worth stability (the idea that self-worth is an intrinsic concept, and cannot be determined by one's appearance). Self-compassion training also assumes greater benefit to approaching imperfections with care and kindness rather than harsh self-criticism, shame, or perfectionism - the same characteristics which are likely to cause and/or maintain body image distress (Toole & Craighead, 2016). Self-compassion has further been negatively correlated with perfectionism and the inability to deal with stressors (Neff et al., 2005; Neff et al., 2003; Albertson et al., 2015). It is then to no surprise that self-compassion has shown to be beneficial in sport, aiding to effectively cope with sport-related stressors (Mosewich et al., 2019; Reis et al., 2022).

The implementation of self-compassion includes three interconnected elements: self-kindness ("the tendency to be caring and understanding toward the self rather than harshly judgmental"), common humanity ("recognizing that all people are imperfect, fail, make mistakes, and experience serious life challenges") and mindfulness ("being aware of one's painful experiences in a balanced way that neither ignores nor amplifies painful thoughts and emotions") (Albertson et al., 2015). Self-compassion provides and encourages positive emotions which are necessary to maintain motivation during the pursuit of health goals, such as maintaining a healthy relationship with the food and body (Sirois et al., 2015; Fortier et al, 2016). This is encouraging, as male athletes have expressed openness and willingness to embrace self-compassion if it helps them move towards their goals (Reis et al., 2022). Only a few studies, however, have experimented with self-compassion meditation in regards to body image outcomes.

In one study, Albertson et al., (2015) found guided auditory self-compassion meditations to significantly reduce body dissatisfaction, body shame, and appearance-contingent self-worth

in their intervention sample of 98 female participants with body-image concerns. In a separate, randomized controlled trial examining the effects of self-compassion meditations on body image among 70 young adult women aged 17-35 years, participants demonstrated significant increases in self-compassion and body appreciation as well as reductions in body shame (de Wet et al., 2020), One year later, Papini et al., (2022) examined the efficacy of a three-week self compassion meditation during pregnancy and post-partum periods in 71 women (Papini et al., 2022). All three of these studies used similar methods; However, both Albertson et al., (2015) and Papini et al., (2022) had participants listen to audio recordings throughout a three-week time period and used three separate self-compassion meditations ("Compassionate body scan", "affectionate breathing" and "loving-kindness meditation"). Participants in de Wet et al. 's (2020) study completed only the "compassionate body scan" and "love-kindness" meditation over an average of 8 days. Both de Wet et al., (2020) and Albertson et al., (2015) yielded extremely similar results (reductions in body image dissatisfaction, body shame, and contingent self-worth based on appearance), however in contrast to Albertson et al., (2015), de Wet et al., (2020) found no effect for appearance-contingent self-worth. Papini et al., (2022) additionally did not factor for appearance-contingent self-worth in their study. These studies used similar scales of measurement such as the Self-Compassion Scale (Neff, 2003b), Body Shame Questionnaire (McKinley & Hyde, 1996), Body Appreciation Questionnaire (Tylka & Wood-Barcalow, 2015) and Contingencies of Self-Worth Scale (Crocker et al., 2003). Albertson et al., (2015) and Papini et al., (2022), however utilized the Body Shape Questionnaire by Cooper et al., (1987) whereas de Wet et al., (2020) did not. All three studies had the common overall outcome of body image improvement. However, it should be noted that in all cases, the participants were exclusively identified as women, and sport participation was not a factor. These findings imply that using an

auditory self-compassion meditation intervention may be a valid and reliable method in improving body image ideals; although these studies show promise, it is important not to neglect the unique experiences regarding athletes and their bodies. It is unclear whether this would be a valid intervention for former athletes, which forms the objective of this research.

2.7 Self-Compassion for Athletes

Although self-compassion interventions have focused primarily on practicing athletes rather than retired athletes, the literature does show some promise in its effectiveness for those who identify heavily with being an athlete. In 2013, Mosewich et al., (2013) conducted psychoeducation sessions with a writing component over a seven-day period with women athletes. The researchers found the intervention was effective in managing self-criticism, rumination, and concern over mistakes (Mosewich et al., 2013). Ten years later, Kuchar et al., (2023) adapted the Mindful Self-Compassion program to evaluate NCAA student-athletes' ability to respond compassionately to failure, improve well-being and increase perceived sport performance. The intervention demonstrated promising results, with meaningful improvements in self-compassion and decreased levels of self-criticism and fear of self-compassion; The individuals also demonstrated decreases in depression, anxiety and stress (Kuchar et al., 2023). Although these two studies did not measure body image as an outcome, they do, however, imply that self-compassion interventions may be well received and effective in treating individuals who identify strongly with being an athlete. Kit et al., (2025) however did introduce self-compassion to collegiate athletes to measure disordered eating pathologies, and found the athletes were not likely to spontaneously improve in disordered eating over time, but may be changed through self-compassion-based interventions.

2.8 Gaps in the Literature

Despite the severity of crisis in retirement transition for athletes, there remains a critical gap in research and intervention strategies surrounding body image throughout the end of competitive sport. Most existing studies focus on athletes who are actively competing, neglecting the persistent and often intensified body image concerns experienced post-retirement. There is an absence of experimental studies specifically targeting body image interventions in retired athletes, even though this population is demonstrably at risk for disordered eating, body dissatisfaction, and additional negative psychological effects. Additionally, although meditation and self-compassion have shown promise in improving body image outcomes in other populations, these methods have yet to be rigorously tested in retired athlete samples. These gaps underscore an urgent need for targeted, evidence-based interventions, such as self-compassion meditations, that consider the complex interplay between identity, body image, and the retirement experience in athletes.

Chapter 3: Methods

Ethics

An ethics proposal was approved by the University of Victoria Human Research Committee (#24-0026).

Design

This study was designed as a phase II preliminary testing feasibility trial featuring controlled baseline, post-intervention evaluative design with an embedded qualitative process evaluation. Recruitment began on September 14th, 2024 and enrollment targets were calculated based on the expected number of participants enrolled per month. This design featured a control group as a comparator, using a waitlist control condition. Participants in the control group received access to the online intervention platform only after completing their final assessment. Secondary outcomes were measured at baseline and at three weeks (immediately after finishing the intervention), allowing for evaluation of both secondary outcomes and retention. Additionally, participants in the intervention group completed a 7-point satisfaction scale to assess acceptability.

Participants

Eligible participants were individuals (1) over 18 years old, (2) who had participated in sport at the collegiate, provincial, and/or national level, (3) have been retired from sport for seven months - six years [seven-month criteria to ensure the individual is not experiencing adjustment disorder, which does not persist for more than 6 months according to the DSM-5 (Substance Abuse and Mental Health Administration, 2016); six-year criteria as negative outcomes experienced through athlete persist one to six years after sport participation has ceased (Filbay et al., 2019)]. (4) living in Canada (5) fluent in English, (6) with access to a computer or

electronic device with internet connection, and (7) who were not currently practicing a self-compassion meditation regimen.

Exclusion criteria included: (1) anyone self-reporting/identifying with post-traumatic stress disorder (PTSD) related to their body image or with a current eating disorder (2) anyone identifying with a related mental illness (ex: depression) which was present before body image concerns and identified via clinical diagnosis, self-report, or as measured during screening represented by a severity score of 13 or greater on the K6 scale (Mitchell & Beals, 2011).

Procedures

Recruitment took place over approximately three and a half months from September 13th, 2024 to January 2nd, 2025. Recruitment was facilitated via paid Meta ads on Facebook, which is coded to reach the targeted sample. The main avenue planned for recruitment was direct referral from independent mental performance consultants (MPCs) within Canada, as well as posted ads on social media platforms and posters at community centers, gyms and the University of Victoria. All participants, however, were ultimately recruited via the Facebook ads.

Former high-performance athletes interested in the study contacted the research coordinator independently, or imputed their information (email) to the Facebook ad. Those potential participants then received more information regarding the study in the form of email, including a consent form and a pre-intervention questionnaire via Survey Monkey link (see Appendix B). The completed and returned consent and questionnaire form was then used to determine eligibility. At the initial screening, potential participants were briefed on the expectations and commitment and consent procedures associated with the study, as well as screened for appropriate reports in accordance with the study inclusion criteria (PTSD screening, reported eating disorder, severe/unmanaged mood disorders). Ineligible individuals were

informed immediately, along with nation-wide resources for mental-health and body-image support. Potential participants who did not respond within one week received an email as a follow-up. Participants who were determined eligible and had completed all paperwork were enrolled and randomized to a study condition. Block randomization was used in the order in which they were enrolled with block sizes of two, four, and six (Kim & Shin, 2014; Law et al., 2020). Participants were then either placed in an intervention group (and given access to the self-compassion website platform immediately) or a control group (and were instructed to await follow-up information from the coordinator in 3-weeks).

For greater access to high-performance athletes across Canada, all screening, baseline, check-ins, and measurements were conducted online. At pre-intervention, participants were asked to complete the Self-Compassion Scale (Neff, 2003b), Body Shame Questionnaire (McKinley & Hyde, 1996), Body Appreciation Questionnaire (Tylka & Wood-Barcalow, 2015) and Contingencies of Self-Worth Scale (Crocker et al., 2003). Participants were re-assessed using these scales at 3 weeks. At this 3 week point, intervention group participants additionally completed a Satisfaction Survey. Following the intervention group's final assessment, the control group received the same access to the self-compassion podcast portal and completed the pre- and post-intervention scales at 3 weeks. No additional data was collected from the control group participants in order to maintain equity in the expectations across both study groups.

Protocol Changes

The initial plan for this study was to recruit individuals who resided in British Columbia, Canada and who had competed at the national level. It was apparent, however, that this criteria was too narrow, as no participants were reaching out in the first couple months of recruitment. Recruitment was also supposed to occur via physically printed posters throughout campuses,

gyms, and community centers as well as posted ads on Instagram and Facebook pages. The study therefore had to change its recruitment criteria to include individuals residing in all provinces of Canada, as well as athletes who competed at the provincial and/or collegiate levels. Recruitment also occurred through paid Meta ads after the initial few months of no leads, which is where the primary researcher ended up getting all leads for this study.

Sample Size

Sample size selection was based on previous meditation intervention feasibility studies (Hansell et al., 2023; Joseph & Raque, 2023; Martínez-Rubio et al., 2021) The acceptable enrollment range was considered between 30 and 79 participants.

Intervention

Participants in the intervention group were invited to a three-week, asynchronous, web-based platform available at www.selfcompassion.org. This website provided participants with three, separate self-compassion meditation podcasts lasting about 20 minutes each. This study was based on methods by Albertson et al. (2015). Each individual podcast was played one time per day over the course of seven consecutive days. The podcast names were (1) Compassionate Body Scan; (2) Affectionate Breathing, and (3) Loving-Kindness Meditation. The title of the podcasts along with their behaviour change technique and mechanisms of action are shown in Table 1.

The “Compassionate Body Scan” podcast is designed for the listener to “get in touch with body sensations and bring a sense of compassion, peace, and gratitude to their body” (Hoffman et al., 2011; Albertson et al., 2015). Starting at the bottom of the body and working upwards, the participant will be asked to notice sensations of various body parts while laying down with a hand on their heart as a reminder to be kind to themselves. If negative thoughts arise, the

participant is instructed to place a hand on their heart, breathe deeply, and return to feeling simple sensations.

Throughout the "Affectionate Breathing" podcast, the participant is asked first to "get in touch with the body" by scanning the body for particular sensations. Then, the participant is asked to take three deep breaths to let out any tension they may have in the body, and then to allow breathing to return to normal. Next, they are asked to notice where the breath is felt most strongly without trying to control the breath. The participant is then told to adopt a "half smile" and observe how they feel. The participant is told to set an intention of breathing in affection and kindness for themselves, while breathing out affection and kindness towards others who are suffering with the same negative ideals. The listener is told not to judge themselves if their mind wanders, and to simply appreciate each breath, to allow the breath to comfort and soothe, and rest in the feelings of generated kindness.

The third and final podcast entitled "loving-kindness meditation" focused on having self-compassion for a personal experience of suffering. The participant is first asked to be present in the moment by noticing any nearby sounds that are arising, and by focusing on the breath. They are then asked to bring attention to a trait or behavior that has generated negative emotions, and to and allow whatever feelings are connected with this perceived inadequacy to arise. The participant is then asked to locate the physical sensations of these emotions on the body, and simply allow those feelings to "be there". The participant then will place both hands to their heart for soothing and comfort purposes before repeating the following phrases: "*May I be safe. May I be peaceful. May I be kind to myself. May I accept myself as I am".*

Table 1

Outline of the Online 3-Week Self-Compassion Meditation Intervention Podcasts

Timeframe	Podcast Name	Behaviour Change Technique	Mechanism of Action
Day 1 – Day 7	"Compassionate Body Scan"	13.2 Framing/Reframing (Replacing judgment with compassion) Behaviour substitution (returning attention to body sensations)	- Emotion regulation (reducing self-judgement) - Self-Compassion - Mindfulness
Day 8 – Day 14	"Affectionate Breathing"	11.2 Reduce negative emotions (Comfort through breath) 15.1 Verbal persuasion about capability (reassurance about mind-wandering)	- Compassion for self and others - Emotion regulation - Interoception (noticing breath sensations) - Mindfulness
Day 15 – Day 21	"Loving-Kindness Meditation"	11.2 Reduce negative emotions (soothing difficult thoughts with hand on heart) 15.4 Self-talk (Compassionate phrases: "May I be safe…")	- Self-compassion - Emotion regulation - Increased tolerance of distress - Mindfulness

**Note. Behaviour change techniques were retrieved via Michie et al., (2013).*

Measures

Primary Outcomes

Recruitment.

Recruitment was calculated by the number of individuals recruited, consented, and ultimately enrolled into the study per month. Based on previous studies with samples of participants with body image issues, the target of this study was to recruit 30 participants in 60 days (60-90 days - moderate feasibility; >90 days = low feasibility) (Turk et al., 2022). This would mean about 15 participants per month.

Retention.

Retention rate was calculated by taking the number of individuals enrolled in the study who completed to the 3-week endpoint and dividing by the number of individuals enrolled in the study (including drop-outs). Based on previous feasibility studies regarding athletes, retention was considered successful if greater than or equal to 80% following the three-week intervention (Sandgren et al., 2022; Thomas et al., 2004). However, because the participants had poor body image and were subsequently be more at-risk of poor mental health and drop-out rates (Firth et al., 2016; Lederman et al., 2020; Sylvia et al., 2013), a more flexible retention criteria of 70+% was considered feasible for the purposes of this trial.

Acceptability.

Similar to previous feasibility studies in body image, treatment acceptability was assessed via the proxy of retention rates (100% = high, 80% = moderate, <80% = low) (Turk et al., 2022). Further, acceptability was measured using a satisfaction survey score where 1 (i.e., Strongly Disagree) and 2 (i.e., Disagree) indicated levels of dissatisfaction, scores of 4 (i.e., Neither Agree Nor Disagree) indicated neutrality, and scores of 5 (i.e., Somewhat Agree) and 7 (i.e., Strongly Agree) indicated some sort of satisfaction. As such, and based on acceptability reported in a prior feasibility trial (Lambert et al., 2018), a mean score of ≥ 3.5 for greater than 50% of the intervention participants was deemed acceptable. Participants who were placed in the intervention group were asked to complete a satisfaction survey once they had completed the second body image questionnaire. This survey was compiled of 8 items on a 7-point scale. Participants placed in the intervention group were given the option to provide feedback to the researcher at the end of their second BI questionnaire. The exact prompt given to participants

was *"(OPTIONAL): If you have any notes for the research team, you can include them here!"*. This was to provide additional qualitative feedback regarding the acceptability of the study.

Secondary Outcomes.

Self-Compassion.

Self-Compassion was measured using the Self-Compassion Scale formed by Neff et al., (2003). This is a 26-item scale with responses ranging from 1 (almost never) to 5 (almost always). This scale contains six additional subscales which are reverse-coded; self-kindness ("I try to be loving towards myself when I am feeling emotional pain"), self-judgment ("I am disapproving and judgmental about my own flaws and inadequacies"), common humanity ("When things are going badly for me, I see the difficulties as part of life that everyone goes through", isolation ("When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world"), mindfulness ("When I am feeling down I try to approach my feelings with curiosity and openness") and overidentification ("When I am feeling down I tend to obsess and fixate on everything that is wrong"). Self-Compassion has been found to intercorrelate with these sub-scales, therefore higher scores indicate higher levels of self-compassion (Albertson et al., 2015). The internal consistency was 0.79 at both pre-test and post-test.

Body Dissatisfaction.

To measure body dissatisfaction, the Body Shape Questionnaire (Cooper et al. 1987) is a widely used scale that measures concerns about body shape and body dissatisfaction. The shortened 16-item version of the scale approved for use by the scale authors was used (Evans and Dolan 1993). Items are worded negatively to gauge body dissatisfaction and range from 1 (never) to 6 (always). Items are averaged to obtain a mean. Higher scores indicate a higher level

of body dissatisfaction. The internal consistency reliability found in this study was α=0.93 at baseline, and α=0.96 at three weeks.

Body Shame.

The eight-item Body Shame subscale of the Objectified Body Consciousness Scale (McKinley and Hyde 1996) measures how an individual feels about themselves if they do not fulfill cultural expectations for their body (e.g., When I cannot control my weight, I feel like something must be wrong with me). Items are rated on a scale ranging from 1 (strongly disagree) to 7 (strongly agree), and higher scores indicate a higher level of body shame. The internal consistency reliability in this study was α=0.79 at baseline and α=0.88 at three weeks.

Body Appreciation.

While there are numerous instruments that measure negative body image, the self-reported, 13-item Body Appreciation Scale (Avalos et al. 2005) is the first instrument to conceptualize and assess body image as a positive dimension (e.g., I feel good about my body; I feel that my body has at least some good qualities). Items range from 1 (never) to 5 (always). Higher scores indicate a higher level of body appreciation. The internal consistency reliability found in this study was α=0.91 at baseline and α=0.95 at three weeks.

Contingent Self-Worth based on Appearance.

The Contingencies of Self-Worth Scale (CSW; Crocker et al. 2003) is a 35- item scale that focuses on seven different domains of self- worth contingency, but only the Appearance subscale was used in the current study (as was done in Albertson et al., (2015)). Items are rated on a scale from 1 (strongly disagree) to 7 (strongly agree). The CSW for Appearance subscale consists of five questions (e.g., When I think I look attractive, I feel good about myself). Higher

scores indicate higher levels of self-esteem contingency based on appearance. The internal consistency reliability found in this study was α=0.90 at pre-test and α=0.89 at post-test.

Data Analysis.

Recruitment rate was calculated by the number of individuals recruited, consented and ultimately enrolled per month of the recruitment process. Progression criteria was based on studies with similar feasibility designs and those sampling from athletic populations, As a result, recruitment rate was deemed successful if 30 participants were recruited within 60 days (60-days = moderate feasibility; >90 days = low feasibility) (Turk et al., 2022). Retention rate was calculated by taking the number of individuals enrolled in the study who completed the 3-week intervention divided by the number of individuals enrolled in the study including drop-outs. Based on previous feasibility studies regarding athletes and taking into account possibility for poor body image and mental health, retention was considered successful if greater than or equal to 70% following the three-week intervention (Thomas et al., 2004; Sandgreen et al., 2022).

Descriptive statistics were calculated for all primary and secondary outcome measures and to give context to the nature of the intervention and control groups. Preliminary checks were conducted and the secondary data set met all assumptions for linearity, homogeneity of variances, homogeneity of regression slopes, and reliable measurements of the covariates for ANCOVA. For any cases with missing data, values were excluded variable by variable. Two independent samples t-tests and three ANCOVA tests were conducted to retrieve the results from the five measured scales. Independent samples t-tests were used when the baseline values were the same within groups, and the ANCOVAs were conducted to control for baseline when they differed. An independent samples t-test was also used after the ANCOVA in the three cases to find the value for Cohen's *d* (Cohen, 1988). According to Cohen's *d* effect sizes, values between

0.00-0.19 are considered negligible, values between 0.20-0.49 are considered a small effect, values between 0.50-0.79 are considered a medium effect, and values 0.80+ are considered a large effect. These tests were conducted on the computer program JASP 2.

Qualitative Analysis Plan

A continuous, reflexive thematic analysis (Braun & Clarke, 2019, 2020) was used in this study. This approach was chosen for its flexibility in accommodating both inductive and deductive coding, allowing the analysis to be grounded in participants' responses while also reflecting the theoretical framework guiding the study. Reflexive thematic analysis is particularly suitable for single-researcher projects and aligns well with a critical realist epistemology (Roberts et al., 2019). Each feedback was carefully transcribed and reviewed for accuracy. Transcripts were then read multiple times to ensure familiarity with the data. Coding was conducted manually using Microsoft Word, with key phrases and ideas highlighted and annotated during initial readings. Once all feedback were initially coded, the researcher reviewed the full dataset and organized codes into preliminary subthemes and broader themes, guided by both the data and the feasibility framework used to structure the questions (Bowen et al., 2009). A structured coding scheme was developed to reflect these themes and subthemes, and a second round of coding was conducted using this framework. Throughout this iterative process, the researcher continued to reflect on the meaning of the data and on their own assumptions, refining the analysis accordingly. Once all excerpts had been reviewed and categorized under the finalized coding structure, the thematic analysis was considered complete.

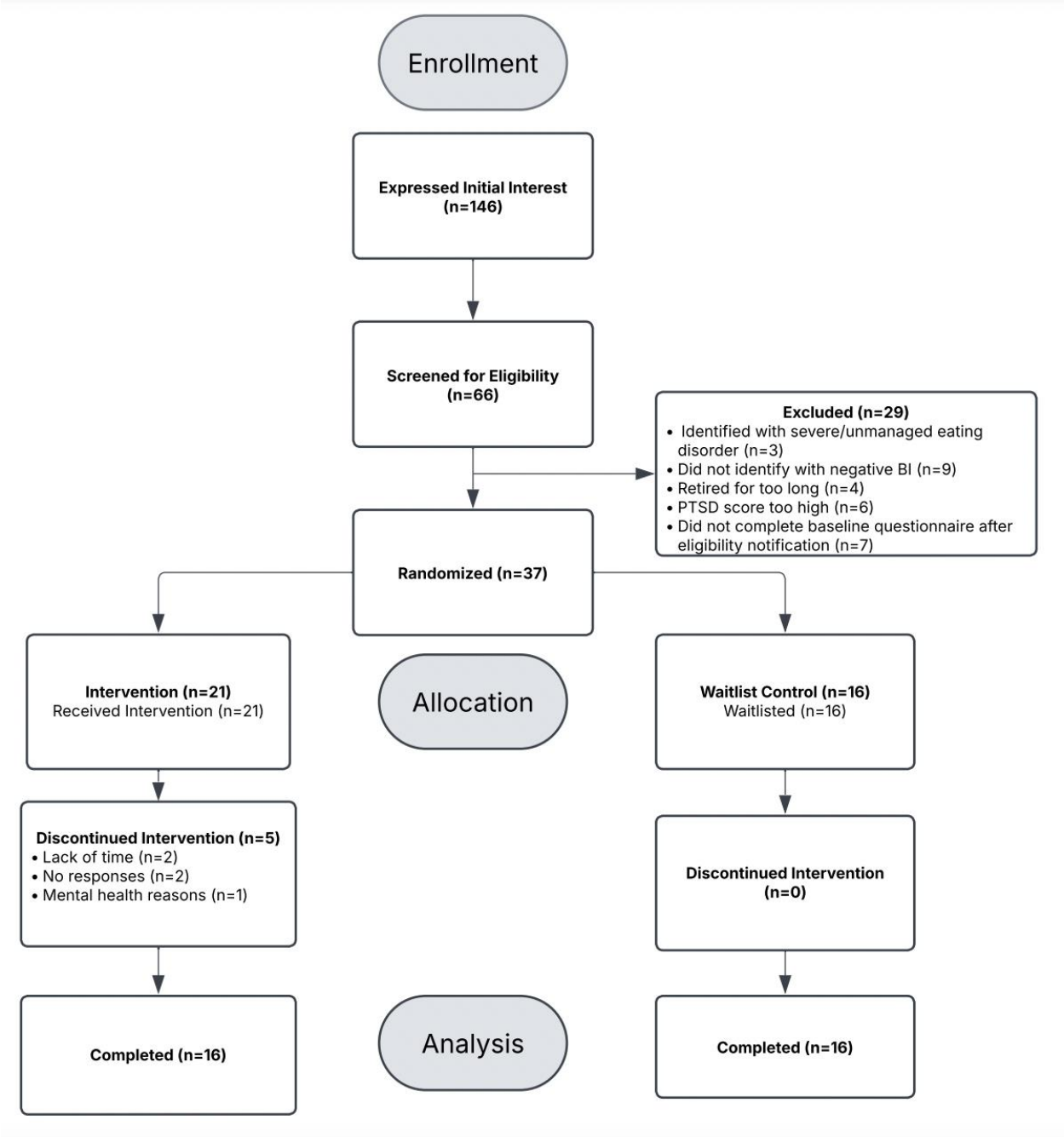
Chapter 4: Results

Study Flow

A total of 37 participants were enrolled to this study from September 13th, 2024 until January 2nd, 2025. A CONSORT Flow Diagram can be seen in Figure 1 (Eldrigdge et al., 2016). A subset of 146 individuals expressed their interest to the researcher via Meta leads on Facebook. Of this subset, 66 individuals were screened for eligibility; three individuals were excluded because they identified with a severe and/or unmanaged eating disorder, nine individuals did not identify with having negative body image, four individuals had been retired from sport for too long, six individuals scored higher than the inclusion criteria on the PTSD screening scale, and seven individuals were eligible but never responded after screening. Ultimately, 37 participants were recruited to participate: 21 in the intervention group, and 16 in the control group.

Figure 1

CONSORT Flow Diagram



Sample

The average age of the participants was 24.97 years old (*SD=3.36*). The majority of the participants identified as female (n=29, 90.63%), with two male participants (n=2, 6.25%), and

one participant who identified as non-binary (n=1, 3.13%). The vast majority of the participants identified as Caucasian (n=31, 96.88%), with only one participant identifying as Ecuadorian (n=1, 3.13%). With respect to meditation experience, 20 participants (62.5%) had tried meditation before entering the study, while 12 participants (37.5%) had not. Baseline characteristics of the recruited participants are presented in Table 2.

Table 2

Participant Demographics.

		Overall (N=32)	Control (n=16)	Intervention (n=16)
Age		24.97±3.36	24.69±3.84	25.25±2.89
Gender	Man	2 (6.3%)	1 (6.25%)	1 (6.25%)
	Woman	29 (90.6%)	15 (93.8%)	14 (87.5%)
	Gender nonconforming	1 (3.1%)	0	1 (6.25%)
Ethnicity	Caucasian	31 (96.9%)	15 (93.8%)	16 (100%)
	Ecuadorian	1 (3.1%)	1 (6.25%)	0
Meditation Experience	Experienced	20 (62.5%)	7 (43.8%)	13 (81.3%)
	Not experienced	12 (37.5%)	9 (56.3%)	3 (18.8%)
Type of Sport	Aesthetic	12 (37.5%)	4 (25%)	8 (50%)
	Non-Aesthetic	20 (62.5%)	12 (75%)	8 (50%)
Time spent in sport	≤10 Years	19 (59.4%)	9 (56.3%)	10 (62.5%)
	>10 Years	13 (40.6%)	7 (43.8%)	6 (37.5%)
Years since retirement	≥3 Years	16 (50%)	8 (50%)	8 (50%)
	<3 Years	16 (50%)	8 (50%)	8 (50%)

With respect to gender, it is worth noting that a much higher, significant number of women participated in this study compared to the men or non gender-conforming individuals ($\chi^2(2) = 47.31$, $p < 0.01$). Similarly, there were significantly more individuals of Caucasian

descent who participated ($\chi^2(1) = 28.13$, $p < 0.01$). There were also noticeably more individuals with meditation experience who were randomized to the intervention group in comparison to the control group, which was on the borderline of statistical significance ($\chi^2(1) = 3.33$, $p = 0.07$). All other demographic data was comparable between groups.

Feasibility (Primary) Outcomes

Recruitment

The recruitment rate for this study was 10.1 participants per month. The first participant was enrolled on September 13th, 2024 and the last was recruited on January 2nd, 2025. Therefore, recruitment occurred over the course of approximately 3.67 months. The number of participants (N=37) was ultimately divided by the number of months (3.67) to retrieve the recruitment rate, which is designated in participants per month.

Retention

A total of five of the 37 trial participants dropped out at some point throughout the study period. Two participants withdrew consent stating time constraints, two participants did not respond to follow-up when it came to completing the final questionnaire, and one participant withdrew consent stating it was not a good time for them to focus on their body image given their current mental health state. Overall, the retention rate was 32/37 (86.49%).

Acceptability

A total of 32 participants completed the satisfaction survey as per protocol analysis. All responses were evaluated based on the established progression criteria of 3.5-5. Anything below this range was considered less than satisfactory for the purposes of this evaluation of feasibility. A complete table of the item scores can be seen in Table 3. Intervention participants on average rated their experiences to be satisfactory. The most agreed upon statement (93.8% scoring >3.5)

was the item “I feel the meditations have helped improve my body image”. The second most agreed upon statements (both with 87.5% scoring >3.5) were the statements “I enjoyed participating in the meditations” and “I would recommend participating in the meditations to other people struggling with body image”. The least agreed upon statement (62.5% scoring >3.5) was “There’s more I need to learn about myself before I continue to meditate”. Overall, all items scored greater than the cut-off of 3.5 in terms of acceptability.

Table 3

Fully Completed Intervention Group Participants' Ratings of Acceptability by Item

Item	M*(SD)*	n scoring (>3.5)
I enjoyed participating in the meditations	4.88* *(1.36)*	14 (87.5%)
I would recommend participating in the meditations to other people struggling with body image	4.69* *(1.40)*	14 (87.5%)
I feel the meditations have helped improve my body image	4.56* *(1.03)*	15 (93.8%)
I would consider continuing to use meditation as a means of body-image improvement and/or coping	4.31* *(1.66)*	11 (68.8%)
I intend to meditate more frequently	4.75* *(1.73)*	13 (81.3%)
I found the meditations unhelpful	2.31*(0.95)*	0
I thought the meditations were easily accessible	5.56* *(1.86)*	14 (87.5%)
There's more I need to learn about myself before I continue to meditate	4.06*(1.65)*	10 (62.5%)

*Items that were considered in favor of the intervention and study feasibility

Qualitative Feedback.

Out of the 16 participants randomized to the intervention group, seven individuals left a comment in the optional feedback box, reading *"(OPTIONAL): If you have any notes for the research team, you can include them here!"*. Using a thematic analysis, these comments emerged five themes and ten sub-themes regarding feedback on the intervention. The exact comments left by participants are found in Table 4, while themes found based on these comments are found in Table 5. The five themes found were: Challenges with Time Commitment, Difficulty Focusing, Emotional Impact and Self-Awareness, Benefits of Meditation for Relaxation and Mental Health, and Suggested Improvements.

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Table 4

Direct Quotes in Satisfaction Survey Optional Comment Box by Participant

Participant	Quote Left for Optional Comment Box at the End of the Satisfaction Survey
5	*"Reflection questions within the meditations were helpful!"*
6	*"I felt sometimes it was hard to allow myself the time to sit down & meditate so some sessions were rushed. This is something I'm working on as a lot of my stress and anxiety builds up because I do not allow myself the time & space. This study was helpful in pushing me in the right direction."*
14	*"I enjoyed it, I do feel starting with 20ish minutes was a bit overwhelming at times. I think maybe a 10 min would've been an easier starting point. I also wish there was a rotation to the meditations instead of a week of one, a week of the second one, a week of the third one. It got a bit repetitive. But- I think having the study as a bit of accountability to engage with meditation was really great. I like the guided style especially the reminders to come back to the breath when the mind has wandered. I've actually taken up yoga and I feel the meditation has really helped me get into a good head space while doing yoga. Also very helpful for relaxation. I sometimes turn to cannabis to help relax but this has shown me that I can achieve a very similar level of relaxation without using cannabis. That's really great insight to have in terms of keeping my usage low risk."*
12	*"Although I really enjoyed the mediations, it was hard for me to find 20 minutes in my day sometimes to complete them. I also personally disliked the long pauses in her mediations. Overall they were quite good but I may try others continuing on."*
23	*"At the start, the meditations were difficult to focus on, and I felt as though I wasn't living up to the standards of what meditation actually was. I feel like some kind of disclaimer or note about how there's not a correct way to do it or something like that might be helpful for those who are not confident in or apprehensive of doing self-guided mediations. However, as I continued to do them, I felt a lot better about the actual practice of doing it by myself. I'm not sure if this a universal experience, but it definitely impacted the way I approached the first few meditations. If not adding a disclaimer initially, perhaps expanding the post meditation section of your survey by adding more experience based questions regarding the meditations will add more to your results."*
29	*"Was a bit of a hard time to do the study - right around the holidays. Made it hard to be consistent with it. Otherwise I enjoyed it, cried during a lot of them so brought up a lot of stuff. Thanks for having me as a participant!"*
32	*"I found it challenging to keep my attention on the meditations so this motivates to continue practicing. I often did them right beige bed or right after waking up and I found it helped me sleep and have a better attitude going into the day. I particularly liked the body scan meditation since this helped me to feel more neutral and open about my body and helped me relax to sleep. I think the meditations helped me to be more aware of my body, it's needs, my emotions and my feelings towards myself but I do not think it changed my overall opinion of myself or my body."*

Table 5

Thematic Analysis of Participant Feedback

Theme	Subtheme	Supporting Quotes
Challenges with Time and Commitment	Difficulty Finding Time	- *"I felt sometimes it was hard to allow myself the time to sit down & meditate so some sessions were rushed"* (P6) - *"It was hard for me to find 20 minutes in my day sometimes to complete them"* (P12) - *"It was a bit of a hard time to do the study – right around the holidays. Made it hard to be consistent with it"* (P29)
	Session Length	- *"I do feel starting with 20ish minutes was a bit overwhelming at times. I think maybe a 10 min would've been an easier starting point"* (P14)
Difficulty Focusing	Distractions and Mental Restlessness	- *"The meditations were difficult to focus on, and I felt as though I wasn't living up to the standards of what meditation actually was"* (P23) - *"I found it challenging to keep my attention on the meditations so this motivates me to continue practicing"* (P32)
Emotional Impact and Self-Awareness	Processing Emotions	- *"Cried during a lot of them so brought up a lot of stuff"* (P29)
	Increased Body Awareness	- *"I think the meditations helped me to be more aware of my body, its needs, my emotions and my feelings towards myself"* (P32)
Benefits of Meditation for Relaxation and Mental Health	Improved Relaxation and Stress Relief	- *"This study was helpful in pushing me in the right direction"* (P6) - *"Meditation has really helped me get into a good head space while doing yoga"* (P14) - *"I particularly liked the body scan meditation since this helped me feel more neutral and open about my body and helped me relax to sleep"* (P32)
	Usefulness of Guided Meditation	- *"I like the guided style especially the reminders to come back to the breath when the mind has wandered"* (P14)
Suggested Improvements	Variation and Structure	- *"I also wish there was a rotation to the meditations instead of a week one, a week of the second one, a week of the third one"* (P14)
	Need for More Guidance	- *"I feel like some kind of disclaimer or note about how there's not a correct way to do it or something like that might be helpful for those who are not confident in or apprehensive of doing self-guided meditations"* (P23)
	Preference for Less Silence	- *"I also personally disliked the long pauses in her meditations"* (P12)

Challenges with Time Commitment.

The first subtheme within "Challenges with Time Commitment" was difficulty finding time, as multiple participants described struggling to find a block of time at which they could set aside to meditate. Three participants left comments consistent with this theme, stating *"I felt sometimes it was hard to allow myself the time to sit down & meditate so some sessions were rushed"* (P6), *"It was hard for me to find 20 minutes in my day sometimes to complete them"* (P12), and *"It was a bit of a hard time to do the study – right around the holidays. Made it hard to be consistent with it"* (P29).

The second subtheme was session length, which could be tied into the first subtheme. One participant left comments suggesting a shorter meditation (10 minutes) may be more suitable as a starting point for guided meditation. Only one participant (P14) left a comment pertaining to this theme, stating *"I do feel starting with 20ish minutes was a bit overwhelming at times. I think maybe a 10 min would've been an easier starting point".*

Difficulty Focusing.

The only subtheme found within difficulty focusing was distractions and mental restlessness. A couple of participants stated they had difficulty focusing throughout the meditations, with one participant (P23) stating this caused them to feel as though they were "not living up to the standards of what meditation actually was". The other participant, however, stated that this was a motivator to continue meditating [*"I found it challenging to keep my attention on the meditations so this motivates me to continue practicing"* (P32)].

Emotional Impact and Self-Awareness.

For one participant (P29), it seemed that the meditations increased the processing of emotions, stating they "cried during a lot of them", which "brought up a lot of stuff". For another participant (P32), these meditations fostered increased body awareness, as they stated they helped them "be more aware" of their body, as well as its needs, their emotions, and their

feelings towards themself (*"I think the meditations helped me to be more aware of my body, its needs, my emotions and my feelings towards myself"*).

Benefits of Meditation for Relaxation and Mental Health.

Two sub themes were found within the theme of benefits of meditation for relaxation and for mental health. The first subtheme was improved relaxation and stress relief, which was supported by three participant statements. One participant (P6) stated that the meditations were helpful in pushing them in the right direction (*"This study was helpful in pushing me in the right direction"*), while another stated they helped foster a "good head space" when practicing yoga [*"Meditation has really helped me get into a good head space while doing yoga"* (P14)]. Another participant stated they particularly enjoyed the body scan meditation, as it helped them "feel more neutral and open" about their body and helped them relax to sleep [*"I particularly liked the body scan meditation since this helped me feel more neutral and open about my body and helped me relax to sleep"* (P32)]. The second subtheme found was the usefulness of guided meditation, as one participant stated they enjoyed this format, particularly for reminders to come back to the breath when the mind has wandered [*"I like the guided style especially the reminders to come back to the breath when the mind has wandered"* (P14)].

Suggested Improvements.

The final theme within the thematic analysis was suggested improvements to the intervention. Within these suggested improvements, the three suggested changes were variation in structure, more guidance, and for less silence. To change the structure of the meditation, one participant suggested rotating the meditation (for example, on a daily basis) rather than having the same meditation for seven consecutive days at a time [*"I also wish there was a rotation to the meditations instead of a week one, a week of the second one, a week of the third one"* (P14)]. In terms of guidance, one participant suggested that a disclaimer at the start of the meditations may be

helpful in making participants feel more confident and less apprehensive in meditation, and that perhaps this disclaimer could mention something along the lines of there not being a "correct" way to meditate [*"I feel like some kind of disclaimer or note about how there's not a correct way to do it or something like that might be helpful for those who are not confident in or apprehensive of doing self-guided meditations"* (P23)]. Finally, one participant stated that they disliked the long pauses in the meditations, suggesting a more guided structure may be more suitable for some individuals [*"I also personally disliked the long pauses in her meditations"* (P12)].

Adverse Events

There were no adverse events reported over the course of this study.

Secondary Outcomes

The Shapiro-Wilk test was used in JASP 2 to check for normality, and all normality assumptions were able to be met. While retrieving the results from the five measured scales, it occurred that after the first three participants had completed the intervention, one question was missing from the initial body image questionnaire (Self-Compassion Scale). The question was added to the questionnaire, and the value was counted as missing data for the first three participants. These values were excluded variable by variable.

Results indicated directional, and sizeable differences in changes between the intervention and control group on pre-post-intervention for the self compassion scale (d=1.43) body shame scale (d = -0.36), body dissatisfaction scale (d=-0.54) body appreciation scale (d=0.83), and contingencies based on self-worth scale (d = -0.59). The means for each group at baseline and 3-weeks, along with their F-value and the corresponding Cohen's d can be found in Table 6. The effect size (Cohen's d) was found using the partial eta squared calculated in JASP 2.

Table 6

Summary of Secondary Outcomes from One-Way, Between Groups Analysis of Covariance Controlling for Scores at Baseline and 3 Weeks.

Outcome	Intervention group		Wait-list controls		*F*	*d*
	Pretest *M(SD)*	Posttest *M(SD)*	Pretest *M(SD)*	Posttest *M(SD)*		
Self-compassion	4.20(0.36)	4.36(0.44)	4.18(0.46)	3.74(0.55)	14.79	1.43
Body Shame	3.05(0.67)	2.40(0.67)	2.85(0.71)	2.81(0.90)	13.53	-1.36
Body Dissatisfaction	4.57(0.61)	3.95(0.73)	4.69(0.63)	4.31(0.86)	2.10	-0.54
Body Appreciation	4.21(1.08)	4.85(0.95)	4.12(1.03)	4.26(1.29)	5.66	0.83
CSW-Appearance	5.44(0.61)	4.92(0.61)	5.00(0.72)	4.99(0.75)	2.48	-0.59

Chapter 5: Discussion

The purpose of this study was to examine whether the self-compassion meditation intervention used by Albertson et al., (2015) would be feasible to apply to retired athletes, in order to potentially prevent the onset or reduce the intensity of the effects of crisis in retirement transition, which is characterized by lack of adjustment, ongoing psychological distress, depression, and low self-esteem (Cosh et al., 2021). This study was a randomized, trial testing the feasibility of a 3-week self-compassion meditation intervention on retired athletes aged 18+ with negative body image ideals. Primary outcomes related to feasibility (recruitment, retention, and acceptability) and secondary analyses of outcomes related to change in body image outcomes were conducted to inform and prepare for an effectiveness trial. Notable strengths of this study included the randomized controlled design, measurement of key outcomes, and mixed methods approach which allowed for a thorough feasibility assessment. The inclusion of qualitative data additionally added meaningful context to the participant experience and complemented the quantitative findings.

Feasibility Outcomes

For the study to be considered feasible, variables such as recruitment rate, retention and acceptability were considered. The progression criteria for these outcomes were based on previous feasibility studies (including those using athletes and individuals with poor body image as part of their sample) [Turk et al., (2022) for the recruitment rate comparison for individuals with poor body image; Sandgreen et al., 2022 and Thomas et al., (2004) for the retention rate comparison with individuals who have poor body image; Lambert et al., (2018) for acceptability comparison]. The values from the previous literature were then compared to the values found in

this study to determine whether this intervention should progress a larger-scale effectiveness RCT.

Recruitment

The aim for the recruitment rate was to achieve 30 enrolled participants within 60 days [a feasible value set from prior research (Turk et al., 2022)]. The first participant of this study was recruited on September 13th, 2024 and the targeted sample of 30 participants was acquired as of December 16th, 2024. Therefore, it took 95 days to recruit a full sample. This is over a month longer than the previously established feasible recruitment rate. Acquiring a full sample within 60-90 days would have been considered moderate feasibility, and >90 days was considered low feasibility (Turk et al., 2022). The recruitment rate of 10.1 participants per month within this study is therefore considered as low in feasibility. This rate should be increased by about 4 participants per month in order to meet the requirements for high feasibility. Most efficacy studies utilizing meditation on individuals with low self-esteem or poor body image tend to have between 70-175 participants (Papini et al., 2022; Hooper et al., 2024; de Wet et al., 2020). Therefore, with the current recruitment rate, a minimum of seven months of recruitment would be required, and could take up to 17 months when aiming for the higher end of the sample sizes. With the desired recruitment rate of 15 participants per month, recruitment would occur between five and 12 months, potentially saving researchers from up to five months of recruitment time.

One way of increasing recruitment could be including compensation for completing the measures in the study. A common report made by participants after the study was that they found it quite time-consuming, especially for those who completed the intervention throughout the holidays (some participants were recruited right before Christmas). Meditating for 20 minutes over the course of 21 days equates to 7 hours in total spent in meditation; for individuals who

have busy schedules with work, caring for children, and/or additional activities may find this time commitment daunting, therefore preventing them from being recruited. Providing compensation for the time given could therefore encourage individuals to continue participating. On the other hand, this solution could also incentivise individuals to be dishonest about their participation, which is particularly risky within the scope of this study with no real means of seeing if individuals truly did partake in the meditations. Additionally, this strategy would only work if the participants had a low retention rate, as the compensation would have to be provided after the first questionnaire and would need not to be a main form of advertisement to avoid coercion. Monetary compensation may also affect scalability; In real-world scenarios, participants will not be getting paid to practice meditation in order to improve body-image outcomes. If anything, the participant would be the consumer, and would potentially be paying out of their own pocket for such a service (for example, via commonly used meditation apps such as “Calm” or “Headspace”). Providing monetary compensation may therefore decrease scalability and make comparators inaccurate to real-world scenarios.

Another means to increase recruitment would be collaboration with athletic institutions; If an individual already trusts the legitimacy of the institution and/or have already worked with the institution, then it could increase their likelihood of enrollment. Finally, the study could also be ensured to run outside of the holiday season, in months where individuals are less likely to be travelling, or busy with family events. A pause could have also been made throughout the last week of December and first week of January to encourage participants to enroll despite the timeline. Finally, extending the recruitment period may improve enrollment, but doing so may also suggest limitations in real-world scalability, an important consideration for a future larger

randomized control trial. Although the recruitment rate for this study was lower than planned, once the participant was enrolled, it seemed the participant was likely to remain in the study.

Retention

High feasibility for retention was considered to be anything greater than 80% according to prior feasibility research (Thomas et al., 2004; Sandgreen et al., 2022), and greater than 70% given the nature of the individuals being recruited [lower retention rates being more common for those with poor mental health, (Firth et al., 2016; Lederman et al., 2020; Sylvia et al., 2013)]. This study was able to achieve a retention rate of 86.49%, demonstrating high feasibility in this area and exceeding initial expectations. This is consistent with the 84% retention rate achieved by Campo et al., (2017), who ran a mindful self-compassion video intervention feasibility trial on adult cancer survivors. This retention rate implies that if a larger clinical trial was conducted, individuals would be likely to participate until completion of the study, therefore it is not likely that changes would have to be made to the intervention in order to adjust for retention levels.

Acceptability

Acceptability was measured indirectly in terms of retention, but also measured directly in terms of the satisfaction survey, which every intervention group participant received at the end of their 3-week final BI questionnaire. Similar to previous feasibility studies (Lambert et al., 2018; Sheffield & Woods-Giscombé, 2016), the progression criteria for acceptability was a mean satisfaction score greater than 3.5. This intervention met that threshold across all items (As shown on Table 3). Similar to the comparison made in retention, acceptability was compatible with Campo et al., (2017)'s self-compassion video-intervention feasibility study, with adult cancer survivors reporting high acceptability (M = 4.36 from a 5-point scale).

The item which received the best mean score was “I thought the meditations were easily accessible” (M=5.56, SD=1.86). This implies that the online format was convenient for participants, and was user-friendly. However, these mean differences between items were not tested for statistical significance, so the findings are indicative but not statistically confirmed. The convenience implication of this item is likely important given that the study period overlapped with the holiday season, and the flexibility to complete the meditations remotely could have improved adherence. The next highest scoring item was “I enjoyed participating in the meditations” (M=4.88, SD=1.36). For an intervention like this to be successful, it is highly important for the participants to enjoy what they are doing, as studies have shown that intervention adherence and intervention enjoyment are positively correlated (Zhang et al., 2024; An et al., 2024). Hewett et al., (2019) found a lack of enjoyment was one of the three barriers to adherence in a yoga intervention for stressed and sedentary adults. So, the adherence and participation of a study is much more likely to be successful if the participants actually enjoy what they are doing. One study by Van Cappellen et al., (2020) used the same intervention method as the one used in this study, and found that individuals who experienced greater positive emotions at initial exposure to meditation were more likely to choose to incorporate meditation into their daily lives.

Van Cappellen et al., (2020)'s findings on positive emotions and future meditation may help explain why the next highest scoring item was “I intend to meditate more frequently” (M=4.75, SD=1.73). Future adaptations for this intervention could therefore incorporate techniques that evoke positive emotional experiences in the first session; For example, the meditation could prompt participants to recall moments of peace, self-compassion, or self-acceptance.

Other items also performed well, such as "I would recommend participating in the meditations to other people struggling with body image" (M=4.69, SD=1.40) and "I would consider continuing to use meditation as a means of body-image improvement and/or coping" (M=4.31, SD=1.66). Though both items surpassed the acceptability threshold, the latter scored somewhat lower on average, potentially due to practical barriers noted in the qualitative feedback (Table 4). The item that received the lowest mean score was "I found the meditations unhelpful" (M=2.31, SD=0.95), which is a reverse-worded negative statement. This low score reflects positive intervention reception, since disagreement with the statement indicates helpfulness. Although the feedback from these items is helpful, qualitative feedback regarding the intervention allows for first-hand insight on the acceptability of the intervention,

Qualitative feedback from the optional comment box which stated "*"(OPTIONAL): If you have any notes for the research team, you can include them here!"* enriched the interpretation of these quantitative results. Using this item, five major themes were found using the participant comments; (1) Challenges with time commitment; (2) Difficulty focusing; (3) Emotional impact and self-awareness; (4) Benefits of meditation for relaxation and mental health; (5) finally suggested improvements. See Table 4 for all of the direct quotes given by participants; See Table 5 for the list of derived themes and sub-themes from the given feedback.

Emotional Impact and Self-Awareness.

In terms of positive feedback, the first theme would be emotional impact and self-awareness, with the subthemes of increased body awareness and processing emotions. With regard to the first subtheme, increased body awareness, one participant highlighted that the meditations helped them become more attuned to their bodies. The participant wrote: *"I think the meditations helped me to be more aware of my body, its needs, my emotions and my feelings*

towards myself" (P32). This feedback is encouraging, as it suggests the meditations increase the ability for participants to experience interoception. Interoception is defined as "the overall process of how the nervous system senses, interprets and integrates signals originating from within the body, providing a moment-by-moment mapping of the internal landscape of the body across conscious and nonconscious levels" (Berntson & Khalsa, 2021; Khalsa et al., 2018). Gibson (2024) supports that meditation will increase interoception, as meditation dampens activity in the default mode network (associated with self-referential thinking, autobiographical memory and narrative processing) and increases function of in the insula (which has a central role in integrating sensory, emotional and cognitive processes). An increase in interoception is desired as this provides a solidifying effect to the self-concept, which contributes to emotional stability, and resilience to external influences (Monti et al., 2022).

Supporting the second sub-theme, processing emotions, one participant noted that they *"cried during a lot of them [the meditations] so brought up a lot of stuff"* (P29). The claim that meditation could help emotion processing is supported by numerous articles (Wu et al., 2019; Liu et al., 2021; Gao et al., 2022). Improved emotion processing can entail improvements in emotion intensity (less intense emotional intensity in response to negative stimuli), emotional memory, and emotional intensity, enabling individuals to remain more focused and in more of a peaceful state (Wu et al., 2019). Further, the fact that this participant reported crying could have actually been beneficial. One perspective study of therapists and clients states that crying can enhance insight (i.e., about lived experiences) and understanding of feelings (Knox et al., 2017). Another article states that crying entails a "cleansing of the soul", and can help treat prolonged anxiety (Zulfa, 2018). Given the benefits of interoception and emotional processing, it would

certainly make sense that meditation could provide a soothing effect for the negative emotions which are associated with poor body image.

Benefits of Meditation for Relaxation and Mental Health.

The next major positive theme regarding the intervention feedback was that it provided benefits for relaxation and mental health. The first sub-theme in this category was improved relaxation and stress relief. This theme was the most reported across all comments given by the participants. Participants stated: "it *was helpful in pushing me in the right direction*" (P6), that the meditation "*really helped get into a good headspace while doing yoga*" (P14); and "*it* [the meditations] *helped me feel more neutral and open about my body and helped me relax to sleep*" (P32). In relaxation, there is a constant reference to the feelings which are being experienced in the body (Lipshutz, 1962); Methods such as hypnotic relaxation and massage relaxation have even been used and show promise in providing improved body image in female cancer survivors (Cieslak et al., 2016; Samuel et al., 2021). Relaxation can enhance physical, emotional and cognitive function and enhance one's ability to cope (Lovas, 2015). For retiring athletes experiencing crisis in retirement transition, such a coping mechanism could be extremely influential to one's healing with body image.

Not only did participants report increased relaxation with the intervention, but they additionally appreciated the guided format, forming the second subtheme "Usefulness of Guided Meditation". One participant stated: *"I like the guided style especially the reminders to come back to the breath when the mind has wandered"* (P14). Given the fact that many of the participants had never practiced meditation in the past (which would also likely be true for a larger sample), a guided format is likely necessary for this type of intervention. The guided meditation format has been successful in many other randomized control trials, and have even

demonstrated statistically significant improvements in areas such as degrees of happiness, enthusiasm, inspiration, activeness, alertness, awareness, degree of stability, self-confidence, clarity of thoughts, control over anger, self-reflection, PTSD symptoms, and stress level (Vaishnav et al., 2022; Liu et al., 2025; Fu et al., 2021). Given the population being studied, improved self-confidence, happiness, and control over PTSD symptoms and stress levels are particularly note-worthy in reductions of negative body image.

Challenges with Time Commitment.

Just as many positive comments were made regarding this intervention, some challenges were also noted. Some participants reported that meditating daily for 20 minutes was demanding, especially during a busy holiday period. One participant noted: *"I felt sometimes it was hard to allow myself the time to sit down & meditate so some sessions were rushed"* (P6). Others struggled with maintaining focus or finding time to meditate. These themes align with existing literature on barriers to adherence in mindfulness interventions (Hewett et al., 2019), which highlights lack of enjoyment, difficulty committing, and challenges in maintaining focus. Interestingly, a study comparing a 10-minute versus a 20-minute meditation intervention found no significant difference in the adherence between the two groups; Both groups additionally showed a decrease in stress and an increase in mindfulness over the course of the 2-week intervention (Berghoff et al., 2017). The group who meditated for 20 minutes, however, did show larger increases in self-compassion relative to those in the 10-minute group (Berghoff et al., 2017). One potential benefit of shorter meditations (5–10 or 11–20 minutes) is higher mood scores early in practice (Cearns & Clark, 2023), so perhaps it could even be beneficial to begin with shorter meditations (i.e., 10 minutes), and then slowly increase the time over the course of the intervention (i.e., 10 minutes per day throughout the first week, 15 minutes per day for the

second week, and 20 minutes per day in the third week). It is possible this format could additionally improve focus, which was another major theme derived from the qualitative feedback.

Difficulty Focusing.

One participant shared: "*The meditations were difficult to focus on, and I felt as though I wasn't living up to the standards of what meditation actually was"* (P23). One possible resolution to this problem suggested by Cearns and Clark (2023) is to practice balance across objects of focus that are internal and external to the body. According to Britton (2019), internal-focus meditations place the object of focus internally on the body (focusing on interoception) whereas external-focus meditations place the object of focus outwardly by finding compassion for others, repeating self-affirmation, or repeating a mantra. If internal-focused and external-focused meditations are used too disproportionally, it could have negative effects (Britton, 2019). It does seem however, that the meditations which were used in this intervention do take this in to account. Throughout the first week, participants practiced the "Compassionate Body Scan" which uses framing/reframing by replacing judgment with compassion (externally-focused) and behaviour substitution through returning one's attention to body sensations (internally-focused). In the second week, participants practiced the "Affectionate Breathing" meditation, which uses comfort through breath to reduce negative emotions (internally-focused) while providing reassurance about mind-wandering through verbal persuasion about capability (externally focused). Finally, the third meditation titled "Loving-Kindness Meditation" soothed difficult thoughts by keeping the hand on the heart (internally-focused) while using self-affirmations such as "May I be safe" (externally focused). Perhaps, it could be that participants would have a better time focusing if meditations were either internally-focused or externally-focused, rather than a

mix of both. According to Cearns and Clark (2023), a balanced practice (1:1) is associated with the highest odds of adherence. So, perhaps future studies could consider alternating every day between a solely internally-focused and solely externally-focused meditation.

Suggested Improvements.

In light of the feedback given by the participants, future adaptations should be considered for a future randomized-control study. First, future researchers should consider shortening meditation session length. In a large-scale analysis of 280,000 meditation sessions, Cearns and Clark (2023) found that session length was less important than consistency and variety for promoting psychological benefit. Additionally, shorter sessions (5–10 or 11–20 minutes) were associated with higher mood scores early in practice. To increase mood, maintain higher retention, and to achieve the maximum amount of benefit from the meditations themselves, future researchers should consider slowly increasing meditation length throughout the intervention. These meditations should additionally alternate between internally-focused and externally-focused mediations for maximum effectiveness The guided format was appreciated by the participants, and should therefore remain as a crucial part of the intervention. In preparation for a full-scale RCT, key modifications regarding feasibility outcomes should include boosting recruitment efforts via athletic partnerships and increased accessibility, ensuring more diverse representation. Representation adds depth, relevancy, and nuances that could otherwise go missed by traditionally silenced voices (Forber-Pratt, 2024; Forber-Pratt, 2025). If recruitment efforts are boosted via larger institutions, this subsequently increases the likelihood that minority individuals in body image research in sport (non-Caucasian, non-cis-gender women) will provide insight to their experiences. This study aimed to include all individuals, however predominantly cis-gender women showed interest in participating. Instead of broadly targeting all populations,

future research may benefit from focusing specifically on minority groups, allowing for a more in-depth understanding of their unique experiences. Finally, researchers should consider implementing adherence tracking (e.g., through a meditation app) in any future randomized control trials for this intervention. Without proper tracking, the following biases could limit the legitimacy of the research: (1) adherence bias (if participants didn't complete the meditation, any observed outcomes can't confidently be attributed to the intervention itself); (2) self-selection bias (outcomes may reflect characteristics of motivated individuals rather than the effect of meditation); or (3) social desirability bias (over-reporting adherence to appear compliant or helpful). The acceptability of this feasibility study was quite strong overall, therefore these minor changes should yield a strong randomized control trial. Beyond these practical recommendations for future RCTs, secondary outcomes from the current study provided additional insight into the effects of the meditation intervention for former athletes.

A Potential Mediator: Interoception

Although there is solid promise for its effectiveness, body image outcomes using self-compassion meditations could be partially dependent on an individual's capability for interoception, as interoception has shown to mediate the effects of certain meditation practices (Gibson, 2024). Interoception refers to a bodily function where "the nervous system senses, interprets, integrates, and regulates information originating inside the body, providing a moment-by-moment mapping of the body's internal environment" (Todd & Aspell, 2022). Interoception can be a difficult skill to acquire, as it typically happens outside of our momentary awareness; If adopted, however, it may contribute to a greater overall sense of wellbeing (Dunn et al., 2022). Although greater interoception can occur through the practice of meditation (Kok & Singer, 2017; Jonathan et al., 2015), it could also be that interoception must be present in order to see

positive psychological effects from meditation (Gibson, 2024). Using interoception as a central mediator within the scope of mindfulness interventions in body image could therefore help explain variations in the effectiveness of outcomes in retired athletes. Using interoception as a central mediator could therefore be considered as one of the suggested changes in the intervention, alongside the other suggested improvements.

Secondary Outcomes

The secondary outcomes were included to explore the potential effects of the intervention, not to test for efficacy or effectiveness. As such, the study was not powered to detect statistically significant changes and these findings should be interpreted cautiously as preliminary indicators of the direction and relevance of key outcomes for future studies. Nonetheless, they can provide useful insight for designing a future effectiveness trial and support the relevance of selected measures.

Self-Compassion

Self-Compassion had the largest effect size compared to all other items (d=1.43). According to Cohen (1988), a value greater than 1.3 represents a very large effect size. This value therefore indicates that participants experienced an increase in self-compassion throughout the meditation intervention. This is also consistent in the study conducted by Albertson et al., (2015).

Given this intervention is labelled as a “Self-compassion meditation”, this result was expected. Self-Compassion refers to being able to be kind and supportive towards oneself when experiencing suffering and pain caused by life’s challenges (Neff, 2023). The findings suggest that despite participants’ past experiences in sport – which may have negatively impacted their body image and mental health – they were able to cultivate greater self-kindness over the course

of the three-week intervention. Neff (2023) explains that in order to have self-compassion, individuals *"must first be able to recognize the pain that they experience mindfully"*, explaining that we cannot show compassion for ourselves if we do not first recognize it. With that, it further becomes possible to realize that the negative thoughts we may have about ourselves are just that – thoughts and feelings – rather than actual facts (Neff, 2023). While it may have been challenging for participants to openly acknowledge their pain and insecurities, doing so was likely a crucial step toward learning to treat themselves with greater kindness, and subsequently increasing their self-compassion. With greater self-compassion, participants have an increased chance of experiencing better well-being (Phillips & Hine, 2021), fewer social appearance comparisons, lower body dissatisfaction, and lower body shame (Turk & Waller, 2020).

Body Shame

Body shame, defined as a "simultaneous awareness of one's subjectivity and potential to be objectified, or the constant flow between self-evaluations and evaluations of self by others" (Dolezal & Bloomsbury, 2015; Gilbert, 2003) decreases as body image improves (Turk & Waller, 2020). It was therefore expected for this value to move in a negative direction, if the intervention worked as intended. The experimental effects of the study supported this expectation (d=-1.36), demonstrating a very large effect size (Cohen, 1988). These findings are consistent with previous literature demonstrating that self-compassion meditations reduce self-critical tendencies and body-image distress (Albertson et al., 2015; de Wet et al., 2020).

Feeling ashamed of one's body after retirement was one of the four major themes discussed within the literature of body image in sport (Papathomas et al., 2018); These findings therefore suggest that self-compassion meditations may protect retired athletes from the commonly experienced negative effects of retirement transition. Further, reductions in body

shame can shield these individuals from its negative effects, which include maladaptive behaviours like disordered eating (Woodward et al., 2019), depression (Szymanski & Henning, 2007), non-suicidal self-injury (Nelson & Muehlenkamp, 2012), body dysmorphic disorder (Weingarden et al., 2017) and substance abuse (Carr & Szymanski, 2011). Finally, the strength of the effect size provides promissing evidence that a larger randomized control study may yield similar results, which would ultimately improve the experience of retirement transition for retired athletes.

Body Dissatisfaction

Body dissatisfaction occurs when social pressure causes unrealistic and mostly unattainable body ideals via mechanisms of body idealization (Karazsia et al., 2013; Stice et al., 1996). Like body shame, the ideal outcome for this scale was to decrease over the course of the intervention. The results showed a negative direction, with a moderate effect size (d=-0.54) (Cohen, 1988). These results are consistent with the original study by Albertson et al., (2015). Many other studies have also found that meditation interventions can decrease body dissatisfaction, notably auditory meditation interventions (Fraser et al., 2022; Papini et al., 2022;). This means that the participants experienced a decrease in the discrepancy between cognitions of their current appearance and that of their desired appearance (Rajagopalan, 2020); Or, in other words, the participants became more content with their body's current state rather than comparing their bodies to others. It has been suggested that body appreciation is negatively associated with body dissatisfaction (Toole & Craighead, 2016), so it is also possible that the observed trend in this study could reflect improvements in body appreciation rather than a direct reduction in body dissatisfaction. This discrepancy in the research could be further studied by using power analysis in a larger randomized-control trial.

Body Appreciation

Body appreciation, which refers to valuing the features, functions, and health of the body (Yao et al., 2021), increased for individuals in the intervention group and showed meaningful effect size differences compared to the control group over time (d=0.83) (Cohen 1988). This aligns with previous research (Albertson et al., 2015; de Wet et al., 2020; Toole & Craighead, 2016) showing that self-compassion practices enhance positive self-perception and body-related gratitude. These results further make sense as body appreciation and self-compassion are positively correlated (Young & Kotera, 2022). The trend of these results suggest that self-compassion meditations are effective in allowing former athletes to have more gratefulness for their bodies, opposed to judging themselves with harsh criticism. This aligns with the fact that meditation increases gratefulness as well as mindfulness (Fraser et al., 2022). Given the nature of the participants and their increased likelihood of poor mental health (Cosh et al., 2021), this is an optimistic result, especially given the "protective potential" of body appreciation in the facet of body image in mental health prevention (Linardon & McClure, 2023). According to Hooper et al. (2024), body-scan meditations can provide an immediate effect in increasing body appreciation, so it is possible that completing the second questionnaire immediately after the completion of the intervention influenced these results. Future studies should consider that these effects may only act as a buffer, and that further research should be done on the long-term effects for regular social media users (Hooper et al., 2024). One suggestion provided by Hooper et al., (2024) is to practice mindfulness in response to viewing idealized content on social media. Not only should this be considered for future RCT's regarding body appearance, but it should also be considered through the scope of contingencies of self-worth based on appearance.

CSW-Appearance

Contingencies on Self-Worth based on Appearance was described by Albertson et al., (2015) as a way at which individuals value themselves based on meeting societal standards on physical appearance. On this scale, the study demonstrated moderate change in the negative direction (d =-0.59) (Cohen, 1988), indicating participants valued themselves less strictly in terms of their appearance by the end of the 3-week intervention in comparison to controls. In the scope of this study, this is a positive outcome that is consistent with the findings of the original study by Albertson and colleagues (2015) as well as by Toole and Craighead (2016). It does, however, contradict the findings of de Wet and colleagues (2020) who found no effect in this area. De Wet and colleagues (2020) did posit the question whether this difference had to do with length of the study, as their intervention only lasted one week, rather than three. It would therefore be interesting to see if a longer intervention would produce more favourable effects than the three-week intervention even did (for example, if the intervention was part of a curriculum, and lasted the length of a typical four-month academic semester). It is especially important for former athletes to have control over their appearance-based self-worth, as individuals who engage in "fitness inspiration" content (a subject likely consumed by athletes or former athletes) via social media show higher than average levels of mental health concerns, disordered eating, and body dissatisfaction (Bjornsen & O'Connor, 2023). Decreasing an individual's self-worth based on appearance will further prevent them from contributing to the damaging tendencies of appearance-based self-worth, such as posting highly edited and polished images on social media (Prieler et al., 2021); This, could then further prevent other individuals from comparing themselves to such posts of that nature and prevent a cycle of further harsh self-critisim.

Exploratory Findings of Secondary Outcomes

Variables were explored to see if they had any effect on the outcomes by using an analysis of covariance (ANCOVA) via JASP 2. The dependent variable was the score at 3-week follow up, with group (control vs. intervention) as the independent variable. All of the findings supported the hypothesized direction of secondary outcomes with meaningful effect sizes. The preliminary evidence is therefore supportive to move to an effect trial, while possible extending the duration longer than three weeks.

Limitations.

Despite the strengths of this feasibility study, there are noteworthy limitations. One of the most prominent limitations is the lack of diversity in gender and ethnicity in the sample. The lack of diversity therefore limits its generalizability to be applied across other demographic areas as well as towards men and/or gender non-conforming individuals. It is possible that partnering with an athletic institution could expose the study to a larger variety of individuals, as well as encourage them to participate if they are already affiliated with the institution in some capacity. Future studies could also partner with athletic organizations that serve diverse populations, engage in targeted outreach to underrepresented groups in sport (such as BIPOC and LGBTQ+ athletes). Conducting this study with more diversity would improve efficacy in problem solving (when finding flaws in the intervention), enhance decision making (regarding further use of the intervention) and encourage innovation in the area (Asmal et al., 2022). According to Bautista et al., (2022), this can be done by applying a meaningful term while describing mindfulness as an inclusive and equitable practice to facilitate the exploration of a new area in research. It is possible that historically marginalized communities may see the practice of mindfulness as one that is reserved for privileged class (Bautista et al., 2022). Using the term “Equitable Mindfulness” when recruiting for the study may therefore encourage marginalized individuals to

participate in the intervention. Another possible solution to increase inclusivity would be to offer the intervention in multiple languages or in formats that consider accessibility (i.e., flexible delivery, perhaps via smartphone app) to increase reach across demographic groups. Another possible solution is to broaden the research question (Asmal et al., 2022); Future studies could broaden inclusion criteria to involve individuals who have participated in sport and feel it has influenced their body image, rather than restricting participation to those who competed at provincial, collegiate, or national levels. Further, since this study is conducted online and is easily accessible from anywhere with internet access, inclusion criteria could also be broadened to a greater demographic, such as all North America. Widening the recruitment scope in this way may also address limitations related to the lower-than-anticipated recruitment rate observed in the current study.

It should further be noted that this study was conducted using self-report, meaning participants could have been subject to social desirability or response bias in their acceptability ratings. In a future randomized control trial, it would be helpful and recommended to utilize a more objective measurement tool (such as an app) which directly indicated whether participants were adhering to the meditation practices. Lastly, a potential limitation is that participants may have already been inclined to engage in meditation due to a self-selected interest in response to the posted advertisement, which may have contributed to higher retention rates. Partnering with an athletic institution and intertwining this study with some form of curriculum could therefore provide a more accurate representation of the retention for individuals who would not have otherwise tried this practice. If this intervention were part of a curriculum, the timeframe would likely be longer than 3 weeks, potentially aligning with a typical academic semester (e.g., four months), which could improve logistical feasibility. It may also be worth powering the next trial

using a more conservative estimate of retention to account for potential inflation from self-selection bias. This would also help future researchers determine the rate of change of the key outcomes of this study. By addressing these limitations and building on the strengths of the current study, future research can more effectively engage diverse participants and yield more robust outcomes.

Conclusion

The purpose of this study was to evaluate the feasibility of a three-week self-compassion meditation intervention for retired athletes and its effects on body image outcomes. Although the recruitment rate for this study was low, the retention rate and acceptability of the intervention exceeded expectations. The secondary outcomes found in this study were exploratory, and the intervention showed favourable effect for all five scales of measurements, as hypothesized. These results demonstrated favourable results for a future randomized control study within this population. Based on the findings in both the primary and secondary outcomes, it is recommended that the next step be a full-scale randomized controlled trial designed to evaluate the effectiveness of this intervention. This transition from feasibility to effectiveness testing will allow for a more robust evaluation of impact and inform future support programs for retired athletes. More knowledge within the field of body image in former athletes may help mental performance coaches prepare an athlete for upcoming retirement, help psychological practitioners treat patients who are former athletes, help organizations create programs to lessen the onset of body image issues within the scope of their sport, and finally could lessen the onset of additional negative outcomes of retirement such as alcohol abuse, sleep disturbances, and social isolation (Giannonne et al., 2017; Grove et al., 1997; Shanger & Petrie, 2021). Overall, this study provided a novel contribution to the literature, by studying Albertson et al., (2015)'s

intervention within former athletes; an underrepresented population in the scope of body image research.

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Appendix A.

Body Image Questionnaire

Self-Compassion

1. I try to be understanding and patient towards those aspects of my personality I don't like.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

2. I'm kind to myself when I'm experiencing suffering.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

3. When I'm going through a very hard time, I give myself the caring and tenderness I need.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

4. I'm tolerant of my own flaws and inadequacies.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

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

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

6. When I see aspects of myself that I don't like, I get down on myself.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

7. When times are really difficult, I tend to be tough on myself.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

8. I can be a bit cold-hearted towards myself when I'm experiencing suffering.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

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

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

10. I'm intolerant and impatient towards those aspects of my personality I don't like.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

11. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

12. I try to see my failings as part of the human condition

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

13. When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

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

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

15. When I fail at something that's important to me I tend to feel alone in my failure.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

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

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

17. When I'm feeling down I tend to feel like most other people are probably happier than I am.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

18. When I'm really struggling I tend to feel like other people must be having an easier time of it.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

19 When something upsets me I try to keep my emotions in balance. .68 When I'm feeling down I try to approach my feelings with curiosity and openness.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

20. When something painful happens I try to take a balanced view of the situation.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

21. When I fail at something important to me I try to keep things in perspective.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

22. When something upsets me I get carried away with my feelings.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

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

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

24. When something painful happens, I tend to blow the incident out of proportion.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

25. When I fail at something important to me, I become consumed by feelings of inadequacy.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

Body Shape Questionnaire

1. Has feeling bored made you brood about your shape?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

2. Have you been so worries about your shape that you have been feeling that you ought to diet?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

3. Have you thought that some of your body parts are disproportionate?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

4. Have you been aftraid that you might become overweight? (or become more overweight?)

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

5. Have you worried about your flesh not being firm enough?

1	2	3	4	5	6

None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

6. Has feeling full (e.g., after a large meal) made you feel overweight?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

7. Have you felt so bad about your shape you have cried?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

8. Have you avoided running because your flesh might wobble?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

9. Has being with thin individuals made you feel self-conscious about your shape?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

10. Have you worries about your thighs spreading when sitting down?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

11. Has eating even as small amount of food made you feel overweight?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

12. Have you noticed the shape of other individuals and felt that your own shape compared unfavourably?

1	2	3	4	5	6

None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

13. Has thinking about your shape interfered with your ability to concentrate?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

14. Does being non-clothed worsen your body image?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

15. Have you avoided wearing clothes which make you particularly aware of your body?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

16. Have you imagines cutting off fleshy areas of your body.

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

17. Has eating sweets or high-calorie food made you feel overweight?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

18. Have you not gone out to social occasions because you have felt bad about your shape?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

19. Have you felt excessively large of rounded?

1	2	3	4	5	6

None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

20. Have you felt ashamed of your body?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

21. Has worry about your shape made you diet?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

22. Have you felt happiest about your shape when your stomach has been empty?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

23. Have you thought that you are the shape you are because you have no self-control?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

24. Have you worried about other people seeing rolls of flesh around your waist or stomach?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

25. Have you felt that it is not fair that other individuals are thinner than you?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

26. Have you vomited in order to feel thinner?

1	2	3	4	5	6

None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

27. When in company have you worried about taking up too much room (e.g., sitting on a sofa or a bus seat)?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

28. Have you worried about cellulite?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

29. Has seeing your reflection made you feel bad about your shape?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

30. Have you pinched areas of your body to see how much fat there is?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

31. Have you taken laxatives in order to feel thinner?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

32. Have you been particularly self-conscious about your shape when in the company of other people?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

33. Has worry about your shape urged you to go exercise?

1	2	3	4	5	6

None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

The Objective Body Consciousness Scale

1. I rarely think about how I look

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

2. I think it is more imp-ortant that my clothes are comfortable than whether they look good on me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

3. I think more about how my body feels than how my body looks

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

4. I rarely compare how I look with how other people look

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

5. During the day, I think about how I look many times

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

7. I often worry about whether the clothes I am wearing make me look good

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

8. I rarely worry about how I look to other people

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

9. I am more concerned with what my body can do than how it looks

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

10. When I can't control my weight, I feel like something must be wrong with me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

11. I feel ashamed of myself when I haven't made the effort to look my best

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

12. I feel like I must be a bad person when I don't look as good as I could

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

13. I would be ashamed for people to know what I really weigh

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

14. I never worry that something is wrong with me when I am not exercising as much as I should

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

15. When I'm nore exercising enough, I question whether I am a good enough person

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

16. Even when I can't control my weight, I think I'm an okay person

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

17. When I'm not the size I think I should be, I feel ashamed

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

18. When I complete this question, I will check "slightly agree". This is a control question to ensure participants are reading attentively.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

19. I think a person is pretty much stuck with the looks they are born with

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

20. A large part of being in shape is having that kind of body in the first place

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

21. I really don't think I have much control over how my body looks

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

22. I think a person's weight is mostly determined by the genes they are born with

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

23. It doesn't matter how hard I try to change my weight, it's probably always going to be about the same

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

24. I can weight what I'm supposted to when I try hard enough

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

25. The shape you are depends mostly on your genes.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

Body-Appreciation Scale

1. I respect my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

2. I feel good about my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

3. On the whole, I am satisfied with my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

4. Despite its flaaws, I accept my body for what it is

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

5. I feel that my body has at least some good qualities

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

6. I take a positive attitude toward my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

7. I am attentive to my body's needs

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

8. My self-worth is independent of my body shape or weight

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

9. I do not focus a lot of energy being concerned with my body shape or weight

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

10. My feelings toward my body are positive, for the most part

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

11. I engage in healthy behaviors to take care of my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

12. I do not allow unrealistically thin images of women presented in the media to affect my attitudes toward my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

13. Despite its imperfections, I still like my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

Contingencies of Self-Worth Based on Appearance Scale

1. I don't care what other people think of me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

2. What others think of me has no effect on what I think about myself

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

3. I don't care if other people have a negative opinion about me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

4. My self-esteem depends on the opinions others hold of me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

5. I can't respect myself if others don't respect me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

6. My self-esteem does not depend on whether or not I feel attractive

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

7. My self-esteem is influenced by how attractive I think my face or facial features are

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

8. My sense of self-worth suffers whenever I think I don't look good

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

9. My self-esteem is unrelated to how I feel about the way my body looks

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

10. When I think I look attractive, I feel good about myself.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

11. Doing better than others gives me a sense of self-respect

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

12. Knowing that I am better than others on a task raises my self-esteem

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

13. My self-worth is affected by how well I do when I am competing with others

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

14. My self-worth is influenced by how well I do on a competitive task

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

15. I feel worthwhile when I perform better than others on a task or skill.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

16. My self-esteem is influenced by academic performance.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

17. I feel better about myself when I know I'm doing well academically

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

18. Doing well in school gives me a sense of self-respect

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

19. I feel bad about myself whenever my academic performance is lacking

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

20. My opinion about myself isn't tied to how well I do in school.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

21. It is important to my self-esteem that I have a family that cares about me

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

22. When my family members are proud of me, my sense of self-worth increases

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

23. Knowing that my family members love me makes me feel good about myself

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

24. When I don't feel loved by my family, my self-esteem goes down

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

25. My self-worth is not influenced by the quality of my relationships with my family members

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

26. My self-esteem depends on whether or not I follow my moral/ethical principles

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

27. My self-esteem would suffer if I did something unethical

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

28. I couldn't respect myself if I dind't live up to a moral code.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

29. Whenever I follow my moral principles, my sense of self-respect gets a boost.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

30. Doing something I know is wrong makes me lose my self-respect.

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

Demographics

This part of the questionnaire is needed to help us understand the characteristics of the individuals participating in the study. All information is held in strict confidence and its presentation to the public will be in the form of group data only, and will not be attached to any identifying information. If you are not comfortable with disclosing the answer to any of these questions, you may simply write "Not willing to disclose".

1. What is your ethnicity? _____
2. What is your gender identity?
3. What is your age?
4. Have you ever tried meditation before enrolling in this study?

Appendix B

Satisfaction Survey

"A Feasibility Study exploring a Self-Compassion Meditation Intervention on Body Image in Retired Athletes"

	1 Strongly disagree	2 Disagree	3 Somewhat disagree	4 Neither agree nor disagree	5 Somewhat agree	6 Agree	7 Strongly agree
I enjoyed participating in the mediations	○	○	○	○	○	○	○
I would recommend participating in the meditations to other people struggling with body image	○	○	○	○	○	○	○
I feel the meditations have helped improve my body image	○	○	○	○	○	○	○
I would consider continuing to use meditation as a means of body-image improvement and/or coping	○	○	○	○	○	○	○
I intend to meditate more frequently	○	○	○	○	○	○	○

I found the meditations unhelpful	○	○	○	○	○	○	○
I thought the meditations were easily accessible	○	○	○	○	○	○	○
There's more I need to learn about myself before I continue to meditate	○	○	○	○	○	○	○

Appendix C

Ineligibility Notification Email Notification

Subject line: <Self-compassion meditation study eligibility>

Body: Hello [name],
This email is to notify you that according to your screening results, you have been deemed ineligible to participate in the study *"A Feasibility Study Evaluating the Effects of Self-Compassion Meditation on Body Image in Retired Athletes"*.
Any of the information that you have shared in the screening survey has already been confidentially destroyed and will no longer be accessible to any individual and/or researcher.
We would like to thank you for your interest in this study and encourage you to seek help from one of the following affordable and/or free resources if you feel as though it could be of benefit to you.
If you have any questions or concerns, please do not hesitate to contact us.

Thank you,
-The Behavioral Medicine Lab

Looking Glass Foundation

- Affordable one-on-one therapy available for individuals in British Columbia who are affected by eating disorders
- https://www.lookingglassbc.com

National Eating Disorder Information Center (NEDIC)

- Whether you have an eating disorder yourself or are affected by someone else's, NEDIC can help you find the words to reach out.
- The helpline can be reached at 1-866-NEDIC-20 (1-866-633-4220) Monday to Friday from 9:00 AM. to 9:00 PM EST. Trained support workers can offer information, referrals to professionals across Canada, resources, and hope.

310Mental Health Support

- Call 310-6789 for emotional support, information and resources specific to mental health
- https://www2.gov.bc.ca/gov/content/health/managing-your-health/mental-health-substance-use/virtual-mental-health-supports

PTSD Hotline

- 866-903-3787
- Call for free 24/7 support (Toll-free)

Appendix D

Recruitment Poster


FORMER ATHLETES..!
JOIN A STUDY ON BODY IMAGE
"A FEASIBILITY STUDY EVALUATING THE EFFECTS OF SELF-COMPASSION MEDITATIONS ON BODY IMAGE IN RETIRED ATHLETES"
WE ARE LOOKING FOR INDIVIDUALS...
AGED 18+
WHO IDENTIFY WITH NEGATIVE BODY IMAGE IDEALS
HAVE COMPETED IN SPORT AT THE NATIONAL, PROVINCIAL, OR COLLEGIATE LEVEL
HAVE BEEN RETIRED FROM SPORT FOR 7 MONTHS - 6 YEARS
If you are interested, please contact Sarah Hough at sarahhough@uvic.ca or the Behavioral Medicine Lab at bml@uvic.ca / (250) 472-5288
BEHAVIOURAL MEDICINE LAB UVIC
University of Victoria
Affiliated with Dr. Ryan Rhodes
Professor; Graduate Advisor
University of Victoria
Sarah Hough
(250) 472-5288
sarahhough@uvic.ca

Appendix E

University of Victoria

BEHAVIOURAL MEDICINE LAB UVIC

SHORT SCREENING SCALE FOR POST-TRAUMATIC STRESS DISORDER

In your life, have you ever had any experience that was so frightening, horrible, or upsetting, that, *in the past month…*

1. Did you avoid being reminded of this experience by staying away from certain places, people, or activities?

   Yes No

2. Did you lose interest in activities that were once important or enjoyable?

   Yes No

3. Did you begin to feel more isolated or distant from other people?

   Yes No

4. Did you find it hard to have love or affection for other people?

   Yes No

5. Did you begin to feel that there was no point in planning for the future?

   Yes No

6. After this experience were you having more trouble than usual falling asleep or staying asleep?

   Yes No

7. Did you become jumpy or get easily startled by reminders of this experience/time period?

   Yes No

Appendix F

Recruitment Email

Subject line: <Self-compassion meditation participation study>

Body: We are conducting this study to see how three self-compassion meditations may affect body image in retired athletes.

We ask you to first complete the consent form and send it back to the researcher (this should only take about five minutes). Once the researcher has received consent, they will send the first, pre-screening questionnaire to assess eligibility.

For participation in this study, we ask that the participant:

- Is over 18 years of age
- Has participated in a sport at the national, provincial, or collegiate level
- Have been retired from sport between 7 months and 6 years
- Identifies with having negative body-image ideals (*Defined as experiencing anxiety regarding one's body, and/or ever experiencing embarrassment from being seen by others)
- Lives in Canada
- Is fluent in English
- Has access to a computer or electronic device with internet connection
- Has access to a private space where they can confidentially share responses to questionnaires
- Are not currently practicing a self-compassion meditation regimen

We ask that the participants do not:

- Self-report/identify with post-traumatic stress disorder
- Identify with a severe, and/or unmanaged eating disorder

Once the pre-screening questionnaire has been received by the researcher and if the participant has been deemed eligible, then the researcher will randomize you to either a self-compassion meditation condition, or a waitlist control condition. If you are in the self-compassion meditation condition, the researcher will send the first pre-intervention questionnaire via email right away, which will redirect the participant to SurveyMonkey. This survey should take approximately 30 minutes to complete. If you are randomized in to the waitlist control condition, you will still be sent the meditation intervention, however it may not be for a few weeks, as the experimental (self-compassion meditation) condition will complete the study first. If you are not eligible, you will be notified by email and for this reason will not be able to take part in this study.

Questions in this survey may be triggering for those who have experienced negative body image ideals in the past. If this becomes too triggering, please consult one of the following free and/or affordable resources for general mental health, post-traumatic stress disorder, eating disorders and negative body image are listed. You may also withdraw from the study at any point.

Looking Glass Foundation

- Affordable one-on-one therapy available for individuals in British Columbia who are affected by eating disorders
- https://www.lookingglassbc.com

National Eating Disorder Information Center (NEDIC)

- Whether you have an eating disorder yourself or are affected by someone else's, NEDIC can help you find the words to reach out.
- The helpline can be reached at 1-866-NEDIC-20 (1-866-633-4220) Monday to Friday from 9:00 AM. to 9:00 PM EST. Trained support workers can offer information, referrals to professionals across Canada, resources, and hope.

310Mental Health Support

- Call 310-6789 for emotional support, information and resources specific to mental health

- https://www2.gov.bc.ca/gov/content/health/managing-your-health/mental-health-substance-use/virtual-mental-health-supports

PTSD Hotline
- 866-903-3787
- Call for free 24/7 support (Toll-free)

We ask questions regarding body image to get an understanding of your feelings toward your body both before, and after the completion of the intervention. These questions have been previously validated and used to evaluate the body image of various individuals in other studies. Examples of questions asked in the questionnaire include the following:

A) When I don't feel loved by my family, my self-esteem goes down

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

B) I do not allow unrealistically thin images of people presented in the media to affect my attitudes toward my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

C) Have you felt happiest about your shape when your stomach has been empty?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time

Thank you for your interest

LINK: (SurveyMonkey link)

*This research is conducted by Sarah Hough, a University of Victoria student under the supervision of Dr. Ryan Rhodes and the Behavioural Medicine Lab at the University of Victoria

Appendix G

Check-In Email Script

Subject: “Check-In: Self-Compassion Meditation and Body Image Study”

Body:

“Hi _____!

I am just reaching out today as it has been 1.5 weeks since you have completed your baseline questionnaire, and I’d just like to confirm that you’ve been able to access the self-compassion meditations and are still participating in this study.

If you have any questions or concerns, please to not hesitate to reach out and ask!

All the best,

Sarah (Researcher)”

Appendix H

Consent Form

CONSENT FORM

"A Feasibility Study Evaluating the Effects of Self-Compassion Meditation on Body Image in Retired Athletes"

You are being asked to take part in a study entitled **"A Feasibility Study Evaluating the Effects of Self-Compassion Meditation on Body Image in Retired Athletes)"**. We are inviting any former athletes, who have competed at the national, provincial, and/or collegiate level, and have been retired from sport for 7 months to 6 years. **Specifically, we are seeking retired athletes who are currently struggling with their body image**. This study has been reviewed by the University of Victoria and has met all of the requirements for ethical approval.

In 2021, 1 in 5 retiring athletes reported to experience "crisis in retirement transition". This is characterized by lack of adjustment, ongoing psychological distress, depression, and low self-esteem, which can persist one to six years after retirement from sport. One causation of crisis in retirement transition is negative body image, as the cessation of intense training regimens and diets may cause the body to change in a way the athlete does not feel totally prepared for. The term "body image" describes a multidimensional construct that includes how one sees, thinks, feels, and behaves related to their body's appearance and function. Athlete retirement is inevitable, with those who identify with stronger, more exclusive athletic identities [the degree to which one identifies with the athletic role] considered more at-risk of experiencing negative outcomes. One valid intervention to improve body image ideals is self-compassion training via meditation. Although this cost-effective intervention has been deemed effective in certain populations, no current experimental studies have used this intervention on former athletes.

Purpose of this Project

In this study, we will be determining the feasibility of a previously used self-compassion meditation to improve body image, on a new population of former athletes.

What do I have to do to participate?

1) First, we ask that you e-sign this consent form and return it via email to the researcher.
2) We will administer a short questionnaire via email to ensure that it is safe for you to partake in this study.
3) After questionnaire completion, you will be randomized to either the self-compassion meditation condition, or the waitlist control condition.

- If you are randomized to the self-compassion meditation condition, you will be invited to complete measures about how you feel regarding your body image right away (See "Do I Have to Participate?" for examples of questions in this questionnaire).

    - Then, you will be asked to partake in the intervention (See "The Self-Compassion Meditation Podcasts" for descriptions).
    - There are two data collection check in sessions throughout the 3 weeks of the study. Once the intervention is complete, you will complete the same questionnaire as you originally completed at the start of the study.
    - Finally, you will also be send a short satisfaction survey regarding your participation in this study.
- If you are randomized to the waitlist control condition, you will complete the initial body image questionnaire, and then be told to wait for further instruction. Once three weeks have passed, you will be asked to complete this questionnaire again, and then will be given access to the self-compassion meditation link for your own personal use. No further data will be collected at this point.

The data collected from your participation in this study will be anonymous. The data, in its anonymous form however, will be available to the public via 'UVicSpace' as it is being used for the purpose of a thesis. Because of this, future researchers will have access to this anonymous data for their own use. Providing consent to this study will also insinuate consent for future research to use your unidentifiable, anonymous data.

The Self-Compassion Meditation Podcasts

The self-compassion meditation podcasts will be accessed via hyperlink sent by the researcher. Each podcast is approximately 20-minutes in length.

1) Days 1-7: "Compassionate Body Scan": Designed for the listener to get in touch with body sensations and bring a sense of compassion, peace, and gratitude to their body.
2) Days 8-14: "Affectionate Breathing": The intention of this podcast is for the listener to breathe in affection and kindness for themselves, while breathing out affection and kindness towards others who are suffering with similar body ideals.
3) Days 15-21: "Loving-Kindness Meditation": Focuses on having self-compassion for a personal experience of suffering.

Inconvenience, Risks, and Benefits

To complete this study, you will need to set aside 20 minutes per day throughout the 3-week trial period to partake in the mediation podcast.

The podcasts are the following times in length:

1) Days 1-7: "Compassionate Body Scan": 23 minutes, 55 seconds.
2) Days 8-14: "Affectionate Breathing": 21 minutes, 28 seconds.
3) Days 15-21: "Loving-Kindness Meditation": 20 minutes, 53 seconds.

Additionally, the pre- and post- questionnaire will should take about 30 minutes to complete.

It additionally is possible that due to the nature of a body-oriented meditation, uncomfortable or stressful feelings could arise if triggered whilst thinking of the body. To minimize the chance of risk, we will screen for post-traumatic stress disorder, and exclude participants who relate to severe, or unmanaged eating disorders. The meditations use gentle language and have also been used on various populations with body image issues.

The screening survey may contain sensitive subject matter to the reader regarding body image, mental health and post-traumatic stress disorder. The researchers conducting this study are not acting as mental health practitioners or providers. This research study is not designed for those who are currently in crisis and/or in need of urgent and/or professional support. If you identify as needing urgent and/or professional support, please see the resource list provided.

This study is not meant as a replacement, supplement, or complement to traditional clinical therapy. Further, the use of self-compassion podcasts by participants is not intended to be an exhaustive or intense psychological intervention. This study is being conducted for research purposes.

Should harm occur due to the nature of these questions, please consider utilizing one of the following resources:

Looking Glass Foundation

- Affordable one-on-one therapy available for individuals in British Columbia who are affected by eating disorders
- https://www.lookingglassbc.com

National Eating Disorder Information Center (NEDIC)

- Whether you have an eating disorder yourself or are affected by someone else's, NEDIC can help you find the words to reach out.
- The helpline can be reached at 1-866-NEDIC-20 (1-866-633-4220) Monday to Friday from 9:00 AM. to 9:00 PM EST. Trained support workers can offer information, referrals to professionals across Canada, resources, and hope.

310Mental Health Support

- Call 310-6789 for emotional support, information and resources specific to mental health
- https://www2.gov.bc.ca/gov/content/health/managing-your-health/mental-health-substance-use/virtual-mental-health-supports

PTSD Hotline

- 866-903-3787
- Call for free 24/7 support (Toll-free)

The potential **benefits** of your participation in this research may include improved body-image ideals and gaining a cost-effective coping strategy for negative body image ideals. You will also potentially be helping other retiring athletes, who are also struggling with negative body image ideals. This could additionally help sporting institutions' protocols for retirement transition. Finally, this could help practitioners such as mental performance consultants, psychologists or sport psychologists support clients regarding body image after sport participation. It is also possible that participants will not benefit directly from this experiment. Please note that you are consenting to an open science model, thus allowing transparency and accessible knowledge to be shared and developed through collaborative networks. All of the data will be anonymous during the analysis and publication. The platform we will be using is OSF. *(https://osf/io/).*

Anonymity and Confidentiality

The information from the questionnaires will be de-identified during data analysis and publication of study results. All data will be published as group data, and any data kept separate will be identified by ID-number (no name). We will need your contact information in order to provide you with materials and collect

materials. However, we can assure you that your confidentiality will be completely protected and only the research team will have access to your contact information. In terms of protecting the confidentiality of your data, the data file and completed questionnaires will be kept in a locked and secure environment on the University of Victoria campus at all times. Anonymized records of the data participants provide will be stored for ten years until manually destroyed. Please note that you are consenting to an open science model, thus allowing transparency and accessible knowledge to be shared and developed through collaborative networks. Data from this research will be used in anonymous form to complete a thesis (using the platform OSF (https://osf.io)), which will be accessible to the public and posted on 'UVicSpace'.

Do I have to participate?

No, your participation in this study is completely voluntary and you have the right to withdraw at any time without consequence. As well, if you choose to withdraw before the 2-week follow up, it is up to you whether we use the data that we will have collected from you up until that point. It is only through voluntary participation in research projects that we increase our knowledge about issues that are important to health.

Data collection will be in the form of questionnaire provided via Survey Monkey (the link to which will be provided by the primary researcher over email). Various statements and/or questions regarding self-compassion, perceived body shape, body consciousness, body appreciation, and self-worth based on appearance will appear with a corresponding scale of agreement or disagreement. Examples of these statements include the following:

D) When I don't feel loved by my family, my self-esteem goes down

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

E) I do not allow unrealistically thin images of people presented in the media to affect my attitudes toward my body

1	2	3	4	5	6	7
strongly disagree	moderately disagree	slightly disagree	neutral	slightly agree	moderately agree	strongly agree

F) Have you felt happiest about your shape when your stomach has been empty?

1	2	3	4	5	6
None of the time	A little of the time	Some of the time	A good bit of	Most of the time	All of the time

the
time

If you have any questions or concern about this study, please do not hesitate to contact either Sarah Hough (Researcher) or Dr. Ryan Rhodes (Primary Investigator). In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, and that you have had the opportunity to have your questions answered by the researchers.
Your signature indicates that you consent to participating in the study.

Name of Participant *Signature* *Date*

Please sign one copy for the researchers and sign and keep one copy for your records*

Ryan E. Rhodes, Ph.D., Professor

(250) 721-8384
rhodes@uvic.ca

Sarah Hough, Master's Student in Exercise Science, Physical Health and Education
(613) 799-1849
sarahhough@uvic.ca