Chapter 7
Body Image and Physical Activity

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Chapter Overview

Body image is an important construct worthy of examination in physical activity contexts, as it is a notable correlate, antecedent, and outcome of physical activity behavior (Sabiston et al., 2019). Physical activity is broadly described in this chapter as structured exercise, sport, leisure and lifestyle activity. Within this chapter, the definition and components of body image will be described including the appearance and function facets, four dimensions, positive and negative valence, and body image investment and internalization. Next, a description of the similarities and differences between body image and the physical self is presented. Body image pathology, development, and measurement are also considered. Throughout this chapter, the bidirectional relationship between body image and physical activity is outlined and potential mechanisms that help to explain this relationship are presented. Finally, the identification of key areas (e.g., varying study designs; individual differences) of future research consideration when studying body image and physical activity are also described.

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What is Body Image?

Within the fields sport and exercise psychology, body image is a central factor given its relevancy in the initiation, maintenance, and withdrawal of physical activity (Sabiston et al., 2019). The relationship between body image and physical activity is complex, and understanding this interrelationship is key to improving the physical activity experience and increasing and sustaining sport and exercise behaviors across populations. Body image is most commonly defined as a multidimensional construct that includes how one sees, thinks, feels, and behaves related to their body's appearance and function (Cash & Smolak, 2011).

Appearance and Function Facets

Body image includes the appearance (i.e., what the body looks like) and function (i.e., what the body can do) of the body. While these facets of body image are often related, they are independent of one another. For example, an individual may be satisfied and take pride in their fitness abilities, but at the same time may be dissatisfied and embarrassed about their appearance. Therefore, it is important to differentiate between and examine both facets.

Body image research has predominantly focused on the appearance facet. How an individual describes and thinks about their appearance is bi-directionally associated with sport and exercise behaviors and experiences (Sabiston et al., 2019). The way an individual perceives and thinks about their appearance can enhance or limit their participation in physical activity or alter their physical activity experiences (e.g., reduced enjoyment). For instance, when studying adolescent girls, some girls have described avoiding sport due to their appearance (Moreno-Murica et al., 2011) and wishing their appearance was different (e.g., taller, slimmer) so to improve their functionality in their chosen sport (Porter et al., 2013). Meanwhile for other girls, higher levels of body appreciation (positive body image) predicted an increase in physical activity one year later (Andrew et al., 2016). Among young men and women, physical appearance has been described as a key motivator for engaging in physical activity (Sabiston et al., 2019). Alternately, given the opportunity for public displays of the body and appearance judgments in physical activity settings, sport and exercise environments might promote changes in how one describes and evaluates their appearance. Aesthetic sports (e.g., gymnastics, dance) bring greater awareness to the body's appearance and are associated with more negative outcomes (e.g., body surveillance, upward body comparisons; Abbott & Barber, 2011). However, in interviews with girls with high body image concerns, those in non-aesthetic sports (e.g., soccer, basketball) also reported negative sport experiences related to their appearance. Girls in sport have reported feeling that their athletic body must not only be able to optimally perform but also must be aesthetically pleasing to others (Vani et al., 2020).

Conversely, focusing on the body's function results in greater positive thoughts and feelings towards the body and more adaptive body image behaviors (Abbott & Barber, 2011; Alleva, Martijn, et al., 2015). The physical activity environment often encourages identity building that involves physical competence and mastery, supporting a focus on body functionality. Girls who participate in sport are more likely to describe favorable body function perceptions compared to non-sport participants (Abbott & Barber, 2011). Similarly, college-aged men and women who engaged in a body function writing exercise also expressed feeling grateful for their body's essential role in engaging in activities that brought them joy, including physical activity (Alleva et al., 2019). Promising results with sport participants have also been reported, such that adolescent girls who have high perceptions of their body's functionality (in the form of sport competence and skill) were less likely to disengage from sport due to negative appearance evaluations (Vani et al., 2020). Promoting a functional body focus through fostering skill acquisition and physical competence may be a key factor in keeping adolescent girls in sport.

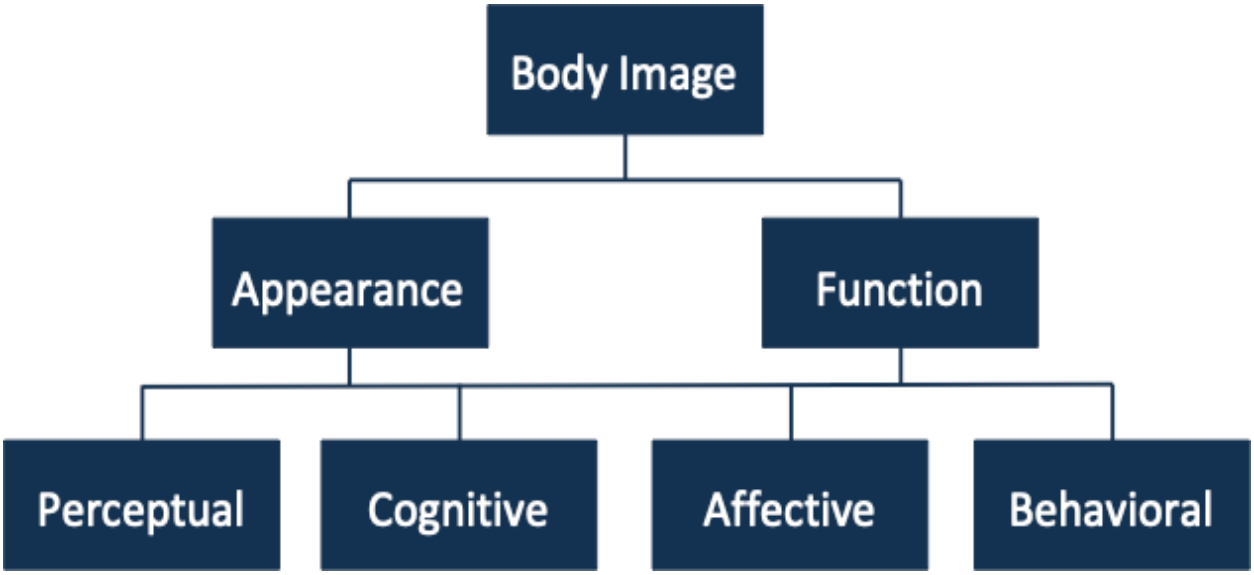
As demonstrated, the functional body is typically viewed more positively when compared with the body's appearance. In fact, if health outcomes are of primary interest, then focusing on body function may be more important than focusing on appearance (Tylka & Homan, 2015). As well, body image appearance and function often intersect and interact. These intersections require greater attention in research and practice. Sociocultural models (e.g., Petrie & Greenleaf, 2012a) may be used as a perspective to better understand the interacting bidirectional relationship between body image appearance and function and physical activity experiences and behavior. To illustrate, physical activity environments often highlight a body focus and perpetuate sport-specific appearance ideals (e.g., what a body should look like for the sport type) and function ideals (e.g., how the body should perform in varying activities) through various sources (e.g., coaches, teammates, opponents). As such, individuals may internalize ideals and compare their appearance and function to these internalized ideals, leading them to experience positive and/or negative body image perceptions, thoughts, feelings, and behaviors. Taken together, there is great value in better understanding both the appearance and functional facets of body image in relation to sport and exercise and the sociocultural model can prove valuable to our increased understanding.

Multidimensional Construct

In addition to the appearance and function facets, the dimensions of body image include the perceptual, cognitive, affective, and behavioral dimensions (Cash & Smolak, 2011). A general schematic of body image is presented in Figure 7.1. Body-related perceptions, cognitions, and feelings influence behaviors related to the body.

Figure 7.1

A Figural Representation of Body Image



Perceptual Dimension

The perceptual dimension of body image refers to the mental representations that an individual holds related to their own body's appearance and function. The mental representation is usually defined as the accuracy level between perceived and actual characteristics, as it relates to the body as a whole or specific body parts (e.g., legs, arms, torso; Cash & Smolak, 2011). Importantly, an individual's mental

representation is not always accurate and may widely vary from their actual self. Furthermore, these body perceptions do not indicate the thoughts, satisfaction, dissatisfaction, or feelings that are attributed to this perceived self.

Cognitive Dimension

The cognitive dimension of body image refers to individuals' thoughts, beliefs, and evaluations of their body's appearance and function. Body image is most commonly assessed as the cognitive dimension. For example, cognitive body image includes body dissatisfaction (or satisfaction) assessments, where an individual indicates their level of satisfaction (or dissatisfaction) with their body's appearance and/or function. In terms of appearance, (dis)satisfaction measures ask participants to indicate their (dis)satisfaction with particular body parts (e.g., torso, face, legs) or attributes (e.g., thinness, weight, muscularity). For example, appearance dissatisfaction pertaining to specific body parts and weight was assessed in a quasi-experimental study with women who were randomized to either abstain from exercise for 72 hours or continue with normal exercise. Compared to the normal exercise group, women who abstained from exercise had a significant increase in body dissatisfaction from pre- to post-intervention (Niven et al., 2008). Meanwhile, functional (dis)satisfaction assesses physical functioning elements such as strength and endurance.

Affective Dimension

The affective dimension of body image describes the feelings and emotions that individuals experience in relation to their body's appearance and function. These feelings and emotions are commonly assessed as social-physique anxiety and body-related self-conscious emotions (i.e., shame, guilt, embarrassment, envy, pride). Social-physique anxiety is defined as the anxiety an individual feels as a consequence of perceived or actual judgments from others (Hart et al., 1989). Body-related shame and guilt are both negatively-valenced self-conscious emotions, yet shame has a global focus on the self (e.g., "I am a person who is unattractive"), while guilt focuses on a specific behavior (e.g., "I do not do enough to improve the way I look"). Lesser-studied negative emotions include body-related embarrassment, which is often experienced following an individual's perception of a public violation of social standards in relation to appearance or function (e.g., exposure of the body in public; negative body commentary; "I feel embarrassed when others see my fitness level"), and body-related envy, defined as a feeling one has when they desire the possessions or characteristics that others have (e.g., thin legs, muscular arms; "I am envious of others' fitness abilities"). Among the identified body-related self-conscious emotions (Tracy & Robins, 2004), body-related pride is the only positively-valenced emotion. Body-related pride involves two facets: authentic and hubristic pride. Authentic pride is derived from the satisfaction and achievement one experiences from their own behaviors of effort and hard work (e.g., "I am proud because of the effort I place on maintaining my fitness"), while individuals experience hubristic pride when they perceive their appearance or function is superior to others (e.g., "I am proud that I am more fit than others"; Castonguay et al., 2013). Although social-physique anxiety and body-related self-conscious emotions are often studied separately in exercise psychology, it is recommended to include social-physique anxiety within studies of body-related self-conscious emotions to expand the implications of affective body image.

Behavioral Dimension

The behavioral dimension of body image depicts an individual's decisions and actions that are informed by their perceptions, cognitions, and emotions related to their appearance and function. These actions often fall under two negatively-valenced components (i.e., appearance fixing and avoidance) and one positively-valenced component (i.e., positive rational acceptance). These behavioral components are most commonly assessed using the Body Image Coping Strategies Inventory (Cash et

al., 2005). Appearance fixing involves actions such as body checking, wearing loose fitting clothing, and engaging in behaviors in an attempt to control appearance (e.g., physical activity, dieting, substance use, cosmetic surgery). Body checking is characterized by actions of self-weighing and pinching or measuring one's body to assess fatness. In interviews with sport coaches, the coaches reported observable actions from individuals on their team. For example, coaches described that commonly used signs of body image were covering up and fixing actions (e.g., wearing loose clothing; pulling at uniforms; Sabiston, Lucibello, et al., 2020). Examples of cognitive and behavioral avoidance include avoiding thinking about a negative body experience and avoiding situations or events such as physical activity, respectively. For instance, women who reported body dissatisfaction were more motivated to avoid exercise, which in turn related to lower exercise engagement (Vartanian & Shaprow, 2008). Notably, negative body image can motivate engagement or avoidance of behaviors, such as physical activity. Finally, positive rational acceptance comprises engagement in adaptive cognitive and behavioral actions such as positive self-care and rational self-talk. More research is needed to better understand how positive rational acceptance may be used within physical activity contexts.

Positive and Negative Facets

The four dimensions of body image can be positive and/or negative. Positive body image refers to an overall love and respect towards the body's appearance and function and includes an appreciation and acceptance of the body. Further, those who have a higher positive body image tend to use a broad conceptualization of beauty, focus on their inner self rather than appearance, and experience an inner positivity (Tylka & Wood-Barcalow, 2015a). In relation to the dimensions, positive body image may be expressed as accurate perceptions of the body, positive thoughts, beliefs (e.g., satisfaction), and feelings (e.g., pride) toward the body, and health-promoting and adaptive behaviors (e.g., positive self-care). Conversely, negative body image involves the pathological aspects of body image and can be expressed as inaccurate perceptions, negative thoughts, beliefs (e.g., dissatisfaction), and feelings (e.g., shame, guilt), and risky or maladaptive behaviors (e.g., excessive exercise). It is essential that both positive and negative body image are considered in research and practice.

It is crucial to note that positive body image is distinct from negative body image. These constructs do not exist on the same continuum; low levels of negative body image do not suggest high levels of positive body image. For example, lower levels of body dissatisfaction do not necessarily indicate that people are satisfied with their bodies. There is still much work to be done to better understand and assess positive body image. Focusing on positive body image, and its unique antecedents and outcomes, will help to advance body image theory, research, and practice.

Body Image Investment

In addition to the four body image dimensions, body image also integrates an investment component that involves the cognitive, behavioral, and emotional importance an individual places on their body's appearance (Cash, 2012). The amount that one is invested in their body (i.e., how meaningful appearance is to their sense of self) defines how an individual sees, thinks, feels, and behaves toward their body. Body image investment is often assessed by measuring the beliefs and assumptions about the importance, meaning, and influence of body appearance in an individual's life (Cash et al., 2004). Those who tend to be more invested in their body's appearance may experience greater worry and be more preoccupied with what their body looks like. More invested individuals also tend to use greater maladaptive body image coping strategies (e.g., frequent body checking and fixing, over-exercising; Engle et al., 2009). For example, one study used a cross-sectional survey to assess body image investment and exercise dependence among young women. Findings revealed that cognitive body image investment (i.e., determining self-worth from appearance) was associated with higher symptoms of exercise dependence (Lamarche & Gammage, 2012). Interventions that attempt to reduce

appearance investment typically involve psycho-education on body image. These interventions help participants to identify antecedents to their experiences of negative body image, record occurrences of negative body experiences including critical self-talk and the associated emotions and behaviors, cope with body and weight stereotypes and prejudices that they hold, and work on cognitive restructuring of harmful appearance assumptions (Carraça et al., 2011). These tasks help to increase understanding and awareness surrounding body experiences and promote strategies like cognitive restructuring and journaling that can be used to reduce appearance investment.

Body Image Internalization

Body ideals are highly encouraged in societies and are transmitted through various sources (e.g., parents, media, peers, personal trainers) and contexts (e.g., gyms, fitness studios, sports). The commonly maintained westernized body ideals include thinness for women and muscularity for men. Although these body ideals are widely unrealistic for the majority of the population, many individuals adopt these appearance ideals and compare their appearance, shape, and size to the widespread ideals. This leads the majority of those who internalize idealizations of the body to experience negative body image (e.g., dissatisfaction; Tiggemann, 2011). Relevant to exercise psychology, women who internalized the thin ideal engaged in compulsive exercise (i.e., negative affect towards missing an exercise session) seven months later (Homan, 2010). Similarly, men who internalize an athletic ideal (i.e., muscular/athletic build) are more likely to engage in compulsive exercise (Martin & Racine, 2017). Those who reject the mainstream body ideals are less likely to experience negative body image and potentially harmful exercise behaviors. And so, interventions often involve activities that help participants to identify, critique, and challenge the messages and images that project ideals of thinness (women) and muscularity (men; Alleva, Sheeran, et al., 2015).

Similarities and Differences between Body Image and Physical Self

Body image foundations have evolved from Franzoi and Shields' (1984) conceptual paradigm of body esteem and Secourd and Jourard's (1953) initial concepts of body cathexis (i.e., a term borrowed from psychoanalysis to reflect the distribution of mental and/or emotional energy to the individual's body). Body esteem is a distinct multidimensional aspect of self-esteem in which individuals demonstrate an appearance and body-related orientation and evaluation. Harter (2012) argues that the physical or body-related aspect of self-esteem is one of the most coveted aspects, and this is particularly true of individuals in western cultures.

In sport and exercise psychology, terms of body image and physical self-concept have been used to generally refer to self-esteem focused on the body or physical features of the body. Specifically, based on the initial foundations stemming from self-esteem, body image holds many similarities to physical self-concept (i.e., a description of one's appearance and function/competence of the body). Both body image and physical self-concept are domain-specific dimensions of self-esteem. The terms of body image and physical self-concept have been used interchangeably by some researchers, and with intentional and purposeful distinctness by other researchers.

As a broad distinction, body image has been studied within the different dimensions (perceptual, cognitive, affective, and behavioral) and is a broad multidimensional construct focused on many (if not all) aspects of how the body looks and how the body performs/functions. In contrast, physical self-concept is defined as a hierarchical construct comprising descriptions specific to physical activity and sport competence, and appearance and weight. There is no direct consideration of the physical self-descriptions being negative or positive, although lower scores on the respective measures suggest poorer perceptions. With body image, as was discussed earlier in this chapter, there are emerging programs of research on both the positive and negative attributes (see Tylka, 2011).

As another distinction, there are far more measures associated with body image compared to only a handful of unique (i.e., not including translated versions of the scales) measures used to assess physical self-concept and/or self-worth. In this way, body image is a broader construct providing more depth and understanding to acceptance, importance, and evaluation of body appearance, weight, and body shape; whereas the physical self is a focused descriptive account on appearance and body fat as the only body-specific descriptions coupled with specific perceptions of body-related function/competence. In fact, physical self-concept could be used as a measure of the perceptual dimension of body image, and offers a more in depth description of body functionality and competence compared to existing body image measures that tend to focus on appearance. Finally, both body image and physical self-concept generally lack integration into physical activity, exercise, or sport theories. Nonetheless, both constructs have been identified as having bidirectional relationships with physical activity, exercise, and/or sport behaviors.

Body Image Pathologies

Body image concerns were once described as more important and relevant in western cultures, however with more research focus it is now clear that many individuals all over the World identify at least one aspect of their body appearance or functionality that they would like to change. This is called a normative discontent (it is called normative because most individuals are discontent) and is not usually a serious body image concern. However, individuals who have excessive frequent and intense negative thoughts about their appearance may experience body image concerns that are clinically meaningful. In fact, body image pathology is recognized as disorders by psychiatric standards (e.g., American Psychiatric Association, 2013). As one disorder, body dysmorphia is described as overexaggerated and inaccurate perceptions of flaws related to body parts and characteristics and a preoccupation with flaws that severely limits an individual's daily functioning and quality of life (American Psychiatric Association, 2013). Symptoms of body dysmorphia may include a heightened focus, comments, and discussions about one's perceived flaws, body monitoring and checking behaviors, and also individuals in sport and exercise settings may demonstrate withdrawal from others or constant need for reassurance from coaches, teammates, personal trainers, and others in leadership positions. Often of interest to individuals working in sport and exercise settings, muscle dysmorphia is a specified condition within body dysmorphic disorder, and is defined as a chronic preoccupation with insufficient muscularity and inadequate muscle mass (American Psychiatric Association, 2013). Individuals presenting with muscle dysmorphia perceive themselves as much thinner than they actually are and this condition involves excessive attention to muscularity, distress over presenting the body to others, extreme weight training, a focus on diet, and often use of muscle-enhancing supplements and performance-enhancing drugs (Pope et al., 2005).

Some people who experience body dysmorphic disorder are also diagnosed with an eating disorder. Eating disorders are recognized mental disorders that are defined as abnormal eating habits resulting in insufficient or excessive consumption of food (American Psychiatric Association, 2013). Bulimia nervosa, anorexia nervosa, and binge eating disorder are three commonly recognized eating disorders. Bulimia nervosa is defined by bingeing (i.e., recurrent excessive eating) and purging through self-induced vomiting, laxative/diuretic use, and/or excessive exercise. Anorexia nervosa is characterized by major restriction in food intake, heightened fear of gaining weight, and unrealistic perception of current body weight. Finally, binge eating disorder is characterized as compulsive and excessive overeating without purging (American Psychiatric Association, 2013).

The importance of introducing body image pathologies is the heightened threat among athletes and exercisers (e.g., Petrie & Greenleaf, 2012b). It is important to be aware of the possibility of body dysmorphic disorder and the co-occurrence of eating disorders clinically or sub-clinically among

athletes. Athletes use many actions or behaviors that characterize these body image disorders to change their body shapes and sizes for judging and performance outcomes tied to both the way the body looks (i.e., aesthetic sport competitions) and how the body functions. These actions are not always indicative of diagnosed disorders, but they can certainly lead to health- and performance-compromising outcomes.

How does Body Image Develop?

There are a number of perspectives used to generally describe the development of body image, and specific possible outcomes related to eating disorders. Of note, the models tend to focus on negative and pathological body image, whereas there has been little emphasis on developing models of positive body image. The models and theories that will be presented in this chapter include the tripartite influence model, social comparison theory, and self-discrepancy theory.

The tripartite influence model (Thompson et al., 1999) is a long-standing perspective that fits within the sociocultural perspective. This model suggests that there are formative social factors that influence the development and maintenance of negative body image and disordered eating. As the name indicates, parents, peers, and media are the three primary social influences proposed to form the basis for later development of body image concerns and eating dysfunction (Thompson et al., 1999). In sport and exercise contexts, there is also consideration for coaches, trainers, and teammates as additional social agents. As a very general overview, it is thought that these social agents generally foster heightened focus on the body appearance and/or functionality through direct and indirect communication, projection of values and norms, and endorsing stereotypes and idealized body shape, size, and function. For example, coaches may make descriptive physical comments about an opposing team's player (e.g., "watch out for number 10, she is a tank!"), parents may place sanctions on diet and exercise in an attempt to control their child's body size, and the media—whether traditional forms such as magazines and television commercials or social forms such as Instagram or Twitter—is a constant display of text and imagery perpetuating normalization of specific body types based on, for example, gender or race. There has been substantial research identifying the ways that these social agents generally lead to body image concerns.

In basic terms, these social agents are thought to foster environments that are conducive to physical appearance and function comparison, and thin-ideal (or muscular-ideal) internalization. As such, comparisons and internalization of ideals are thought to be precursors to body image concerns. The concept of comparisons to others emanates from Festinger's social comparison theory (1954) stating that individuals have an inherent need to evaluate their appearance and abilities against others. According to social comparison theory, individuals either compare themselves to those who are worse off (called downward social comparison) or better off (called upward social comparison) than they are on attributes of value (e.g., appearance, body shape, physical skill). Downward comparisons generally lead to positive perceptions, cognitions, and affect whereas upward comparisons are consistently linked to more negative body image outcomes.

In addition to comparisons, the internalization of body ideals is also considered to be a factor related to whether individuals will experience positive or negative body image. For example, individuals who value and invest in body attributes such as attractiveness and/or competence in physical activity are more likely to desire these attributes. When these attributes are not feasibly or naturally attainable (which is often the case with body-related attractiveness standards that are genetically predisposed), a discrepancy is created between an individual's actual body and "desired" or ideal body. Discrepancies have been studied extensively within the self-discrepancy theory (Higgins, 1987) whereby differences in an individual's actual body shape (or appearance, competence, skills, etc.) and desired body shape (or

appearance, competence, skills, etc.) are indicators of body dissatisfaction, and more generally cognitive body image.

Taking these factors into account, Trent Petrie and Christy Greenleaf (2012b) have developed a sociocultural model of unhealthy eating behaviors among women college athletes. The model generally proposes that sport-specific social agents and pressures (coaches, teammates, sport type, sport regulations, training programs) and general sociocultural pressures (i.e., parents, peers, media) together impact internalization of body norms and ideals that lead to negative body attitudes and emotions and ultimately to eating disorder behaviors. The factors identified in the sociocultural model are likely to be consistent with exercise contexts such that fitness centre advertising, media posters, and social agents (e.g., personal trainers) impact internalization of body ideals, which may also lead to negative body perceptions, cognitions, affect, and behaviors.

Measuring Body Image

There are many measures of body image that are focused on assessment of the four dimensions. While earlier measures focused predominantly on the pathology of body image and more negative perceptual, cognitive, affective, and behavioral implications, there have also been a number of scales recently assessing positive perceptions, cognitions, emotions, and behaviors. It is important to remember that if scales are meant to measure more negative connotations of body image then the opposite scores are not intended to represent positive body image (and vice versa). As such, be sure that the measure used is assessing the body image dimension of interest, while also the valence (i.e., positive or negative) of interest.

Some of the earliest measurement tools focused on the perceptual dimension of body image. For example, Traub and Orbach (1964) designed a mirror that individuals were asked to adjust until the reflection represented their actual body shapes. The discrepancy between an individual's "distorted" body shape and the undistorted reflection was used as a perceptual measure of body image. These distortable mirrors not only made it into every fair and haunted house, but were also inspiration for many other techniques used to measure perceptions of body image. For example, simple measures have included an *open door* test whereby individuals are asked to open the door as wide as would be needed for them to fit through, or compass-like devices that individuals open as wide as their perceived body shape or size. Individuals can also choose a different body size drawing that they perceive to be representative of their body shape and size, and most recently there are computer programs that have individuals manipulate avatars or their own photos to represent their perceived body shape and size. To illustrate, body image perception using a figure rating scale was used in a study examining body image differences between elite male soccer players and matched controls. Findings demonstrated that soccer players had less accurate perceptions of their body when compared to controls (Arroyo et al., 2008). The overall outcome of these perceptual measures is a comparison between an individual's body perception and their actual body shape and size. When there is a weighting or value component to these perceptions, it becomes a cognitive measure.

The cognitive dimension of body image is often assessed using measures of satisfaction (or dissatisfaction) with an individual's body shape, size, weight, and functionality/competence. There are many cognitive body image measures requiring individuals to indicate the degree of satisfaction or dissatisfaction with different body parts (e.g., nose, arms, legs), attributes (e.g., thinness, weight, appearance, muscularity), or physical function (e.g., strength, endurance). Other common measures include individuals identifying images of body sizes and shapes that resemble their own body (i.e., as described within a perceptual measure) and also the body they would like to have. A discrepancy in what they look like and what they want to look like is used as a cognitive assessment of body image dissatisfaction (i.e., larger discrepancy) or satisfaction (i.e., smaller to no discrepancy). Using this

discrepancy method of cognitive measurement, a study of men and women found that individuals who were more active were more satisfied with their body when compared to individuals who were primarily sedentary (Bibiloni et al., 2017). Overall, body dissatisfaction measures are the most commonly used in sport and exercise psychology research to date (Sabiston et al., 2019). However, there is a surge in positive psychological perspectives in sport and exercise psychology, and measures like the Body Appreciation Scale (Avalos et al., 2005; Tylka & Wood-Barcalow, 2015b) and the Functionality Appreciation Scale (Alleva et al., 2017) have been used consistently as cognitive measures of favorable thoughts about the body.

The affective dimension of body image is measured by capturing individuals' body-related feelings and emotions that often include anxiety, shame, embarrassment, guilt, pride, and envy. Most affective measures are self-report, and often include frequency and/or intensity of emotional experiences. Emerging use of the Body-related Appearance Self-conscious Emotions Scale (BASES; Castonguay et al., 2014) and the Body-related Self-conscious Emotions Fitness Instrument (BSE-FIT; Castonguay et al., 2016) has broadened the scope of studying body-related emotions that was dominated in early work by the Social Physique Anxiety Scale (SPAS; Hart et al., 1989). To date, measures of body-related embarrassment and envy lag behind measures of emotions specific to anxiety, shame, guilt, and pride.

The behavioral body image dimension is often measured based on avoidance or engagement in behaviors such as physical activity, diet/eating, or substance use. Individuals are asked to report on the frequency of participation in these types of behaviors, as well as general avoidance of situations or events because of their body image. Cosmetic surgery use is also an indicator of behavioral body image, as is frequency of body checking and monitoring. Generally, these measures are self-report or collected via interview and focus groups.

Photo by Cliff Booth from Pexels

Body Image and Physical Activity

Positive and negative body image is associated with numerous behavioral outcomes, including physical activity. Physical activity (including sport, exercise, and leisure pursuits) is a context where individuals often engage in social comparisons, are evaluated based on physical and functional features,

and experience judgment from others based on their appearance and function. These aspects may contribute to experiences of negative body image. Yet, physical activity can also be an outlet where individuals experience mastery, enjoyment, and positive affect experiences, which can foster positive body image. In this section, we outline the relationship between body image and physical activity in greater detail, and identify mechanisms that may influence this relationship.

Bidirectional Relationship

Body image and physical activity have a bidirectional relationship, meaning that one's positive or negative body image can influence their participation in physical activity, and one's participation in physical activity can influence their body image (negatively or positively; Sabiston et al., 2019). To date, most of the literature has focused on examining how physical activity is associated with lower negative and higher positive body image. For example, a quasi-experimental study that aimed to examine the role of yoga as a promoter of body satisfaction in young adults, found that those who engaged in yoga were more satisfied with their bodies, when compared to non-participants (Neumark-Sztainer et al., 2018). There is also some literature aimed at studying how physical activity interventions might be used to improve body image. To illustrate, Taspinar and colleagues (2014) examined the effects of a seven-week intervention of hatha yoga and resistance exercise on body image. Although both groups reported less negative body image, greater improvements were noted for the resistance exercise group.

Studied less often, yet equally important, are articles examining how body image can deter or motivate physical activity behavior. Among the limited literature available, negative body image is associated with lower activity and is described qualitatively as a barrier to physical activity, while positive body image is associated with greater physical activity behavior (Sabiston et al., 2019). For instance, in interviews with adolescent boys, boys revealed that body dissatisfaction and negative body perceptions discouraged them from engaging in physical activity (Jachyra & Gibson, 2016). Conversely, older adolescents and young adults have described using physical activity as a behavioral response to experiencing body-related pride (Castonguay et al., 2013). To establish a deeper understanding of the bidirectional relationship between body image and physical activity, it is critical that the mechanisms that explain this relationship are explored.

Mechanisms Linking Physical Activity and Body Image

The majority of quantitative studies examining body image in sport and exercise psychology have been cross-sectional (Sabiston et al., 2019). These studies have elucidated our understanding of the predictors of body image (e.g., attributions: Crocker et al., 2014), along with highlighting the potential positive influences that physical activity can have on body image (Martin-Ginis, Bassett-Gunter, et al., 2012; Martin Ginis, McEwan, et al., 2012). Much of this research, however, has been atheoretical, and as such, a deeper understanding of the mechanisms explaining these relationships is needed. While there are numerous theories linking components of physical activity with body image, three likely mechanisms that can advance our understanding of physical activity and body image are presented below. Specifically, individuals' perceptions of their body, efficacy beliefs, and motivation are discussed as potential mechanisms that can explain associations between exercise and body image.

Actual and Perceived Body Change

Due to the strong emphasis placed on a lean physique in western societies, researchers have focused on whether improvements in physiological changes in the body explain the relationship between higher levels of physical activity and improved body image. However, there is only weak evidence suggesting this is the case, with the majority of evidence demonstrating inconclusive results (Martin-Ginis, Bassett-Gunter, et al., 2012). For example, Anderson and colleagues found that changes in body composition (i.e., weight, waist circumference, and body mass) as a result of a physical activity

intervention were not associated with improvements in self-perceptions (Anderson et al., 2006). Although there is a positive relationship between body composition and body image (Rinaldo et al., 2016), it appears physical activity-induced changes in body composition do not improve body image.

Instead of objective body change improvements, it may be that ones' perceptions of body improvements as a result of physical activity are related to body image. In a 16-week exercise intervention, researchers found that women engaging in physical activity improved body image outcomes, with changes in physical self-perceptions explaining these improvements (Martin Ginis, McEwan, et al., 2012). Similar results have been observed in men, whereby participants reporting that perceived fitness improvements after a strength training intervention significantly improved body image (Martin Ginis et al, 2005). Collectively, this research indicates that the perception of fitness improvements after increased physical activity, as opposed to actual improvements, is the primary factor responsible for inducing changes in body image.

Self-Efficacy and Control

In addition to the perceptions of fitness improvement, individuals' belief in their capabilities pertinent to physical activity (i.e., self-efficacy: Bandura, 1997) is likely an important mechanism explaining the relationship between physical activity and body image (McAuley et al, 2000; McAuley et al., 2002). In other words, those who are confident in their physical capabilities experience better body image as a result of exercise. Researchers suggest that self-efficacy might mediate this relationship due to feelings of empowerment and control, whereby individuals feel like they have control over their environment (Martin-Ginis, Bassett-Gunter, et al., 2012). While the mediating effect of control has yet to be examined, attributing successful exercise outcomes to controllable reasons (e.g., good time management) strengthens the effect of physical activity on body image (Murray et al., 2021). However, further research is needed to understand whether body image improves because individuals feel higher levels of self-efficacy and perceptions of control after increased physical activity.

Motivation

Self-determination theory (Ryan & Deci, 2002) might be applicable in understanding motivation as a mechanism to explain the relationship between body image and physical activity. According to self-determination theory, motivation lays on a continuum from external motivation (i.e., engaging in a behaviour due to external pressure) to internal motivation (i.e., engaging in a behaviour because it is enjoyable), with individuals who are externally motivated being less likely to engage in sustained exercise behaviour (Ingledew & Markland, 2008). Therefore, engaging in physical activity to improve appearance is likely associated with more external levels of motivation, meaning individuals are less likely to continue to exercise. While no studies have examined this mediating effect, researchers have observed that exercise is not strongly associated with body image when individuals are exercising with the purpose of improving appearance (Homan & Tylka, 2014). This might explain why interventions discussing physical activity as a means of adapting body image actually resulted in worse body image (Alleva, Sheeran, et al., 2015). However, levels of motivation have not been explicitly tested as a mechanism of the relationship between exercise and body image, and therefore is a potential avenue for further research.

The Exercise and Self-Esteem Model

The exercise and self-esteem model (EXSEM: Soenstrom & Morgan, 1989; Soenstrom et al., 1994) explains associations between physical activity and general self-esteem, to which body image is an important contributor. The EXSEM suggests that participation in physical activity increases self-efficacy then perceptions of physical competence, which in turn boosts general self-esteem. Researchers testing the EXSEM have observed body image to be an important component of general self-esteem (Fernández

Bustos et al., 2019; Martin-Ginis et al., 2014), especially during adolescence - a time when perceptions of the physical self are of heightened importance (Harter et al., 2012). To date, the EXSEM has shown to be a valuable model guiding research on the mechanisms that explain relationships between physical activity and body image

Three of many potential mechanisms that might explain associations between exercise and body image were outlined here. A better understanding of the mechanisms will elucidate reasons why sport and exercise contexts can improve or inhibit body image, and why body image leads to changes in physical activity behavior.

Key Considerations for Body Image Research

In this section, a description of the limitations of the existing work on body image and physical activity is presented. In addition, different research approaches that will provide a richer understanding of these relationships are described. Specifically, future considerations within the topics of longitudinal, interventional, and mixed-methods study designs, theory development and testing, and individual differences are outlined. A focus on the key issues to be addressed in future research and practice is provided.

Need for Varying Study Designs

Longitudinal Studies

The likely bidirectional nature of the relationship between body image and physical activity necessitates longitudinal research. In their review, Sabiston and colleagues highlight that, at that point, only 9.3% of quantitative studies examining body image are longitudinal (Sabiston et al., 2019). Longitudinal studies examining physical activity, sport, exercise, and body image might disentangle the nature of these relationships, elucidating predictive associations. For example, longitudinal research investigating whether the ostensibly positive relationship between sport and body image (Hausenblas & Downs, 2001) is due to a positive effect of increased physical activity on body image, or if these associations reflect individuals with negative body image and/or low positive body image drop out of sport.

Recent longitudinal research in sport indicates that girls' negative self-conscious emotions appears to increase across adolescence, while positive self-conscious emotions decrease across adolescence (Pila et al., 2020; Sabiston, Pila, et al., 2020), and these changes coincide with decreasing levels of sport commitment and enjoyment throughout adolescence. This evidence highlights that in the context of sport, adolescent body image is an ever-changing process, which requires measurement at multiple occasions. While researchers have yet to explore how sport and exercise relate to body image across the life span, body image and self-perceptions are known to change over time (Orth et al., 2010), understanding how physical activity, sport, and exercise contributes to these changes is a worthwhile endeavour.

Intervention Studies

Intervention studies are needed to bridge the gap between research and applied practice. However, regardless of the positive relationship between physical activity and body image, interventions aiming to improve body image through increasing physical activity opportunities are not efficacious (Alleva, Sheeran, et al., 2015). Indeed, researchers have observed that exercising to avoid feelings of guilt and shame are not conducive to sustained participation (Assor et al., 2009), with appearance based motives weakening the association between body image and exercise frequency (Homan & Tylka, 2014). Alternatively, researchers should test the efficacy of focusing on body functionality instead of appearance to facilitate exercise frequency through body image (Alleva, Sheeran, et al., 2015). Further,

interventionists might examine potential strategies to increase exercise through changing perceptions of body image or changing the context in which physical activity is engaged in (e.g., sport settings). For example, increasing individual's belief in their ability to engage in exercise (i.e., exercise efficacy) and encouraging participation in specific types of exercise (e.g., yoga) might facilitate better body image outcomes (Gammage et al., 2014, 2016). Taking steps to reduce the emphasis on the body's appearance in sport and exercise settings may be an effective strategy to reduce negative body image outcomes. For example, using exercise videos which minimize comparisons with instructor's physique (Martin Ginis et al., 2008) may be an effective intervention strategy that can increase sport and exercise participation, and positive body image.

Mixed-Method Studies

Finally, there is a dearth of mixed-methods studies examining associations between exercise and body image. Taking both quantitative and qualitative approaches to the study of exercise and body image is a necessary step to understand why sport and exercise are positively and negatively associated with body image (Sabiston et al., 2019). For example, many quantitative studies examining physical activity and body image indicate a positive association (Hausenblas & Downs, 2001), however, qualitative samples describe situations in which sport and exercise settings contribute to negative body image (Vani et al., 2020). Mixed-methods studies can be used to understand trends in physical activity and body image while identifying the aspects of sport and exercise settings that contribute to negative and positive body image. These studies will provide a valuable contribution to research on body image in sport and exercise settings and inform interventions aimed at creating more inclusive and welcoming sport and exercise environments.

Theory Development and Testing

Although several theories have been described within this chapter, a theory of body image and physical activity has not yet been developed. The lack of a theory hinders the advancement of understanding mediators and moderators of the body image and exercise relationship. A basic model of exercise and body image was developed by Martin Ginis, Bassett-Gunter, and Conlin (2012) that outlines potential mediators (e.g., changes in self-efficacy) and moderators (e.g., intensity level, sex) of the relationship from exercise to body image. However, this was designed to guide researchers to choose measures to include in exercise interventions and it doesn't include the potential effects of mediators and moderators in the relationship from body image to exercise. Developing a theory that addresses the bidirectional relationship between body image and exercise is needed.

Individual Differences

There are many personal characteristics that relate to body image in sport and exercise settings. Below, four characteristics (age, gender, race/ethnicity, and sexual orientation) are discussed, however, it is important to note that there are many other individual differences beyond those discussed in this chapter which likely impact these relationships.

Age

Research on body image in sport and exercise typically focus on adolescents and young adults (Sabiston et al., 2019) and as such, many of the relationships discussed in this chapter pertain to this younger demographic. Generally, positive body image decreases while negative body image increases across adolescence (Sabiston, Pila, et al., 2020). However, these maladaptive patterns likely taper off as adolescents progress into adulthood (Orth et al., 2010). That is, as individuals progress across the lifespan they typically experience more positive and less negative body image. The importance of body shape, weight, and appearance typically decreases as individuals progress into later adulthood

(Tiggemann, 2004). However, adults 65 and older report fitness related aspects of body image as important (Bennett et al., 2017) and as such body functionality is an important facet of body image in older adults that warrants further investigation. While body image plays a strong role in adolescents and young adults' physical activity experiences, the decreasing importance of body image in adulthood may result in better physical activity experiences for adults. In short, those who disengage from sport and exercise as adolescents may have better experiences as adults. Further research is needed to test these claims and develop an understanding of how body image relates to physical activity across the lifespan.

Gender

Body image is relevant to all genders. Meta-analyses and reviews have indicated no consistent differences between men and women in their experiences of body image and exercise (Hausenblas & Fallon, 2006; Sabiston et al., 2019). However, societal influences encourage different body image standards for boys/men and girls/women with a higher emphasis for girls and women to be slender and toned, but not muscular, while men are pressured to be muscular. In the sport and physical activity context, the ideal body of being muscular aligns with the ideal man's body but does not align with the ideal women's body (Lunde & Gattario, 2017). This can lead to the perception that sport and exercise align more with the masculine identity than the feminine identity, thus discouraging participation in girls and women. Importantly, discussion on body image in sport and exercise settings among individuals who identify as non-binary, transgender, or two-spirit is lacking. Further research on these populations is needed to understand which sport and exercise settings facilitate or inhibit participation among non-binary individuals, and how this impacts their body image.

Photo by Julia Larson from Pexels

Race, Ethnicity, and Culture

The extent to which race and ethnicity impact body image in sport and exercise settings is relatively unknown. When examining physical activity levels, there is inconsistent evidence on the differences in physical activity levels between Black and White adolescents (Butt et al., 2011; Trost et al., 2002). There is some evidence indicating Black adolescent girls participating in sport hold differing perceptions of body image compared to White adolescent girls (Crissey & Honea, 2006; Mabry et al., 2003). However, in their review of exercise and body image Hausenblas and Fallon concluded there was not enough research on racially diverse samples to understand the impact of race in the relationship

between exercise and body image (Hausenblas & Fallon, 2006). Most of the research outlined in this chapter pertains to individuals who identify as White; however, early evidence indicates there are marked differences between body image within different racial groups. As such, research purposefully examining the relationship between exercise and body image in racially and ethnically diverse samples is needed to further our understanding of body image and physical activity.

Sexual Orientation

Research investigating exercise and body image among those who identify with sexual orientations that differ from heterosexual is also limited. There is evidence however that gay men and heterosexual women may be more motivated to engage in exercise for appearance related purposes when compared to heterosexual men (Grogan et al., 2006). This research indicates there are likely meaningful differences in body image experiences between gay, lesbian, and heterosexual participants in sport and exercise settings. Research understanding these differences and how individuals of varying sexual orientations (e.g., bisexual, gay, lesbian, pansexual, queer) experience body image in sport and exercise settings may provide valuable knowledge that can encourage more inclusive sport and exercise environments.

Intersectionality

Finally, it is important to note that these individual differences do not occur in a vacuum. Individuals will have multiple identities that can occur simultaneously, intersecting across different situations, with some identities being more valued and salient dependent on the situation. There is a lack of research understanding intersectionality in sport, particularly in terms of understanding the impact of individual identities (e.g., Black, lesbian, woman, able-bodied) in the sport and exercise context and how these relate to perceptions of body image. For example, in the sport context, the gay body and the athletic body may be perceived as markedly different (Morrison & McCutcheon, 2012). Further research is needed to understand how intersectionality impacts physical activity and body image experiences.

Conclusion

Generally speaking, body image is multidimensional, involves the appearance and function of the body, includes investment and internalization of ideals, and can be negative and/or positive. Body image has been studied using a number of theories, models, and measures, and is a key factor in the development of body dysmorphia and eating disorders. Further, body image shares a complex bidirectional relationship with physical activity. Despite this established association, the mechanisms that explain this relationship are not fully understood. Within the limited research, there is preliminary evidence to suggest that perceived body changes, self-efficacy and control, and motivation might help to explain the link between body image and physical activity. A more thorough understanding of these mechanisms will be fruitful for the development of effective interventions. Future considerations in research and practice should aim to explore the relationship between body image and physical activity over time and using intervention and mixed-method studies. Further, the development of a theory that recognizes the bidirectional relationship between body image and exercise is needed. Finally, future research would benefit from a greater consideration of individual differences and the intersectionality of identities and individual difference factors. These future developments will advance the fields of exercise and sport psychology, as it will deepen our understanding of body image and physical activity.

Learning Exercises

1. Define body image and the four dimensions of body image described in this chapter. Provide one example of how you would measure each dimension.

2. Consider whether positive and negative body image are on the same or separate continuums. Name one positive and one negative body image construct that fall within the affective and cognitive dimensions.

3. Compare and contrast body image and the physical self.

4. What are some of the factors that can influence the development of body image?

5. Describe the bidirectional relationship between body image and physical activity. Outline two mechanisms that link body image and physical activity.

6. Choose two individual differences and explain how they relate to body image in sport and exercise settings.

7. You are tasked with designing a fitness facility and creating guidelines for this new facility. Your goal is to avoid body-related evaluations. What important factors would you consider?

8. You are creating a social media account to promote body positivity within a movement context (e.g., physical activity, sport, exercise). Based on what you have learned in this chapter, what movement setting would you choose, what population would you target, and what principles you would uphold?

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