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23 Exercise in Obesity From the Perspective of Hedonic Theory

A Call for Sweeping Change in Professional Practice Norms

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Two thirds of American adults, as well as the majority of adults in most other western countries, are considered overweight, and up to one third are obese (Finucane et al., 2011; Flegal, Carroll, Kit, & Ogden, 2012; Ng et al., 2014; von Ruesten et al., 2011). The average client that exercise practitioners are likely to face in the United States today has a body mass index of 28.7 kg/m², just short of the threshold for being designated “obese.” In some clinical settings, such as cardiac rehabilitation (Bader, Maguire, Spahn, O’Malley, & Balady, 2001) or osteoarthritis clinics (Frieden, Jaffe, Stephens, Thacker, & Zaza, 2011), half of the patients are classified as obese and almost all are overweight.

Regular physical activity is an essential component of lifestyle interventions recommended for weight management (Jensen et al., 2014), having been shown to significantly improve long-term weight loss beyond what can be achieved by diet-only programs (Johns, Hartmann-Boyce, Jebb, & Aveyard, 2014). The problem is that very few adults with obesity participate in physical activity at the recommended levels (Ekkekakis, Vazou, Bixby, & Georgiadis, 2016).

At the same time, if one peruses the reference lists of exercise psychology textbooks, it becomes apparent that the evidence base of this field consists mainly of studies conducted with young, healthy, and active undergraduate students of exercise science programs. If one specifically searches for research investigating the psychological concerns, challenges, or barriers faced by obese adults as they contemplate or engage in exercise, the search will turn up very few usable leads. Moreover, while examining guideline documents issued by exercise science organizations about the prevention and treatment of obesity (e.g., Donnelly, Blair, Jakicic, Manore, Rankin, & Smith, 2009; Fogelholm, Stallknecht, & Van Baak, 2006; Jensen et al., 2014), one discovers that these documents are exclusively prescriptive; while they specify how much exercise obese individuals should be doing, they include no guidance for professionals on how to support their clients in carrying out the prescribed amount of exercise and no advice for the obese individuals themselves on how to cope with barriers.

In the absence of a foundation of empirical research and evidence-based clinical guidance, the field of exercise practice dealing with obesity has largely depended on non-scientific sources of information, such as dogma, tradition, expert opinion, and intuition. As a result, many entrenched elements of professional practice in this field can be shown to be problematic or downright fallacious, consequently driving obese individuals away from exercise rather than drawing them in. For example, think of any infomercial for an exercise machine or contraption, anything from a belt with electrodes that stimulate the abdominal muscles to a stair climber. Most likely, the sales presentation that came to your mind included “before and after” pictures or stories of people transformed from fleshy to trim. Visualize an advertisement for any health or fitness club and the image would probably be very similar. Now, try to remember your last five fitness instructors, exercise leaders, or personal trainers. Would it be safe to

guess that each one had minimal body fat, was tan, and was usually dressed in shape-revealing attire? Think of the interior of any aerobics, stepping, spinning, or weightlifting room you have ever seen in your life. The room had wall-to-wall mirrors, correct? Now, think of an episode of any television show in which participants miraculously metamorphose from obese to slim and svelte over the course of a few weeks. It is probably a safe bet that any memory from such shows includes images of participants nearly collapsing of exhaustion, suffering injuries, or grimacing in apparent pain and discomfort. It is also safe to assume that, in each case, the “trainers” (a fuzzy category that includes former marine drill sergeants, former professional sports stars, and personal trainers to Hollywood celebrities) acted “tough” and attributed all failures by participants to carry out the exercise they were instructed to do to lack of willpower or self-discipline. Regular viewers of such shows have probably watched these trainers offer numerous monologues about the need of obese individuals to “take control of their lives.”

All the images described in the previous paragraph have become ingrained components of exercise practice and, as such, they are rarely questioned and tend to be perpetually emulated. We have all heard the reasoning behind each of these. “Before and after” pictures, the argument goes, boost motivation because people aspire to look like the “after” picture. Exercise leaders are supposed to look exceptionally fit because clients look up to them for inspiration. As role models, they should seem as if they do not just talk the talk but also walk the walk. Thus, most fitness clubs prefer to hire individuals who look exceptionally fit rather than “average,” often overlooking professional credentials, experience, or skill, allegedly because they want to project “the right image.” Mirrors are reportedly necessary in exercise facilities because they allow people to check and correct their form. The same “folk wisdom” also evidently dictates that exercise for the treatment of obesity should be intense and prolonged, so that it can dramatically elevate caloric expenditure and yield visible “results” quickly. Likewise, many exercise professionals apparently assume that obesity is the result of character flaws, such as an inherent propensity for indolence or overindulgence. Consequently, many “fit” personal trainers feel justified in lecturing their “fat” clients, imparting lessons on life and living.

Because, at least on the surface, these points seem to have a semblance of logic, many students and graduates of exercise science programs are apt to accept them as time-honored components of the professional knowledge base that is passed down from one generation of practitioners to the next. However, as we explain in this chapter, each of these points has been shown through research to have negative consequences on the exercise motivation and adherence of participants. “Before and after” pictures, by focusing on statistical outliers, create unrealistic outcome expectations (e.g., Foster, Wadden, Vogt, & Brewer, 1997). In turn, expectancy violations raise the risk of dropout (Sears & Stanton, 2001). Exercise leaders who appear exceptionally fit are unlikely to serve as effective models for individuals who are obese, because they are generally not perceived as empathetic and/or relatable (Dunlop & Schmader, 2014; Martin Ginis, Prapavessis, & Haase, 2008). Although wall-to-wall mirrors in exercise facilities may serve the practical function of allowing exercisers to check their form, this one positive effect is overshadowed by the significant adverse effects on people who have concerns about their physical appearance (Focht & Hausenblas, 2006; Martin Ginis, Burke, & Gauvin, 2007). Mirrors act as reminders that physiques are on public display and exposed to potentially negative evaluations. Thus, people exercising in front of mirrors report that they experience more self-presentational concerns and more anxiety about being negatively evaluated by critical observers (Focht & Hausenblas, 2003). Exercise programs designed to yield rapid and visible changes in physical appearance by maximizing caloric expenditure within a short period may occasionally produce the desired result, but this always comes at the cost of substantial displeasure and discomfort (da Silva et al., 2011; Ekkekakis, Lind, & Vazou, 2010). In the long run, these experiences diminish intrinsic motivation for exercise, increase the chances of exercise avoidance, and raise the risk of

relapse into a sedentary lifestyle and weight regain (Jackson, Gao, & Chen, 2014; Miller & Miller, 2010). Finally, explicit or implicit signs of anti-obesity bias on the part of exercise professionals, including unsubstantiated assumptions about the causes of obesity, are likely to induce personally salient negative emotions, such as embarrassment or guilt (Dimmock, Hallett, & Grove, 2009; Hare, Price, Flynn, & King, 2000). These are more likely to result in resentment of the overall exercise experience than to serve as a stimulus for positive behavior change.

Against this backdrop, the purposes of this chapter are the following. First, we document the often underappreciated magnitude of the problem of exercise non-participation and avoidance among individuals who are obese. Second, we present the basic postulates of hedonic theory as the general conceptual framework from which we approach the empirical evidence and derive practice recommendations. Third, we review research demonstrating how specific components of the exercise stimulus and the social environment in which it is embedded may generate negative affective and emotional experiences for obese participants. We conclude with specific recommendations for exercise and health practitioners.

THE CARDINAL FALLACY: MARKETING EXERCISE SOLELY AS AN ANTI-OBESITY TREATMENT

Exercise scientists and practitioners have allowed marketers to dictate how exercise is promoted to the public. Marketers, who have little interest in the research evidence and whose sole purpose is to sell exercise machines or club memberships, have decided that the message with the highest potential impact is the equation of exercise with weight loss. Indeed, in the minds of most people, the notions of “exercise” and “weight loss” have become tautological (Guess, 2012). For example, anecdotally, it is common to hear some members of the public say that they do not need to exercise because they “have always been thin” and others refer to exercise as the punishment they must endure for being “bad” over the holidays (i.e., eating more than usual). Even among physicians and other health professionals, it is often assumed that the benefits of exercise are either limited to or fully mediated by weight loss.

The equation of the concepts of “exercise” and “weight loss” has far-reaching implications for exercise promotion. For one thing, the narrow emphasis on weight loss does not allow many individuals to recognize the numerous other health benefits of exercise that are independent of weight loss. More importantly, research shows that exercise alone (i.e., without monitoring or restricting caloric intake) does not have the advertised effects on body weight, a fact that can have devastating consequences for exercise motivation (Södlerlund, Fischer, & Johansson, 2009).

On August 17, 2009, *Time* magazine shocked exercise proponents worldwide with a cover story titled “The Myth About Exercise” and subtitled “Of Course It’s Good for You but It Won’t Make You Lose Weight.” In the opening paragraph of the article itself, author John Cloud described his weekly exercise routine:

On Wednesday a personal trainer will work me like a farm animal for an hour, sometimes to the point that I am dizzy—an abuse for which I pay as much as I spend on groceries in a week. Thursday is ‘body wedge’ class, which involves another exercise contraption, this one a large foam wedge from which I will push myself up in various hateful ways for an hour. Friday will bring a 5.5-mile run, the extra half-mile my grueling expiation of any gastronomical indulgences during the week.

The retort by the then-President of the American College of Sports Medicine (ACSM), James Pivarnik, published in the August 31, 2009, issue of the magazine, reminded readers of one

incontrovertible point: “The key concept is a simple equation of energy balance: calories expended throughout the day must exceed calories consumed as food.”

So, who is right? The answer is not simple. Although this may come as a surprise to many ardent proponents of exercise, interventions focusing exclusively on exercise (i.e., those that do not include a parallel component focusing on dietary restriction) result in minimal weight loss. One review found that the average weight loss was 2.4 kg at 6 months and 1.0 kg at 24 months (Franz et al., 2007). A meta-analysis found that the average weight loss was 1.6 kg at 6 months and 1.7 kg at 12 months (Thorogood et al., 2011). These figures are unlikely to be perceived as representing a worthwhile investment of time and effort by most people. Likewise, these reductions in body weight are of limited clinical meaningfulness, as their magnitude is such that they are unlikely to have an appreciable beneficial effect on overall health.

These results illustrate that, while weight management ultimately depends on a “simple equation of energy balance,” marketing exercise as a weight loss intervention is somewhat misleading, as this “simple equation” is only part of the story. The reasons why regular exercise does not result in much larger reductions in weight are still not fully understood (Boutcher & Dunn, 2009; Donnelly et al., 2014; Thomas et al., 2012).

One commonly proposed explanation (and the only one highlighted in the *Time* magazine article) is that people who exercise subsequently compensate by eating more. However, most studies have not uncovered evidence that the prevalence and extent of such compensation can adequately explain the lower-than-predicted weight loss (King et al., 2012). Nevertheless, some types of compensation do occur (King et al., 2007; King, Hopkins, Caudwell, Stubbs, & Blundell, 2008; Melanson, Keadle, Donnelly, Braun, & King, 2013).

Interestingly, the discrepancy between the weight loss that is predicted on the basis of the amount of exercise performed and the weight loss actually achieved increases as the amount of exercise increases (Church, Martin, Thompson, Earnest, Mikus, & Blair, 2009). One possible explanation for this phenomenon is that the compensation does not consist of an increase in energy intake but a decrease in energy expenditure the rest of the day, an effect that would presumably be more pronounced with larger doses of exercise, such as those that leave one exhausted (Manthou, Gill, Wright, & Malkova, 2010). A second possibility is that a larger amount of exercise is perceived as “license to eat.” When people are led to believe that they spent more calories during an exercise session (McCaig, Hawkins, & Rogers, 2016) or the exercise is described as “fat-burning” as opposed to endurance-promoting (Fenzl, Bartsch, & Koenigstorfer, 2014), they tend to consume more calories post-exercise. A third, exceptionally intriguing possibility is that the post-exercise compensation is hedonic at its core. Preliminary evidence shows that those who experience an exercise session as less pleasant or less enjoyable are likely to consume more calories, especially “hedonic” calories (e.g., dessert) after exercise (Schneider, Spring, & Pagoto, 2009; Unick, Michael, & Jakicic, 2012). Even framing a walk as an “exercise walk” as opposed to a “scenic walk” seems to have the same effect (Werle, Wansink, & Payne, 2015). Collectively, these results suggest that any push to accelerate or amplify the weight-loss effect by increasing the amount of exercise performed may trigger compensatory behaviors that can adversely affect both the intake and the expenditure sides of the equation, and ultimately negate the potential benefit of any additional investment of time and/or effort in exercise.

Besides compensatory behaviors, another possible explanation is that exercise adherence among obese individuals tends to be low, and, as a result, research participants complete considerably smaller amounts of exercise than what was prescribed or specified in experimental protocols (Colley, Hills, O’Moore-Sullivan, Hickman, Prins, & Byrne, 2008). This possibility is supported by the findings of several clinical trials (e.g., Borg, Kukkonen-Harjula, Fogelholm, & Pasanen, 2002) and systematic reviews (Catenacci & Wyatt, 2007; Fogelholm & Kukkonen-Harjula, 2000; Thorogood et al., 2011; Wing, 1999).

Regardless of the exact mechanisms, it is well established that, for most people, exercise does not produce the weight loss that one would expect based on energy expenditure. Thus, a growing number of experts are calling for a radical change in how exercise is promoted to the public, shifting the focus from weight loss to other, weight-independent but nonetheless crucial benefits for cardiometabolic health (Blair & LaMonte, 2006; King, Hopkins, Caudwell, Stubbs, & Blundell, 2009; Ross & Bradshaw, 2009; Ross & Janiszewski, 2008; Vartanian, Wharton, & Green, 2012). Epidemiologic evidence demonstrates that the risk of all-cause mortality associated with body mass is only elevated for those with obesity class II/III (i.e., body mass index of at least 35 kg/m²). Obesity class I (i.e., body mass index from 30 to < 35 kg/m²) is not associated with elevated risk, while the range considered “overweight” (i.e., body mass index from 25 to < 30 kg/m²) is associated with lower risk compared to “normal weight” (Flegal, Kit, Orpana, & Graubard, 2013), a finding considered “paradoxical” but nonetheless reliable. Moreover, the risk associated with obesity (all classes) may be superseded by the risk associated with inactivity and low cardiorespiratory fitness (Blair, 2009; Lee, Sui, & Blair, 2009; McAuley & Blair, 2011).

Taking the calls for a reorientation of the messaging strategy further, a growing number of researchers insist that the focus of promotion efforts should be neither on weight loss nor on health but rather on the immediate benefits of exercise for enjoyment and well-being (Gellert, Ziegelmann, & Schwarzer, 2012; Marttila, Laitakari, Nupponen, Miihunpalo, & Paronen, 1998; Segar, Eccles, & Richardson, 2008, 2011). Consistent with this suggestion, it has been found that body shape-related motives for exercise participation (e.g., weight loss or toning) are not associated with actual participation, whereas having a negative affective reaction to the thought of exercise (e.g., feeling guilty) is inversely related to participation (Segar, Spruijt-Metz, & Nolen-Hoeksema, 2006). Although it remains to be seen whether the new approaches will be adopted and implemented by exercise and health professionals, there can be little doubt that the psychological implications of the proposed changes in messaging strategy can be profound. If people stop using their bathroom scales as the sole gauge of the effectiveness of exercise, the number of individuals abandoning exercise because it “doesn’t work” could be greatly reduced.

HOW BADLY ARE WE FAILING?

To put it bluntly, the failure of the field of exercise science to develop and implement effective, evidence-based strategies to promote exercise participation and adherence among obese individuals has been nearly absolute. No other domain of public health has seen rates of compliance with recommendations as low as those pertaining to physical activity in obesity (Ekkekakis et al., 2016).

According to current guidelines on the application of exercise for weight management, at least 60–90 minutes per day, performed at least at moderate intensity, are necessary (Andersen & Jakicic, 2009; Goldberg & King, 2007). Experts have cautioned, however, that this amount of activity may be “too daunting” (Hill & Wyatt, 2005, p. 769) or “too ambitious” (Davis, Hodges, & Gillham, 2006, p. 2264) and may, therefore, act as a deterrent. Indeed, in a nationwide study in the United States, among obese individuals trying to lose weight, only 6 percent of men and 3 percent of women reported at least 420 minutes of physical activity per week (i.e., 60 minutes per day on average; Bish, Blanck, Serdula, Marcus, Kohl, & Khan, 2005). Self-reports of activity, however, are prone to considerable measurement error, mainly in the direction of overreporting (Troiano et al., 2008). Objective assessments with accelerometers in a nationally representative sample show that fewer than 2 percent of obese adults in the United States are physically active at the level recommended for health promotion

(Tudor-Locke et al., 2010). Obese men average 23.4 minutes of moderate-intensity and 36.0 seconds of vigorous-intensity activity daily, whereas obese women average 13.8 minutes and 10.8 seconds, respectively (Archer et al., 2013). Among obese adults, the almost complete avoidance of vigorous-intensity activity, in particular, appears to be a global phenomenon (Hansen, Holme, Anderssen, & Kolle, 2013; Scheers, Philippaerts, & Lefevre, 2012).

Especially interesting from a psychological perspective is the phenomenon of dropout. While a higher body mass index has been found to predict an earlier stage of behavior change (e.g., precontemplation, contemplation; Marcus, Rossi, Selby, Niaura, & Abrams, 1992), numerous obese individuals do initiate exercise attempts. This presents an opportunity and a challenge for exercise professionals and the exercise science field as a whole. Presumably, well-prepared exercise professionals should be able to support participants in raising their level of motivation and, consequently, reducing dropout and increasing adherence. Although ecologically valid evidence is scant, the extant data are not encouraging. For example, according to an observational study of exercise-on-prescription programs in the United Kingdom, among participants with an average body mass index of 38.75 kg/m^2 (range from 29 to 58 kg/m^2), 26.5 percent dropped out during the first month, and 18.4 percent dropped out during the second month. Another 4.1 percent were still exercising after three months but did not comply with the exercise prescription they had been given (Edmunds, Ntoumanis, & Duda, 2007).

THE HEDONIC PERSPECTIVE

When the level of non-compliance with a recommendation exceeds 98 percent, this is a good indication that a radically different approach is needed. Consistent with the dominant paradigm in the field of exercise psychology, the main approach underlying the promotion of exercise in obesity is based on the principles of cognitivism. In this framework, the decision to engage in or disengage from a health behavior, such as exercise, depends on the rational evaluation of information that one has in relation to this behavior (Ekkekakis & Zenko, 2016). For example, it is assumed that an obese individual will decide to engage in exercise and adhere over the long haul if they appraise the available information and concludes that the perceived benefits outnumber the perceived barriers, the perceived capabilities suffice given the perceived demands, and there is an adequate support system in place to assist in the endeavor (Dalle Grave, Calugi, Centis, El Ghoch, & Marchesini, 2011; Gallagher, Jakicic, Napolitano, & Marcus, 2006; Marchant, 2011). Thus, from this perspective, the exercise professional should counsel the obese client on the health benefits to be gained from exercise (e.g., on blood glucose or arterial pressure), increase the dose of exercise gradually (duration, frequency, intensity) to allow the development of a sense of self-efficacy, and secure the approval and encouragement of important others, such as family and friends.

These factors are important and, if these interventions were to be properly implemented by exercise practitioners on a large scale, they would likely make a difference. However, the extant evidence from intervention trials indicates that the positive effects, although statistically reliable, are neither large nor sustained (Bélanger-Gravel, Godin, Vézina-Im, Amireault, & Poirier, 2011; Gourlan, Trouilloud, & Sarrazin, 2011). The less-than-spectacular effects of interventions based on cognitivist theories have been described as “somewhat surprising, given that the use of theoretical frameworks should increase the likelihood of developing more effective interventions” (Bélanger-Gravel et al., 2011, p. 436). The reason why these results are deemed “surprising” is because they stand in contrast to generally stronger effects that similar interventions have been shown to have in the promotion of other health behaviors, such as smoking cessation or responsible sexual practices. This discrepancy raises the

possibility that exercise in obesity is controlled by mechanisms that are largely distinct from those driving other health behaviors. Collectively, the evidence that is available to date suggests that, even under the best of circumstances, the effectiveness of activity-promotion interventions relying solely on changing cognitive appraisals would be modest (Bélanger-Gravel et al., 2011).

Thus, in this chapter, we propose a different approach. We assume that the decision to engage in or disengage from exercise depends not only on the rational cognitive appraisal of information but also, to a large extent, on affective experiences (pleasure versus displeasure) derived from prior exercise attempts. In essence, this represents the application to the domain of exercise of the theory of psychological hedonism, an idea that has persisted in various forms in psychological thought for over 25 centuries (Ekkekakis & Dafermos, 2012). The core postulate of this theory is that, because pleasure evolved to signify utility and displeasure evolved to signify danger, people have a strong inherent propensity to seek out and repeat pleasant experiences and avoid unpleasant ones. In the long run, people consistently gravitate toward behavioral options that, on previous occasions, yielded pleasure and stay clear of those that yielded displeasure. Recent evidence has demonstrated that the pleasure or displeasure experienced during or after exercise (Berger, Darby, Owen, & Carels, 2010; Carels, Berger, & Darby, 2006; Williams, Dunsiger, Ciccolo, Lewis, Albrecht, & Marcus, 2008; Williams, Dunsiger, Jennings, & Marcus, 2012) and the degree to which people regard exercise as enjoyable (Rhodes, Fiala, & Conner, 2009) are significantly predictive of physical activity behavior. In open-ended responses to interviews, which allow respondents the freedom to express their thoughts and feelings unconstrained by the theoretical framework of the researcher, “fun” and “enjoyment” are “reported more often as predictors of participation and non-participation than perceived health benefits” (Allender, Cowburn, & Foster, 2006, p. 832).

Thus, after years of neglect under the dominating influence of cognitivist models, a growing number of experts now recognize the importance of affect in exercise motivation. According to Rhodes and Nigg (2011), “the affective qualities of [physical activity] are the driving factor of [physical activity] motivation” (p. 116). Importantly, the role of affect in exercise motivation is also recognized by the ACSM; in its latest guidelines for exercise prescription, it states that “feelings of fatigue and negative affect . . . can act as a deterrent to continued participation” (ACSM, 2013, p. 374).

Furthermore, the version of hedonic theory we espouse is one specifically tailored to the unique challenges of the exercise stimulus and the unique attributes of the exercise environment. Thus, we fully endorse the suggestion that “there is adequate, if not overwhelming, evidence to suggest that unique theories of [physical activity] should be pursued” (Rhodes & Nigg, 2011, p. 114). We believe that “exercise is a multifaceted stimulus [and] as such, it has the capacity to induce affective responses emerging from any level of affective processing, from basic affect to specific emotions” (Ekkekakis & Petruzzello, 2000, p. 78; see Figure 23.1). For example, on one end of the spectrum, an obese individual may experience pleasure associated with a sense of somatic energy and revitalization following an appropriately tailored exercise bout or the displeasure of fatigue and exhaustion after a draining hour-long session. These varieties of pleasure and displeasure, included under the rubric of “core affect,” do not require a cognitive appraisal; they can emanate directly from the body in an automatic, reflex-like fashion. On the opposite end of the spectrum, an obese individual may experience the pleasure of pride and accomplishment after reaching an important milestone (e.g., lowering systolic arterial pressure by 10 mmHg) or the displeasure of embarrassment and anger after appraising a remark by a personal trainer as insensitive or offensive. These varieties of pleasure and displeasure, which fall under the rubric of “emotions,” differ from the previous ones in that their elicitation requires an antecedent cognitive appraisal of a specific social-environmental stimulus. Thus, emotions are heavily influenced by prior experiences

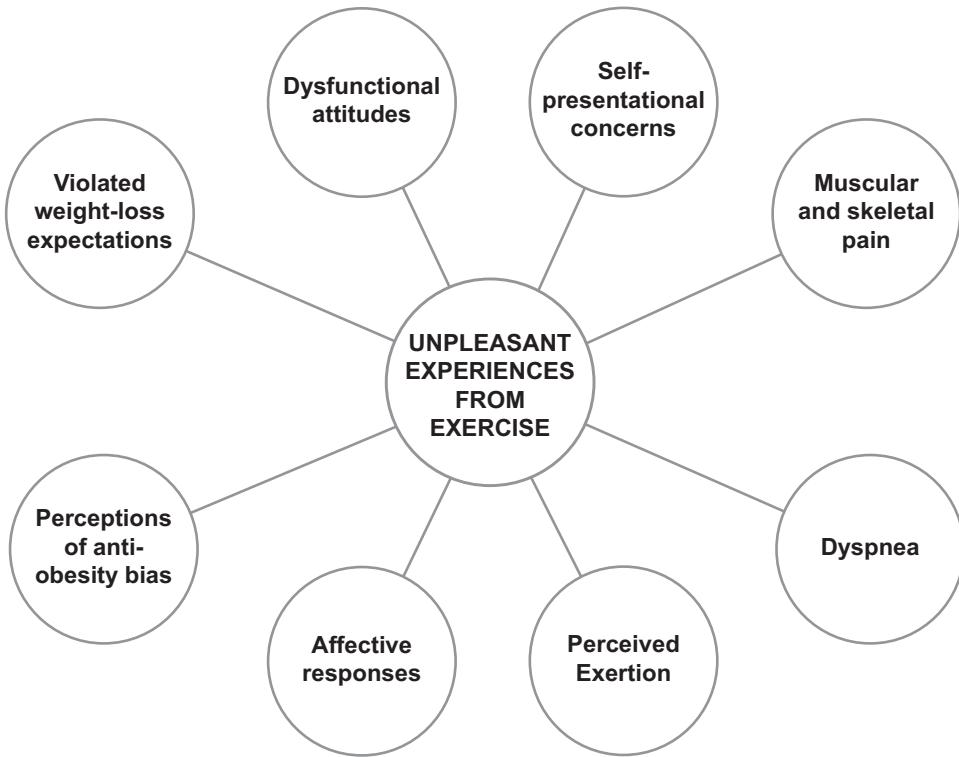


Figure 23.1 Obese individuals may derive negative affective experiences from multiple sources. These include negative forms of core affect (e.g., displeasure, discomfort, pain, fatigue, exhaustion) and negative appraisal-dependent emotions (e.g., fear, embarrassment, disappointment, guilt, anger).

(individual developmental histories) and are embedded within the sociocultural context (e.g., may depend greatly on the importance ascribed to “thinness”).

In the application of hedonic theory to exercise behavior (Ekkekakis, 2012; Ekkekakis & Dafermos, 2012), it is assumed that repeated unpleasant experiences from exercise, regardless of their exact nature (core affect or emotions), create a negative association for exercise (see Figure 23.2). When the notion of exercise is later recalled as one, consciously or subconsciously, weighs different behavioral options (e.g., exercising or watching television), the negativity or positivity attached to the notion of exercise will tilt the balance of decision making toward or away from exercise. The theory, of course, acknowledges that “reason” (the rational cognitive appraisal of information) also plays an important role in decision making and that many decisions may involve a conflict between affect and reason. It is easy to imagine, for example, that for many obese individuals, who are constantly reminded by their physicians or family members that exercise would be highly beneficial, the decision to not exercise would probably involve a conflict between reason and affect. In these situations, hedonic theory presents an entirely new path for interventions by suggesting that the appropriate avenue is not to attempt to make people *even* more convinced of the health benefits of exercise or *even* more confident about their ability to be active but rather to make exercise more pleasant or at least less unpleasant.

Thus, in the hedonic approach, the exercise professional should be mindful of all possible sources of displeasure, including those associated with the exercise stimulus itself (i.e., its

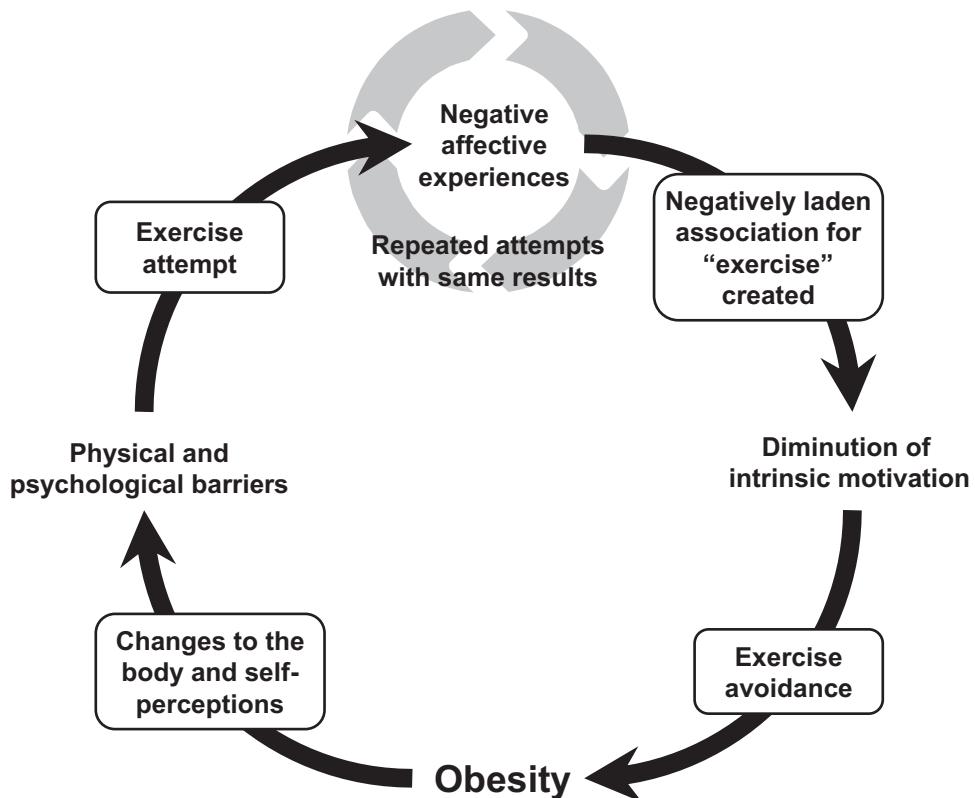


Figure 23.2 From the perspective of hedonic theory, obesity, presumably through the combination of physical and psychological challenges it poses, increases the likelihood that obese individuals will derive unpleasant affective experiences from exercise. Over multiple attempts, this may result in the formation of a negative association for exercise. In turn, a negatively charged concept of “exercise” acts to bias subsequent behavioral decisions against exercise and in favor of other, more pleasant options, thus setting in motion a vicious cycle of avoidance.

dose characteristics and the totality of its demands on the body), the exerciser (i.e., attitudes, personality), and the social and physical environment in which exercise takes place (i.e., the presence of mirrors and other evaluative cues, the number and behavior of others, the communication style and focus of the exercise professional). Research on the factors that contribute to the pleasant and unpleasant experiences that obese individuals derive from exercise is growing but remains scant (Ekkekakis et al., 2016). Thus, the full range of factors that may play a role is not known.

As illustrated in Figure 23.1, we speculate that a conglomeration of physiological (e.g., inability to maintain lactate steady state, thermoregulatory difficulties), biomechanical (e.g., pain from excessive impacts on joints, uncomfortable gait patterns), and psychological factors (e.g., self-presentational concerns, perceptions of anti-obesity bias) associated with obesity can contribute to making the exercise experience less pleasant overall for obese individuals than for their non-obese counterparts. Each of these categories present opportunities for interventions, and it is important for practitioners working with obese individuals to be aware of the unique challenges that obesity poses for exercise motivation and adherence. For example, conscientious practitioners should know that, in obese individuals, walking a little slower can reduce the potential for musculoskeletal injuries (Browning & Kram, 2007) or

that dyspnea and respiratory muscle fatigue can develop even at intensities considered “moderate” (Dreher & Kabitz, 2012). Nevertheless, due to space constraints, this chapter focuses on psychological factors.

Affective and Emotional Responses

A standard adage in exercise psychology textbooks, which are mainly based on studies of young, healthy, active, and physically fit participants, is that “exercise makes people feel better.” Given the homogeneity of the samples involved in these studies and the general inattention to individual variation, an implicit assumption has developed that this effect probably applies to all individuals or least to the vast majority of them. Thus, when researchers find that exercise interventions involving formerly sedentary, elderly, or overweight and obese individuals *reduce* pleasure and enjoyment, the findings are characterized as “surprising” or “contrary to expectations” (e.g., Castro, Sallis, Hickmann, Lee, & Chen, 1999; Stevens, Lemmink, van Heuvelen, de Jong, & Rispens, 2003). Then, upon reflection, researchers come to the realization that, for individuals who are middle-age or older, physically inactive, with high body mass and low cardiorespiratory fitness, exercise is “unlikely to be construed as inherently pleasurable or enjoyable” (Wilson, Rodgers, Blanchard, & Gessell, 2003, p. 2375). Authors recognize that this combination of characteristics makes it “unrealistically optimistic” to expect that exercise can be enjoyable because “even mild physical activity can be physically demanding when one is not used to it” (Castro et al., 1999, p. 290). Findings that responses to items like “doing leisure-time physical activities makes me feel good” or “gives me satisfaction” show large decreases over the course of an intervention are attributed to the fact that, for “sedentary people unfamiliar with leisure-time physical activity,” expecting that the enjoyment of the program will be “51” on a 70-point scale is “unrealistically high” (Stevens et al., 2003, p. 566).

Until a few years ago, there were no studies on how obesity may influence the subjective experience of exercise. Thus, practitioners had no reliable information about the challenges that obese individuals may face while trying to comply with exercise guidelines. This absence of information probably contributed to many exercise scientists and practitioners operating under the assumption that it is sufficient to develop exercise prescriptions solely based on mathematical formulas (e.g., to produce a daily deficit of X calories, one must exercise for Y minutes at Z intensity). Moreover, the absence of evidence on how an obese person may feel while exercising made it easier for exercise professionals to shift the burden of responsibility for any failure to carry out the prescribed exercise to the clients or patients (e.g., to their presumed lack of commitment, willpower, persistence, conscientiousness, or sense of personal responsibility).

In actuality, obesity changes the affective and emotional experience of exercise in several profound ways. One important, but often overlooked, issue is how the exercise itself feels. Although it is well-established that obesity limits exercise capacity (Lafortuna, 2013), the severity of this limitation has been greatly underappreciated. In the early 1990s, Donnelly et al. (1992) noted that efforts to field-test the cardiorespiratory capacity of obese women using a one-mile walk test failed because only 3 of 17 women could walk the full mile. Moreover, those who finished the mile took at least 20 minutes and subsequently reported feeling exhausted. They also complained of soreness in their legs for several days. A few years later, Mattsson, Evers Larsson, and Rössner (1997) raised the issue again, pointing out that “not many authors have analyzed the experience of the patients” (p. 380). They asked obese women, who were 44 years of age on average and had a body mass index of 37 kg/m², to “walk at a self-selected, comfortable speed” for four minutes. They were surprised to find that, although the obese women chose to walk significantly more slowly

than normal-weight women, they raised their oxygen uptake 50 percent higher. One quarter of the obese women required from 64 percent to 98 percent of their maximal aerobic capacity. One in five women reported pain, mainly from the hip, knee, and ankle joints. The researchers commented that “walking for exercise may be too demanding and fatiguing for many obese women” (p. 384). Similar results were obtained by Hills, Byrne, Wearing, and Armstrong (2006), who observed that, when adults were asked to walk at a self-selected pace “consistent with walking for pleasure,” the obese adults walked more slowly but raised their heart rate higher than their non-obese counterparts (70 percent versus 59 percent of maximal heart rate).

Mattsson et al. (1997) attributed the problems to the very low functional aerobic capacity associated with obesity (i.e., maximal aerobic capacity divided by body weight). For example, in a sample of 225 obese but otherwise healthy women who averaged 40.2 years of age and had a body mass index of 38.1 kg/m^2 , Hulens, Vansant, Lysens, Claessens, and Muls (2001) found a maximal aerobic capacity of only $15.8 \text{ ml of O}_2 \text{ per kg of body weight per min}$. To put this figure in perspective, a maximal aerobic capacity of $14 \text{ ml of O}_2 \text{ per kg of body weight per min}$ is suggested as an appropriate criterion for referring heart failure patients for cardiac transplantation (Mancini, Eisen, Kussmaul, Mull, Edmunds, & Wilson, 1991). The results of Hulens et al. (2001) are not unique; other studies have also found maximal aerobic capacity values in the teens (e.g., Misquita, Davis, Dobrovolny, Ryan, Dennis, & Nicklas, 2001).

The problem of low exercise capacity is exacerbated further as the degree of obesity rises. For example, King et al. (2012) conducted a study in which they asked candidates for bariatric surgery ($N = 2,458$), with a body mass index averaging 45.9 kg/m^2 , to walk 400 meters at their “usual pace” along a straight, level, uncluttered, and well-lit corridor. Upon screening, 13 percent were deemed ineligible to participate for medical reasons. Another 15 percent, despite being medically eligible, elected not to participate, invoking such reasons as uncomfortable shoes, pain, injury, medical conditions, lightheadedness, and fear of falling. Those who completed the walk took between 3 minutes 22 seconds and 13 minutes 22 seconds. More than half (56 percent) reported physical discomfort (foot, knee, or hip pain, shortness of breath, back pain, muscle pain, numbness or tingling in legs, and chest pain).

From the perspective of hedonic theory, whether an obese adult *can* walk 400 meters or one mile is not the main question of interest. Instead, the more crucial question is what an obese person can do while still deriving an experience that is pleasant or at least not unpleasant. This requirement increases the challenge of exercise prescription in obesity even further. A decade of research on the relationship between exercise intensity and affective responses has demonstrated that most individuals begin to feel worse once the intensity exceeds the ventilatory threshold (VT), the level at which the volume of exhaled CO_2 is larger than the volume of O_2 being consumed (Ekkekakis, Parfitt, & Petruzzello, 2011). The VT, however, typically occurs at 50–60 percent of maximal aerobic capacity in non-athletic adults. For example, in the sample of 225 obese women tested by Hulens et al. (2001), the VT occurred at 56 percent of maximal aerobic capacity on average.

Given a maximal capacity of $15.8 \text{ ml of O}_2 \text{ per kg of body weight per min}$, this means that the average participant could raise her oxygen uptake to approximately 2.5 metabolic equivalent units (METs) before exceeding the VT. To illustrate the practical significance of this figure, consider these examples. Activities estimated to correspond to 2.5 METs (not exceeding VT) include moving about indoors within a radius of just a few steps (e.g., while preparing a meal in the kitchen), mild stretching, fishing from a seated position, light dusting, washing dishes, placing dishes on shelves, watering flower pots, or playing the piano or the violin (Ainsworth et al., 2011). On the other hand, examples of activities estimated to correspond to 3.0 METs and would, therefore, exceed the VT of this sample of obese women include walking slowly, waltzing, fishing from a standing position, cleaning windows, sweeping or

mopping floors, washing the car, painting walls, picking fruit from trees, carrying trash to the trash bin, bowling, and golfing.

The challenge faced by obese adults—and exercise professionals—should be apparent, as the range of (weight-bearing) activity options available to them without incurring a reduction in pleasure appears to be extremely limited. Indeed, studies have shown that obese adults report feeling significantly worse than their non-obese counterparts not only at intensities exceeding the VT (da Silva et al., 2011) but throughout most of the range of exercise intensity (Ekkekakis et al., 2010). Moreover, the affective rebound phenomenon (i.e., the quick reversal from feeling worse to feeling better) that is common and robust among most individuals once strenuous exercise is terminated appears to be absent in obesity (Ekkekakis et al., 2010).

Findings that obese adults experience diminished pleasure responses to exercise, particularly at higher exercise intensities, are consistent with the results of studies showing that, among overweight and obese adults with low cardiorespiratory capacity, higher intensity results in lower adherence (Perri et al., 2002) and retention (Cox, Burke, Gorely, Beilin, & Puddey, 2003). Collectively, these results suggest that obese adults may have a particular sensitivity to higher levels of intensity (i.e., obesity may strengthen the inverse relationship between exercise intensity and affective responses).

This represents an especially timely observation given that high-intensity interval training is being promoted as a weight-loss intervention (Boutcher, 2011). Such calls are based exclusively on two considerations, namely effectiveness (i.e., acceleration of the rate of weight or fat loss compared to moderate intensity) and safety (i.e., low rate of adverse events, mainly among young and healthy participants). However, it should be clear that an intervention that is effective and safe may still have limited public-health relevance if the rates of avoidance, non-adherence, and dropout are high. It is, therefore, important to note that, when given a choice between lower walking intensity (but longer duration) or shorter duration (but higher intensity), most obese adults “requested a reduction, rather than an increase, of walking intensity” (Fogelholm, Kukkonen-Harjula, Nenonen, & Pasanen, 2000, p. 2182). Higher perceptions of exercise intensity at the end of a weight-management intervention have been found to predict weight regain and (marginally) lower exercise behavior during the subsequent 12 months (Brock, Chandler-Laney, Alvarez, Gower, Gaesser, & Hunter, 2010).

Of the methods for enhancing the affective experience of exercise that have been tested so far, the easiest to implement and one of the most effective is the promotion of self-selected intensity (Ekkekakis, 2009). One study simulated a scenario in which a personal trainer sets the exercise intensity for a client at a level slightly higher than what the client would have self-selected (Ekkekakis & Lind, 2006). When allowed to self-select their intensity, previously sedentary overweight and obese women (average body mass index of 31.06 kg/m²) chose to walk at an intensity well within the range recommended by the ACSM for the development and maintenance of cardiorespiratory fitness (69–70% of peak aerobic capacity, 85–87% of peak heart rate). Over 20 minutes, the women maintained their oxygen uptake below their VT (up to 97% of the oxygen uptake associated with the VT). Importantly, they also reported ratings of pleasure that remained stable between “I feel fairly good” and “I feel good” for the duration of the walk. On the other hand, when the walking speed was set by the investigators to exceed the self-selected by only 10 percent (from ~3.4 to ~3.8 miles per hour), the intensity rose to 83 percent of peak oxygen uptake, 93–94 percent of peak heart rate, and up to 115 percent of the oxygen uptake associated with the VT. Compared to the stable ratings of pleasure during the bout at self-selected intensity, reports of pleasure during the imposed-intensity condition showed a large decline ($d = -0.90$).

Besides core affective responses, such as pleasure and displeasure, obesity influences the overall exercise experience by prompting individuals to make a range of cognitive appraisals

leading to negative emotions. In particular, various forms of fear appear to be a common accompaniment of exercise for many obese individuals. These fears reflect worry and apprehension about the possible adverse effects of exercise on both psychological and physical well-being (Leone & Ward, 2013). In terms of psychological well-being, obese adults, often burdened by negative self-evaluations, are concerned that critical observers may evaluate their physical appearance and exercise ability negatively (Bain, Wilson, & Chaikind, 1989). Especially when exercising in the presence of others that they perceive as more physically fit, obese adults tend to feel embarrassment and intimidation (Miller & Miller, 2010), two salient negative emotions that may “override the knowledge that exercise is healthful” (p. 7). In terms of physical well-being, obese adults fear that exercise may cause physical injury, mainly to the musculoskeletal and cardiovascular systems, and this fear is a reliable predictor of inactivity, exercise avoidance, and perceived disability (Sallinen, Leinonen, Hirvensalo, Lyyra, Heikkinen, & Rantanen, 2009; Vincent, Omli, Day, Hodges, Vincent, & George, 2011; Wingo et al., 2011, 2013; Wouters, van Nunen, Vingerhoets, & Geenen, 2009). Perceptions of distress are especially elevated during exercise among individuals who have a combination of high body mass index and a tendency to interpret bodily symptoms as signs of danger (e.g., “When I notice that my heart is beating rapidly, I worry that I might have a heart attack,” “It scares me when I become short of breath”; Smits, Tart, Presnell, & Otto, 2010).

Unrealistic Weight-Loss Expectations

In a classic study, Foster et al. (1997) illustrated the perils inherent in allowing the perceived success of an intervention to depend solely on weight loss. They asked 60 obese women (average body mass index of 36.3 kg/m²) entering a weight-loss program to indicate what they considered “dream weight,” “happy weight,” “acceptable weight,” and “disappointed weight.” They found that their goal weight corresponded to a 32-percent reduction in body weight on average (32 kg or 70.5 lbs). Losing 17 kg (37.5 lbs) was considered “disappointed” (“not successful in any way”) and 25 kg (55 lbs) was considered merely “acceptable” (“not one that I would be particularly happy with”). After 48 weeks of treatment and a large average weight loss (16 kg or 35 lbs), nearly half (47%) of the women did not even achieve what they considered “disappointed weight.” Another 20 percent reached “disappointed weight,” and 24 percent reached an “acceptable weight.” Only 9 percent reached a “happy weight,” while none reached “dream weight.” Even after this experience, what the women considered “disappointed” and “acceptable” weights remained the same. Their satisfaction with the result of the intervention was closely and inversely ($r = -0.67$) related to the discrepancy between the weight loss they wanted to achieve and the one they actually achieved.

Research suggests that, although high initial weight-loss expectations may motivate one to begin exercise, motivation can be dramatically diminished once these high initial expectations are violated. An expectancy violation occurs when, for example, a desired amount of weight is not lost at the rate and with the ease that was anticipated. When expectations are not met, negative emotions are experienced (e.g., sadness, disappointment, resentment, guilt), resulting in a reduction in the motivation to continue with the behavior change. Thus, expectancy violations have long been known to predict dropout from exercise programs (Desharnais, Bouillon, & Godin, 1986). Sears and Stanton (2001) found that formerly sedentary enrollees in a women’s health club, 50 percent of whom were overweight (33%) or obese (17%), were more likely to drop out during weeks 7–12 if they had larger expectancy violations for weight loss during weeks 1–6. Likewise, in obese patients entering a weight-loss program, the higher the expectations for weight loss, the higher the likelihood of attrition a year later (Dalle Grave et al., 2005). Conversely, individuals who completed an exercise program had more modest

expectations than those who failed to adhere (Jones, Harris, & Waller, 1998; Jones, Harris, Waller, & Coggins, 2005).

Dysfunctional Attitudes

An attitude is defined as a “summary evaluation of a psychological object captured in such attribute dimensions as good-bad, harmful-beneficial, pleasant-unpleasant, and likable-dislikable” (Ajzen, 2001, p. 28). Attitudes are malleable; they are shaped through life experiences and are influenced by the social and cultural context. However, once formed, they are relatively stable. So, they are conceptualized as “*dispositions* to evaluate psychological objects” (p. 29) favorably or unfavorably. Attitudes are theorized to influence the formation of behavioral intentions (Ajzen, 2001), so positive attitudes can be a significant motivational force, whereas negative attitudes can impede and diminish motivation.

Therefore, understanding the attitudes that obese individuals hold toward exercise could shed light on the reasons behind the phenomenon of exercise avoidance. In approaching this topic, however, it is first important to appreciate the complexity of the construct of attitude and, in particular, the fact that it is possible for someone to hold two conflicting (but qualitatively different) attitudes about the same object (Ajzen, 2001; Wilson, Lindsey, & Schooler, 2000). For example, in what is called an expression of *explicit* attitude, obese individuals, when asked, may readily offer a list of perceived benefits of exercise that exceeds the list of perceived barriers (Smith, Griffin, & Fitzpatrick, 2011). At the same time, however, an *implicit* negative attitude, which may not be reflected in responses to a questionnaire or an interview, may preclude someone from exercising. Implicit attitudes may reflect past negative affective experiences with exercise, such as pain, exhaustion, embarrassment, or guilt. Miller and Miller (2010) have noted that obese adults exhibit a peculiar co-occurrence of a strong appreciation of the benefits of exercise and a strong intention to be active with very low levels of past and present actual exercise behavior. This seemingly paradoxical phenomenon may be explained by a conflict between explicit and implicit attitudes. Moreover, emerging evidence suggests that evaluations of exercise along the dimension ranging from “not enjoyable” to “enjoyable” predict exercise intention and behavior better than evaluations along the dimension ranging from “harmful” to “beneficial” (Lawton, Conner, McEachan, 2009). Thus, while most interventions to increase exercise participation among obese individuals continue to focus on raising the awareness of health benefits, little attention is directed at what might be a more powerful mechanism, namely making exercise experiences more pleasant or enjoyable.

Research on the attitudes of obese individuals toward exercise, although still limited, suggests that several dysfunctional attitudes may contribute to the overall experience of exercise as unpleasant. One common theme is the belief that exercise should only be performed by people who “look the part” by appearing fit or athletic and, conversely, that someone can be “too fat” or “too overweight” to be seen exercising (Atlantis, Barnes, & Ball, 2008; Ball, Crawford, & Owen, 2000). The consequences of this belief are reflected in reports of obese individuals feeling “emotionally uncomfortable or publicly humiliated” in exercise environments (Thomas, Hyde, Karunaratne, Kausman, & Komesaroff, 2008, p. 6), “too shy or embarrassed to exercise” or “not the sporty type” (Ball et al., 2000, p. 331), and “uncomfortable with appearing in public wearing exercise clothing” (Wiklund, Olsén, & Willén, 2011, p. 179).

A second common theme is the belief that exercise is or should be extremely prolonged and/or intense to be truly effective (Timperio, Cameron-Smith, Burns, Salmon, & Crawford, 2000). Obese individuals overwhelmingly perceive dieting to be easier than exercise; compared to diet, exercise is described as “extremely difficult” as it requires significant “emotional and physical effort” (Thomas et al., 2008, p. 6). According to an insightful qualitative study,

obese women perceived displeasure to be an integral and unavoidable part of exercise: “the pain and discomfort were interpreted as something they had to endure” (Groven & Engelsrud, 2010, p. 8). Exercise was equated to “hard work” and portrayed as the antithesis of “fun.” For example, one woman, expressing her admiration for other women in the group, described them as “hard working . . . they really wish to get into better shape and lose weight. They are not here for the fun of it. No, they aren’t” (p. 8).

As described earlier in this chapter, obesity imposes added stress on the joints (Brownning & Kram, 2007) and the cardiorespiratory system (Lafortuna, 2013). Nevertheless, when given the autonomy to self-regulate the intensity, it is still possible for obese and formerly inactive individuals to “feel good” during exercise (Ekkekakis & Lind, 2006). When exercise feels manageable, obese individuals tend to express surprise: “I can actually exercise if I want to . . . it isn’t as hard as I thought” (Daley, Copeland, Wright, & Wales, 2008, p. 816). The source of the belief that exercise is supposed to be difficult or painful can probably be traced to culturally imposed norms and social models. In an interesting study, students watched an episode of the television show *The Biggest Loser*, in which obese participants are subjected to grueling workouts and often berated by the trainers for their lack of effort (Berry, McLeod, Pankratow, & Walker, 2013). After the show, the students reported lowered affective attitude toward exercise (they rated the idea of exercising every day during the next month as less pleasant, enjoyable, and pleasurable or more unpleasant, unenjoyable, and painful). The students commented on how “painful and stressing” the exercise appeared to be, causing the researchers to speculate that “negative depictions of exercise as hard work may result in diminished exercise behavior, mediated by lowered exercise-related attitudes” (p. 101). While this chain of causation has yet to be fully tested, it appears to be corroborated by the narratives in qualitative studies. According to Groven and Engelsrud (2010), one of the women they interviewed said: “‘I pushed myself to go, even though I hated it.’ But after 2 months of regular training, she decided to quit” (p. 7).

Self-Presentational Concerns, Social Comparisons, and Social Physique Anxiety

Being overweight or obese is a risk factor for non-adherence and dropout from exercise programs but being overweight or obese *and* exercising in a group setting raises the risk even further (King, Kiernan, Oman, Kraemer, Hull, & Ahn, 1997; Perri, Martin, Leermakers, Sears, & Notelovitz, 1997). This suggests that the social-psychological environment of exercise may contain elements that repel and deter, rather than attract, individuals with a high body mass. Indeed, experiencing negative social emotions, such as feeling “ashamed and uncomfortable” as a result of being “stared at” while exercising, is a ubiquitous theme in interviews of obese participants, especially women (Groven & Engelsrud, 2010, p. 7). The displeasure associated with the perceived critical gaze of others appears to be even more personally significant than any pain or discomfort associated with the exercise itself. Investigating the sources of this concern, researchers commonly invoke the concept of “self-objectification,” the idea that girls and women may tend to internalize the view of the female body as a sexual object to be gazed upon and evaluated against cultural standards of “beauty” or “perfection” (Fredrickson & Roberts, 1997). Learning to place a high value on appearance results in constant self-surveillance and, consequently, increased risk of experiencing body dissatisfaction, appearance-related anxiety, and shame. As alluded to in the introduction, because of lack of awareness of or sensitivity to this important social-psychological phenomenon, exercise facilities include many features that promote the process of self-objectification and its negative consequences (Miller & Miller, 2010). According to Prichard and Tiggemann (2005), “the fitness center environment contains a large number of clearly objectifying features: multiple full-length mirrors, posters that idealize the female body, the opportunity for direct comparison with other

women, scanty and revealing aerobic clothing, and the presence of men observing women exercising" (p. 20).

Prichard and Tiggemann (2008) focused on the implications of promises made by the exercise and fitness industry that the female body is an indefinitely malleable object that can be "sculpted" by exercise to reach a level of culturally dictated "perfection." These researchers found that time spent in an exercise facility was positively related to self-objectification and exercising for weight loss, body tone, and attractiveness rather than health. "Cardio" exercise, in particular, which is perceived as more conducive to weight loss than other types of exercise (e.g., yoga), was related to lower body esteem and a higher likelihood of disturbed eating. Prichard and Tiggemann (2008) postulated that promoting exercise as a means of transforming the female body may lead to disappointment, a sense of failure, and guilt because, in actuality, exercise is a "slow and challenging means of appearance improvement that does not instantly change a woman's shape" (p. 856).

The type of social anxiety that develops when someone perceives that his or her physical appearance is being critically evaluated by others is called social physique anxiety (Hart, Leary, & Rejeski, 1989). Social physique anxiety tends to be correlated with body mass index (e.g., $r = 0.34$) and body fat (e.g., $r = 0.31$), although these correlations are far from perfect (Treasure, Lox, & Lawton, 1998). In most studies, social physique anxiety has been found to be inversely related to exercise participation (Hausenblas, Brewer, & Van Raalte, 2004), presumably because, as Leary (1992) noted, "social anxiety detracts from the emotional rewards of exercising" (p. 346). Indeed, studies have shown that social physique anxiety burdens exercisers with concerns that would make it very difficult to derive pleasure and enjoyment, including seeking ways to hide their body and avoid the gaze of others (Brewer, Diehl, Cornelius, Joshua, & Van Raalte, 2004; Crawford & Eklund, 1994).

Research has made progress in identifying the elements of the exercise environment that promote self-objectification, trigger self-surveillance, and induce a fear of negative evaluation by critical observers. First, particularly among women with a predisposition to worry about their physical appearance being judged by others, exercising in front of mirrors has been found to induce lower exercise self-efficacy (Katula, McAuley, Mihalko, & Bane, 1998), increased state anxiety (Focht & Hausenblas, 2003), and less positive affective responses (Focht & Hausenblas, 2006; Martin Ginis, Jung, & Gauvin, 2003). The negative effect of mirrors is exacerbated when others are present, presumably because the participants become more self-conscious and make more social comparisons (Martin Ginis et al., 2007).

Second, the goals emphasized by the exercise leader can also trigger self-surveillance, with negative consequences on how exercise is experienced. In general, placing emphasis on appearance over health increases body dissatisfaction and lowers body esteem (Vartanian et al., 2012). When the exercise leader gives instructions that focus on appearance (e.g., "stand tall, you'll look five pounds lighter," "let's get your legs toned so they look good," "burn calories") rather than health (e.g., "shoulders back for good posture," "let's get fit and healthy"), participants feel worse after exercise (Raedeke, Focht, & Scales, 2007).

Third, contrary to the assumption that watching others who are lean and fit will have a motivating effect, research shows that perceiving a negative discrepancy between one's own body and the body of an exercise leader who seems exceptionally fit and is dressed in revealing clothes results in reduced body satisfaction and increased anxiety about the appearance of one's physique, without any effect on motivation (Martin Ginis et al., 2008). Likewise, overweight and obese individuals who are concerned about the negative judgment of others prefer to exercise in environments in which most other exercisers are also overweight, with individuals who appear to be "in shape" representing only a small minority (Dunlop & Schmader, 2014).

Perceptions of Stigmatization and Anti-Obesity Bias

It is a generalized perception that obese individuals became obese through a combination of two characteristics, namely gluttony and sloth. Society at large views these characteristics as reflecting a failure of personal responsibility and, therefore, as morally objectionable (Yoo, 2013). In actuality, however, the etiology of obesity is multifactorial, complex, and still poorly understood (McAllister et al., 2009). As such, it does not lend itself to simplistic assumptions. Based on estimates from national statistics, for 90 percent of the population, weight gain over time is a slow process resulting from a surplus in caloric balance of no more than 100 calories per day (Hill, Wyatt, Reed, & Peters, 2003). Nevertheless, as long as the narrative that attributes the cause of obesity to personal responsibility remains prevalent in contemporary culture (Ata & Thompson, 2010; Greenberg, Eastin, Hofschild, Lachlan, & Brownell, 2003), a bias against obese individuals will likely continue. According to Puhl and Heuer (2009): “Weight bias translates into inequities in employment settings, health-care facilities, and educational institutions, often due to widespread negative stereotypes that overweight and obese persons are lazy, unmotivated, lacking in self-discipline, less competent, noncompliant, and sloppy” (p. 941).

Strong negative bias and baseless stereotypes are also prevalent among health professionals from multiple fields who are called to play important roles in the prevention and treatment of obesity. Studies demonstrating various forms of anti-obesity bias have been conducted with physicians, pharmacists, and other healthcare professionals (Sabin, Marini, & Nosek, 2012; Teachman & Brownell, 2001), nurses (Poon & Tarrant, 2009), clinicians specializing in obesity (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003), dieticians (Berryman, Dubale, Manchester, & Mittelstaedt, 2006; Puhl, Wharton, & Heuer, 2009), physical educators (Greenleaf & Weiller, 2005; O’Brien, Hunter, & Banks, 2007), exercise science students (Chambliss, Finley, & Blair, 2004; Rukavina, Li, Shen, & Sun, 2010), fitness professionals, and regular exercisers (Dimmock et al., 2009; Hare et al., 2000; Robertson & Vohora, 2008).

Living in a cultural environment replete with anti-obesity stereotypes and coming in contact with professionals who endorse these stereotypes results, at least in some cases, in internalization of the bias among obese individuals. Thus, although there is an inverse relationship between one’s own weight and anti-obesity bias (Schwartz, Vartanian, Nosek, & Brownell, 2006), many overweight and obese people still endorse several negative stereotypes associated with body weight (Wang, Brownell, & Wadden, 2004). This endorsement is both explicit (i.e., reporting on a questionnaire that obese people are “lazier” than non-obese people) and implicit (i.e., pairing the concepts “fat” and “overweight” more frequently with negative attributes such as “lazy” or “sluggish” in a timed association test). In turn, having experienced stigmatization and having internalized anti-obesity biases are associated with avoidance of life-style changes such as adopting exercise (Carels et al., 2009; Vartanian & Novak, 2011; Vartanian & Shaprow, 2008). While the mechanisms underlying this phenomenon are still not fully understood, early findings suggest that negative feelings toward the self (i.e., self-blame, low self-esteem, body dissatisfaction) may be responsible. According to Vartanian and Novak (2011), “one possibility is that experiences with weight stigma lead individuals to want to avoid exercise situations out of embarrassment or out of fear of being further stigmatized” (p. 761).

Once formed, bias, prejudice, and stigmatizing attitudes may be hard to change. A variety of approaches have been proposed (Puhl & Wharton, 2007), ranging from modifying the exercise environment (e.g., ensuring privacy for assessments and consultations, using appropriately sized equipment, allowing diversity of body size among staff, encouraging comfortable but not revealing professional attire among staff), being aware of communication style (e.g., becoming sensitized to the use of descriptors perceived as having negative

connotations, such as “fat,” “weight problem,” and “morbidly obese,” and preferring neutral terms, such as “weight” or “BMI”), and changing beliefs about etiology (e.g., raising awareness of the important role of pharmacological, endocrine, or genetic contributors that are beyond personal control). Although such interventions are generally successful in improving knowledge and reducing explicit forms of bias (e.g., Puhl & Wharton, 2007; Rukavina, Li, & Rowell, 2008), implicit bias is more entrenched and resistant to change (Danielsdóttir, O’Brien, & Ciao, 2010; Rukavina et al., 2010; Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003), and may, therefore, require more extensive intervention (O’Brien, Puhl, Latner, Mir, & Hunter, 2010).

RECOMMENDATIONS FOR PRACTICE

The hedonic perspective summarized in this chapter is a radically different approach from the current standard of professional practice. It calls for an overhaul of the way that exercise in obesity is conceptualized, a drastic reformulation and reorientation of promotion strategies, and a comprehensive reengineering of the way that exercise environments are designed.

First, weight loss should be dethroned from its current position as the sole or the chief purpose of exercise. The narrow focus on weight loss, to the exclusion of other valuable benefits of exercise, is unjustified by the evidence. Moreover, using weight loss as the sole criterion for evaluating the effects of exercise, particularly in the presence of cultural influences causing individuals to expect unrealistic amounts of weight loss, can be causally linked to disappointment and dropout. This makes this focus not only unjustified but also detrimental. The focus of promotion campaigns should be shifted instead to improved health and well-being, with the understanding that, based on evidence, neither health nor well-being is inherently incompatible with the range of body mass labeled “overweight” and “obese.”

Second, in the hedonic approach, the rate of accrual of health or weight-loss benefits is a secondary concern, far behind the prime objective of maintaining long-term, ideally life-long, exercise adherence by ensuring that exercise is experienced as pleasant and enjoyable. Attempting to amplify or accelerate “results,” however defined, will likely entail increasing the intensity and/or duration of exercise beyond the range that most obese participants would find pleasant or even tolerable. “Results” of any type will not occur, and those that do occur will be quickly reversed, if exercise is not adopted as a permanent component of lifestyle. Short-term adaptations, such as those that may result from a regimen of high-intensity training, represent an entirely misleading criterion of the efficacy of an exercise intervention inasmuch as a regimen of this type is aversive and, therefore, unsustainable in the long run. In this sense, the hedonic perspective is fully compatible with the “small changes” approach (Hill, 2009; Hill et al., 2003; Hills, Byrne, Lindstrom, & Hill, 2013) and the “health at every size” approach (Bacon & Aphramor, 2011; Brown, 2009). Both the former (Paxman, Hall, Harden, O’Keeffe, & Simper, 2011) and the latter (Gagnon-Girouard et al., 2010) encourage autonomy in selecting the dose of exercise (i.e., intensity, duration) and, consistent with the evidence presented in this chapter, both approaches have been found to have positive effects on indices of well-being.

Third, an exercise facility designed on the basis of the hedonic approach is a welcoming environment, not a threatening one, for obese exercisers. The sources of fear and intimidation that have been identified through research (i.e., mirrors, emphasis on appearance, comparisons to realistically unattainable standards of fitness or athleticism, shape-revealing attire, excessive physiological demands, staff lacking empathy or sensitivity to the challenges associated with obesity) should be removed. Their effect on motivation is demonstrably negative.

Therefore, the presence of these elements in the exercise environment, when considered through the prism of the prime objective (i.e., ensuring lifelong adherence), makes no sense. Along the same lines, exercise professionals should not be hired and retained on the basis of the “image” they project. Far more meaningful criteria are their professional competence (including knowledge of the unique physiological and biomechanical challenges that obesity poses) and sensitivity (including awareness of the impact that their verbal and non-verbal behavior can have on participant motivation and adherence, as well as their acceptance of exercisers with diverse needs).

Despite the unquestionable growth of exercise science, its track record in developing interventions that promote and facilitate exercise among individuals with obesity is not positive. This is largely because, for far too long, the field has relied on unfounded assumptions and has overlooked evidence from psychological research on the processes underlying non-adherence and dropout. This must change. The hedonic perspective outlined in this chapter targets adherence as the prime objective and represents an evidence-based path forward.

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