
Muscle Dysmorphia: Where Body Image Obsession, Compulsive Exercise, Disordered Eating, and Substance Abuse Intersect in Susceptible Males

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Abstract

A growing number of adolescent and adult males are dissatisfied, preoccupied - even impaired by concerns about their physical appearance. Feelings of discontent and insecurity can lead to disordered eating and substance abuse when males compare themselves against popularized cultural standards of attractiveness and see themselves falling short. When body image dissatisfaction, compulsive exercise, and food intake dysregulation combine and intensify, risk increases for a psychiatric condition identified within the past 20 years known as muscle dysmorphia, a disturbance of self-perception in which individuals are obsessively preoccupied with the belief they are insufficiently large or muscular. Muscle dysmorphia shares characteristics with eating disorders (such as persistent attention to intake and compensatory behaviors focused on control of weight/shape), obsessive-compulsive disorder (excessive body monitoring and physical activity), and body dysmorphic disorder (including extreme attention to outward appearance). The condition is frequently associated with anabolic androgenic steroid abuse, which may exacerbate an observed exercise dependence or compulsive drive for muscularity. Therapeutic approaches are guided by the individual symptom picture with respect to issues such as obsessional thoughts/compulsive behaviors, mood dysregulation, and anxiety, and have

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principally been derived from clinical studies examining body dysmorphic disorder, for which both psychotropic medications and cognitive behavioral therapy are considered first-line treatment. Nutrition education and support is also warranted. More research is needed to increase understanding regarding the unique pressures and profound subjective distress males can experience with respect to accepting their bodies, as well as to develop better approaches to assessment and treatment of this complex condition.

Keywords

Anabolic-androgenic steroids • Bigorexia • Binge-eating disorder • Body dysmorphic disorder • Eating disorder • Exercise • Males • Muscle dysmorphia • Obsessive-compulsive disorder • Substance use disorder

20.1 Eating Disorders in Males

The diagnosis of eating disorders (ED) in males is on the rise. In clinical settings, estimates currently range from 5 to 10 % of all patients with anorexia nervosa (AN), 10–15 % of patients with bulimia nervosa (BN), and 40 % of binge-eating disorder (BED) cases (Nunez-Navarro et al., 2012), while one US population-based study reported prevalence in males may be as high as 25 % of all ED cases (Hudson, Hiripi, Pope, & Kessler, 2007). This may reflect both an increased recognition of food-related behavioral dysfunction as well as an increased willingness of men to seek help. Prior to the recent release of the 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013), 90 % of men diagnosed with EDs were classified as eating disorder not otherwise specified, suggesting female gender-biased criteria for the two principal diagnoses (Stanford & Lemberg, 2012). Specifically, absence or delay of menses was a requirement for identification of AN, while compensatory behaviors described for BN, including abuse of laxatives, are more likely to be employed by women (Button, Aldridge, & Palmer, 2008; Nunez-Navarro et al., 2012), with no mention of the muscle-building or thermogenic agents often abused by men preoccupied with body size and shape.

Since relatively fewer individuals who seek treatment are male, there are significantly more ED facilities for female patients, and programs usually tailor their approach to meet the needs and concerns of this population. Limited treatment access and less-specialized attention may lead many young and adult men to defer or evade treatment entirely. The possibility that adolescent and adult males postpone seeking help until they are experiencing significant psychological distress or functional impairment is consistent with a study by Hackler, Vogel, and Wade (2010) in which males reported lower expectations of anticipated benefits from ED treatment than their female counterparts. According to Tanofsky et al. (1997), men diagnosed with binge-eating disorder present for treatment with a greater history of comorbid Axis I psychopathology, including mood dysregulation and anxiety. And

in a recent study from the UK, males in a therapeutic setting had difficulty admitting their disorder due to fear of a negative reaction, consistent with the suggestion that food-related difficulties are perceived as a female issue (Robinson, Mountford, & Spertinger, 2013).

In addition to social stigma, males face all the common obstacles to ED recovery: co-occurring mood, anxiety, or substance use disorders (SUD), compulsive exercise, past adverse treatment experiences, and a history of trauma, including sexual abuse and weight-based victimization (Weltzin et al., 2012; Woodside et al. 2001). Evidence suggests men can be as preoccupied with outward appearance as women (Edwards & Launder, 2000), and their level of impairment from dysregulated eating similar (Striegel, Bedrosian, Wang, & Schwartz, 2012); however, differences in ED presentation have also been reported, such as the nature of body image concerns (e.g., overvaluation of muscle mass) and practices related to their involvement in sports (Muisse, Stein, & Arbess, 2003). In a study conducted at a major treatment center in Brazil (Scagliusi et al., 2009), male patients had fewer negative attitudes (i.e., feelings) about food and eating, suggesting they consider the act of eating more natural and positive than their female peers. Anorexic men had lower scores than bulimic men for eating attitudes, while the opposite was observed for women. The authors posited an explanatory role for societal values regarding thinness, speculating that women who restrain intake successfully are more likely to feel they have overcome food and report feeling less, rather than more, controlled by it. While greater value is placed on dietary discipline for women in many cultures, consistent with reported feelings of satisfaction and success by some anorexic females (Scagliusi et al., 2009), dietary restraint for men has also become increasingly popular in the past several decades through the establishment of the bodybuilding culture. Feelings of shame can occur when individuals of either sex compare themselves against present-day cultural standards of attractiveness and perceive themselves as falling short of the ideal, exacerbating ED symptoms (-Wiseman & Moradi, 2010).

Gender-based differences have been reported for gastrointestinal hormones associated with hunger (Beasley et al., 2009), brain structures involved in hedonic (pleasure-based) and homeostatic (maintenance of physiological equilibrium) appetite control systems (Horstmann et al., 2011), and food-related social and environmental cues (Rolls, Fedoroff, & Guthrie, 1991), suggesting there may be certain fundamental differences in neurobiological drivers of eating behavior in men vs. women. Investigators examining differences in ED behavior and prevalence among males vs. females have also suggested gender-specific associations with risk factors related to education, nationality, age (Alfano, Hildebrandt, Bannon, Walker, & Walton, 2011), and body-checking behavior (Forrester-Knauss & Stutz, 2012). With regard to psychopathology, Nunez-Navarro et al. (2012) found male study subjects with an ED had lower scores for depression, anxiety, interpersonal sensitivity, and somatization than their female counterparts.

Disordered eating behaviors often present differently in males and females. Men are less likely to engage in laxative abuse (Nunez-Navarro et al., 2012) or to resort to fasting or self-induced emesis (Striegel-Moore et al., 2009) and have been

described as engaging in half as many compensatory behaviors overall (Jackson & Grilo, 2002). De Young, Lavender, and Anderson (2010) reported that binge eating in males was associated with exercise-related behavior, regardless of whether they were trying to control their weight. For these men, physical activity tended to be aimed at caloric expenditure, muscle development, or other alterations of body composition. For both genders, perceptions of body image and weight are often more important than reality for those engaging in disordered eating (Eichen, Conner, Daly, & Fauber, 2012). Dissatisfaction with or misperception of body image is a common characteristic of most EDs and is of particular importance for men with muscularity concerns, suggesting that mental health professionals are likely to see more men with disordered eating as the standard of attractiveness for the male body is increasingly centered on muscular physique.

Sexual orientation has also received significant attention as a correlate of ED in males. In one report, homosexual subjects showed greater body dissatisfaction and ED symptomatology compared with their heterosexual counterparts (Kaminski, Chapman, Haynes, & Own, 2005). These authors found gay men diet more, were more fearful of becoming fat, and were less satisfied with their degree of muscularity, but did not differ in the degree to which they exercised or experienced guilt about missing a workout. The authors hypothesized this group may experience more body dissatisfaction because they engage in more social comparisons than heterosexual men, while other researchers have suggested gay men are more vulnerable to media influences regarding body image (Carper, Negy, & Tantleff-Dunn, 2010). Although the drive for muscularity appears to be a prevalent theme across all subgroups of males, there are data which suggest the drive for thinness may be more common among gay men (Carper et al., 2010). The aggregate of these reports suggests a need for further study regarding potential metabolic, hormonal, psychiatric, and psychosocial contributions to intake behaviors associated with each gender, as well as for developing and evaluating gender-specific approaches to ED treatment and related comorbidities.

20.2 Eating Disorders and Co-occurring Substance Abuse in Males

A gender-based interaction between eating behavior and substance abuse has also received attention. In an early examination of male ED subjects, Tanofsky et al. (1997) reported men with BED have a greater frequency of substance abuse. Barry, Grilo, and Masheb (2002) likewise found men who engage in binge eating have a greater concurrence of SUD (and were more likely to be obese), while women were more likely to report using overeating, rather than substance abuse, as a coping strategy for negative emotions. Barry and Petry (2009) also found an increased risk for lifetime alcohol abuse and dependence in overweight men, but not women. The link between food intake behaviors and substance use in normal weight vs. overweight adolescents was recently examined by Eichen et al. (2012). Using data from the 2007 National Youth Risk Behavior Survey, they found the use

of tobacco, cocaine, or binge drinking was strongly associated with disordered eating behavior. With regard to purging behavior in the overweight group, smoking and binge drinking significantly predicted purging in female subjects, while cocaine use was significantly associated with purging in males. Overall, these findings suggest a need for different weight and behavioral management practices across BMI categories and gender, highlighting the importance of targeted education for individual subgroups.

Stanford and Lemberg (2012) found many men uncovered symptoms of EDs during the process of addiction treatment, consistent with previously documented high rates of chemical dependency in ED populations (Root et al., 2010; Weltzin et al., 2012). Certain populations may show different prevalence; for example, Feldman and Meyer (2010) reported gay and bisexual men with an ED were more likely to have comorbid SUD than gay and bisexual men without a similar diagnosis. Co-occurring SUD is not limited to street drugs and may include supplements such as so-called fat burners, anabolic-androgenic steroids (steroids), and other performance-enhancing drugs (Eisenberg, Wall, & Neumark-Sztainer, 2012). Further investigation into the interaction of food and substance intake patterns may inform new gender-specific treatment approaches for disordered eating, particularly for men who use substances to enhance muscle mass.

20.3 Muscle Dysmorphia: Overview

Male dieters typically think of themselves as dieting for legitimate reasons, such as improved health (Souza & Ciclitira, 2005). However, adolescent and adult males are not immune to out-of-control behaviors stemming from their pursuit of a physical ideal. When body image dissatisfaction, compulsive exercise, and disordered eating combine and intensify, risk increases for a psychiatric condition first described by Pope and Katz in 1994 in a report on male bodybuilders known as muscle dysmorphia. The authors originally used the term “reverse anorexia,” referring to their observation of a single-minded desire to gain, rather than lose, weight. Other authors have referred to the drive to have a more robust and athletic body as “bigorexia” (Mosley, 2008), a term more often seen informally in popular press reports.

Muscle dysmorphia is a disturbance of body image perception in which individuals become obsessively preoccupied with the belief they are too small, too thin, or insufficiently muscular, although these individuals are actually more likely to have a higher proportion of lean body mass than the average person. Additional concerns about the appearance of individual body parts are not uncommon. Associated behaviors typically include a rigorous weight-lifting regimen, a special diet focused on high protein and energy intake spread across six or more meals daily, compulsive mirror-checking, comparison with others, and, perhaps somewhat paradoxically, often going to great lengths to avoid public body display. Some individuals demonstrate insight regarding their distorted beliefs, but are

nevertheless not reassured by objective recognition of their muscularity, while others are convinced they look much smaller than others of similar size, leading to considerable impairment and distress (Pope, Gruber, Choi, Olivardia, & Phillips, 1997).

Muscle dysmorphia resembles obsessive–compulsive disorder, where the obsessional thoughts center on muscularity and the compulsive behaviors include rigorous dietary rituals, excessive exercise, self-inspection, and reassurance seeking. Since the focus is on body image, muscle dysmorphia is considered to be a specific form of body dysmorphic disorder (BDD). Nearly 30 years ago, Veale (1987) suggested the term “exercise dependence” to describe the related phenomenon of compulsive physical activity, proposing diagnostic criteria with biomedical (e.g., symptoms of tolerance and withdrawal) and psychosocial (interference with social/occupational function) features (See Chap. 7). The supporting studies did not involve muscle development, focusing only on aerobic exercise. In the most recent (10th) revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10-CM), BDD remains classified within the somatoform disorders category, where it was also found in the DSM-IV-TR. In the DSM-5, muscle dysmorphia is included in the section on obsessive–compulsive and related disorders within the description of BDD, consistent with suggested links between these two disorders in recent brain morphology research (Atmaca et al., 2010).

One of the earliest links between muscle dysmorphia and EDs was described in a report by Pope et al. (1997) in which 22 % of male subjects with characteristics of muscle dysmorphia also formerly met diagnostic criteria for AN, having “replaced their earlier preoccupation with being too fat with being too small.” The same authors also described another group of male subjects with muscle dysmorphia in which 13 % had a history of AN and 13 % formerly met criteria for BN, and among a sample of 32 female competitive bodybuilders with features of muscle dysmorphia, 47 % reported a history of either AN, BN, or both (Pope et al., 1997). The EDs resemble muscle dysmorphia in a number of important ways: both involve a compulsive preoccupation with perceived physical inadequacies and abnormal intake habits, as well as characteristic compensatory behaviors such as attempts to hide or cover the defects and excessive exercise. Not uncommonly these individuals avoid activities involving eating due to fear of disrupting their diet, or forgo personal relationships as well as occupational opportunities which might interfere with the time needed to focus on working out or food preparation.

Since many of the presenting characteristics of muscle dysmorphia overlap with AN and BN, including body dissatisfaction and low self-esteem, some authors have suggested similar approaches to patient assessment be used, with close scrutiny to uncover rules governing eating behaviors, black-and-white thinking, and frequent body checking (Grieve, Truba, & Bowersox, 2009). The suggestion was made to classify muscle dysmorphia within the eating disorder unspecified category in the DSM-5, since the two share many features and some individuals with muscle dysmorphia have a comorbid ED, but this lacked sufficient scientific support and was ultimately dropped. According to a study by Goldfield, Blouin, and Woodside (2006) examining competitive male bodybuilders (a related population) and males

with BN, while the two groups share many disordered behaviors, including excessive weight/shape preoccupation, extreme body modification practices, and binge eating, they share relatively few general psychological similarities. The authors also pointed out that excessive exercise in the form of strength training is typically the exclusive form of compensatory behavior in the former group, since bodybuilders often avoid cardiovascular training due to a fear of muscle atrophy.

Following a carefully planned diet, taking supplements, and engaging in rigorous resistance-training is a common strategy for men to build mass, but has also been observed in women who want to be more muscular and toned (Robert, Munroe-Chandler, & Gammage, 2009). However, while both men and women can struggle with muscularity concerns (Greenberg & Schoen, 2008), muscle dysmorphia is observed almost exclusively in males, as noted in the DSM-5 entry (American Psychiatric Association, 2013), although exceptions have been found for subsets of the female bodybuilding population (Hitzeroth, Wessels, Zungu-Dirwayi, Oosthuizen, & Stein, 2001; Pope et al., 1997). Early signs can be identified in some adolescent males, with physique-enhancing behaviors such as altered eating and methodical/strenuous exercise, as well as use of protein powders, steroids, and other muscle-building agents. In this age group, high prevalence has been observed in male high school students of Asian background, in overweight/obese adolescents, and in individuals involved in competitive athletics (Eisenberg et al., 2012). Preoccupation with dietary intake in males is especially common in sports where participants are divided by weight class, such as wrestling, horse racing, and mixed martial arts. Where weight is not a determinant for eligibility, but aesthetics and agility remain important, such as in marathon running, gymnastics, and diving, the emphasis often shifts from body weight to percentage body fat (Kollei, Schieber, de Zwaan, Svitak, & Martin, 2013).

Moving to a lower weight class can create a competitive edge. Athletes in sports with strict weight classes may drastically modify their eating patterns to accomplish this, restricting intake before weigh-in, followed by compensatory eating immediately after in an effort to improve strength and endurance before competing (Lambert & Jones, 2010). Aggressive dieting that restricts specific foods is a well-known risk factor for craving and rebound binge eating, and athletes are not immune from this outcome (De Bruin, Woertman, Bakker, & Oudejans, 2009). Nutrients targeted for restriction typically include high-starch carbohydrates/sugars, sodium, and water, which can lead to reduced glycogen stores and extracellular water retention. Some diets may even include a planned binge episode for muscle anabolism, or simply to relieve stress. While many of these athletes would have been considered subclinical for an ED based on DSM-IV-TR criteria, the new DSM-5-based diagnosis for BED may capture a larger percentage of this population. Other well-known strategies for weight loss in athletes include cardiovascular training with special gear or garments to promote diaphoresis as well as use of diuretics, laxatives, and saunas prior to weigh-in. Compromised fluid volume is a significant health risk and has been fatal in extreme cases (Franchini, Brito, & Artioli, 2012). When clinicians are aware of these aggressive weight management

strategies, they may be more effective in screening for muscle dysmorphia and intervening before a clinically significant ED develops.

Some researchers have also reported observing an increase in relatively extreme dietary practices among nonathletic males seeking to modify their physical appearance to achieve a desired body image (McCreary, Hildebrandt, Heinberg, Boroughs, & Thompson, 2007). In attempting to mimic the behaviors of professional athletes, many of these individuals receive nutritional guidance from muscle magazines, online bodybuilding forums, and the sports supplement industry, investing in fitness products, ergogenic nutrients, and gym memberships with the goal of achieving an ideal body. Similar to the fashion industry's controversial use of underweight models, the fitness industry may rely on unrealistic imagery to engender body insecurity in its customer base.

20.4 Muscle Dysmorphia and Steroid Abuse

Muscle dysmorphia is frequently associated with various types of substance abuse—most notably, appearance and performance-enhancing drugs (APED) (Hildebrandt, Langenbucher, Lai, Loeb, & Hollander, 2011). Steroids, classified as schedule III controlled substances by the Anabolic Steroid Control Acts of 1990 and 2004, are the most widely sought after and abused APED. Dependence syndromes and progression to other recreational drugs are potential long-term consequences, consistent with a report by Kanayama, Hudson, and Pope (2008), which found that 35 % of male steroid users met lifetime criteria for an SUD. In a more recent Internet-based study of study of male steroid users ($n=508$) vs. nonusers ($n=771$), 23.4 % of the former group met criteria for SUD vs. 11.2 % for nonusers (Ip, Barnett, Tenerowicz, & Perry, 2011). The use of narcotics in steroid users was examined by Arvary and Pope (2000) who found a significant percentage of male heroin addicts living at a treatment facility ($n=227$) used opioids to counteract associated depression and withdrawal following steroid use. Other studies have also suggested a link between steroids and opioids (Kanayama et al., 2008). In view of the estimation that subclinical levels of muscle dysmorphia may affect a significant number of men (Grieve et al., 2009), one benefit of early symptom detection in this population may be to reduce escalation to abuse of steroids and other substances.

Medical uses for steroids include treatment of disease states involving muscle wasting, such as HIV-AIDS and cancer, osteoporosis, and, most commonly, to increase low testosterone levels in men secondary to hypogonadism. Individuals seeking to improve athletic performance may turn to steroids to increase fat-free mass, strength, and endurance, as well as reduce body fat. Recreational bodybuilders are less likely to use steroids than competitive bodybuilders (Blouin & Goldfield, 1995; Goldfield et al., 2006), but interest and use have been increasing in the former population. Steroids are often used in conjunction with thyroid

hormones, pain medications, and other drugs such as fertility medications designed to counter their negative side effects (McCreary et al., 2007). There are also reports of combining steroids with sports supplements such as creatine or legal and illegal prohormones which enter the marketplace regularly with little or no regulation by the FDA, often not even listed on the product label (Cafri et al., 2005).

Adverse effects of supraphysiological doses of steroids include acne, impaired reproductive function, gynecomastia, (Casavant, Blake, Griffith, Yates, & Copley, 2007; McCreary et al., 2007), and increased risk for cardiovascular disease secondary to atherosclerosis, thrombus formation, and hypertension (Kanayama et al., 2008). Psychiatric complications include mood dysregulation, anxiety, and aggression (Casavant et al., 2007; McCreary et al., 2007), as well as withdrawal symptoms such as variable energy level (fatigue or restlessness/insomnia), reduced libido, and depression (Rohman, 2009), which may include suicidal ideation (Wong, Zhou, Goebert, & Hishinuma, 2013). Beaver, Vaughn, DeLisi, and Wright (2008) reported that young adult males who use steroids have a high frequency of violent behaviors, suggesting steroid use may complicate treatment for individuals who already have a history of struggling with anger, trauma, and post-traumatic stress (Mitchell, Mazzeo, Schlesinger, Brewerton, & Smith, 2012). Steroid users often find it difficult to discontinue once their athletic or appearance goals are met, in some cases accelerating use as new goals are set or progressing to other substances, perpetuating the cycle of body dissatisfaction.

Although steroid use can reach the level of dependence seen with many recreational drugs (Kanayama, Brower, Wood, Hudson, & Pope, 2010), the behavioral effects and neurobiological drivers remain poorly understood. One working hypothesis is that steroids may amplify the exercise dependence seen in everyday fitness seekers and, under a certain circumstances, be an integral part of a dysfunctional and perfectionistic obsession with muscularity (Hale, Roth, DeLong, & Briggs, 2010; Szabo & Griffiths, 2007). In individuals who meet criteria for muscle dysmorphia, there is a unique pathological intersection of distorted self-perception, exercise compulsivity, disordered eating, and abuse of performance-enhancing agents. When the psychiatric picture is complicated by habitual and entrenched substance abuse, addiction treatment may be the necessary first step (Rohman, 2009). An overview of muscle dysmorphia, from specifics regarding the behavioral presentation to diagnostic symptoms to proposed therapeutic strategies, is outlined in Fig. 20.1.

20.5 Treatment Approaches for Muscle Dysmorphia

20.5.1 Nutrition Guidelines

Achieving lean muscularity has become something of an ideal to attain for both sexes, although females tend to focus on thinness, while males are more likely to place greater value on body mass (Edwards & Launder, 2000). With respect to medical nutrition therapy, gender differences in the Dietary Reference Intakes, especially with regard to protein intake, are not considered significant enough to warrant

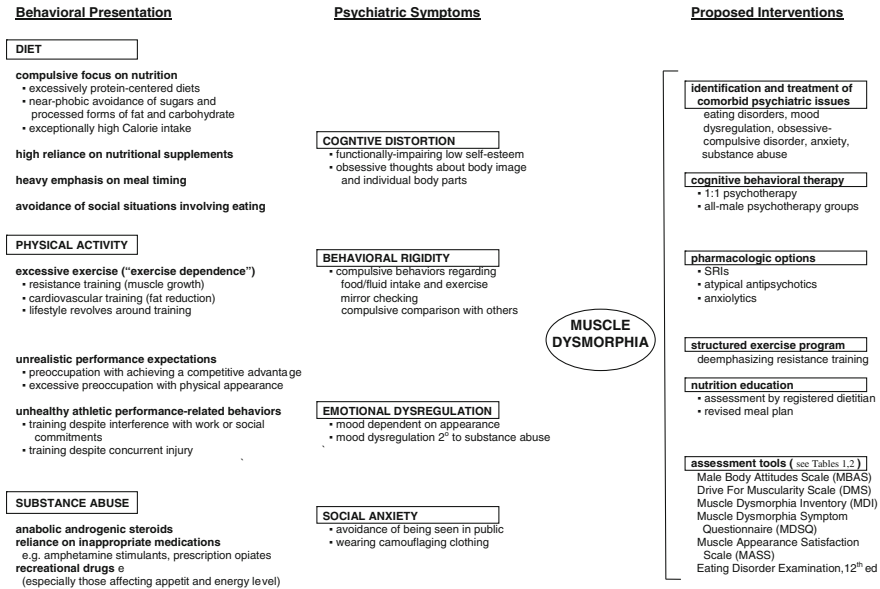


Fig. 20.1 Overview of muscle dysmorphia, from the behavioral presentation to diagnostic symptoms to proposed therapeutic strategies

separate guidelines for nutritional intervention (Food and Nutrition Board. Institute of Medicine of the National Academies, 2005). Dietary needs are best assessed individually, based on eating behavior, physical activity, lab tests, and other indices of physiological status. For individuals who meet criteria for muscle dysmorphia, in addition to cessation of hypertrophy training, reduction or elimination of excessive sports supplements, including protein/amino acids, creatine, and pre-workout formulas is an important goal. Reducing overall protein intake, which reportedly can be as high as 3 g/kg bodyweight (Mosley, 2008), may encounter resistance from many bodybuilders who believe this will lead to muscle atrophy. Arguably the most critical objective is to avoid the diet-related extremes driven by the constant preoccupation regarding body image that characterizes these individuals.

Assessment is also guided by the psychological symptom picture with respect to food and eating behavior-related fears and misconceptions. Since women represent the majority of Registered Dietitians in the USA, some males may, rightly or wrongly, perceive communication barriers in diet interventions during treatment. Nutrition education including gender-specific components can begin to integrate a psychology-of-men perspective into the predominantly female ED therapeutic approach (Greenberg & Schoen, 2008). Following the model of other recovery communities, creating an alumni base to incorporate the insight and support of ex-bodybuilders and steroid users who are uniquely able to describe their previously distorted thinking in a manner that resonates with newly diagnosed patients could also prove helpful.

20.5.2 Physical Activity Recommendations

An important aspect of treatment for men with muscle dysmorphia is the work to educate about healthy body composition as well as normalize levels of body fat and muscle, shifting exercise goals away from an emphasis on extreme muscle mass towards more sustainable fitness. A period of abstinence from exercise may be important in the initial stages of recovery, after which activity can be added back slowly. Research supports the benefit of a guided exercise program during residential ED treatment (Calogero & Pedrotty, 2004; Hausenblas, Cook, & Chittester, 2008), and incorporation of graded exercise has been shown to increase short-term treatment compliance (Thien, Thomas, Markin, & Birmingham, 2000). With knowledge about EDs and muscle dysmorphia, fitness trainers can be an important component of the treatment team by monitoring/evaluating goals and encouraging new activities that do not involve extreme weight lifting. With respect to curtailing dysregulated eating and excessive activity, getting patients to alter their rigid and familiar diet plan and abstain from compulsive exercise can prove to be a difficult process and may require inpatient hospitalization or residential treatment.

20.5.3 Psychiatric Considerations

The first barrier to treatment in muscle dysmorphia is usually identifying the disorder, since patients often look healthy from an outward perspective. As with AN, the disorder tends to be ego-syntonic; individuals see themselves as healthy and are not inclined to seek help. For males with disordered eating and an excessive preoccupation with body image, there is an additional social stigma associated with acknowledging the presence of a disorder. The biopsychosocial formulation is guided in part by the individual presentation with respect to issues such as obsessional thoughts/compulsive behaviors, mood dysregulation, substance abuse, and anxiety spectrum illness, including social phobia, each of which can complicate the treatment approach (Phillips, Gunderson, Mallya, & Carter, 1998). Also important to address are the potential impact of cultural pressures for adolescent and adult males to conform to advertising and media representations of the ideal body type (Baird & Grieve, 2006). Exploratory discussions may be effective in a group setting, where individuals can share long-held, and typically unhelpful, beliefs about gender stereotypes.

Despite the growing attention to muscle dysmorphia in recent years in comparison with other psychiatric conditions, such as EDs, where appearance preoccupation is central, a limited number of intervention strategies have been systematically studied (Pope, Phillips, & Olivardia, 2000). Consistent with its inclusion in the DSM-5 as a form of BDD, suggested therapeutic approaches for muscle dysmorphia have principally been derived from clinical studies examining body dysmorphia, for which both psychotropic medications and behavioral therapy are considered first-line treatment. Although no drugs are FDA approved for treatment of BDD absent sufficient empirical data, another justification for medication is the

frequent presence of multiple psychiatric comorbidities for which the efficacy of pharmacotherapy is well established. Pharmacologic treatment is also considered highly advisable for more severely ill or suicidal patients (Phillips, 2005a), given reported lifetime rates of suicidal ideation in individuals with BDD are approximately 80 %, and suicide attempt rates range from 24 to 28 % (Phillips & Diaz, 1997; Phillips & Hollander, 2008).

Originally targeted for treatment of depression and anxiety, the serotonin reuptake inhibitors (SRIs) have been found to lessen obsessional thinking and compulsive behaviors. No studies have compared different SRI doses for BDD, but higher doses are typically needed to treat obsessive-compulsive disorder (Allen & Hollander, 2005) and would likely be considered appropriate for muscle dysmorphia. In a review by Phillips and Hollander (2008), clinical practice recommendations for mean doses (in mg/day) were as follows: fluoxetine 67 ± 24 , sertraline 202 ± 46 , citalopram 66 ± 36 , escitalopram 29 ± 12 , fluvoxamine 308 ± 49 , and clomipramine 203 ± 53 , the authors underscoring patients often benefit from SRI doses exceeding the maximum recommended dose.

Pope et al. (2005) reported that when muscle dysmorphia occurs with more general BDD symptoms, including delusionality, subjects were more likely to engage in multiple compulsive behaviors and exhibit significantly greater psychopathology, most notably suicidality and substance abuse, including steroids. The SRIs remain the medication of choice whether patients demonstrate insight regarding perceived appearance defects or have delusional beliefs related to body image (Hollander et al., 1999; Somashekar, Jainer, & Wuntakal, 2013). Although delusional symptoms are typically treated with antipsychotics, multiple studies have found delusional BDD patients respond well to SRI monotherapy (Phillips, McElroy, Dwight, Eisen, & Rasmussen, 2001; Phillips, McElroy, Keck, Pope, & Hudson, 1994).

An SRI tried for 12–16 weeks with limited effectiveness, having been raised to the highest approved or tolerated dose for at least 3 weeks, should be switched to a different SRI or augmented with another medication (Phillips, 2005a). In one study, 43 % of patients who did not adequately respond to an initial adequate SRI trial responded to at least one subsequent SRI trial (Phillips, Albertini, Siniscalchi, Khan, & Robinson, 2001). Only a limited number of trials have examined SRI augmentation in BDD, and no methodologically rigorous studies have compared one agent to another or established an optimal time frame for an augmentation trial. Positive results have been reported with addition of both clomipramine (Phillips, Albertini et al., 2001) and buspirone (Phillips, 1996), but poor results were seen in a randomized trial with pimozide (Phillips, 2005b), suggesting first-generation antipsychotics may not be effective. Although well-recognized to modulate cognitive rigidity and delusional thinking, there are limited data describing addition of atypical antipsychotics, although one study showed a promising result with aripiprazole (Uzun & Ozdemir, 2010), suggesting further examination of these agents is needed.

Cognitive behavioral psychotherapy (CBT) is another viable treatment approach (Ipser, Sander, & Stein, 2009). Males tend to externalize emotional distress (Gjerde, Block, & Block, 1988) and are often less comfortable discussing their emotions and negative experiences. CBT can provide a framework for identifying and

Table 20.1 Instruments designed to evaluate how males evaluate satisfaction with their own body image

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| <i>Male Body Attitudes Scale (MBAS)</i> Tylka, Bergeron, and Schwartz (2005) |
| <i>Masculine Body Ideal Distress Scale</i> Kimmel and Mahalik (2004) |
| <i>Drive for Muscularity Scale (DMS)</i> McCreary and Sasse (2000) |
| <i>The Appearance Anxiety Inventory</i> Veale et al. (2013) |
| <i>Yale-Brown Obsessive Compulsive Scale for BDD (BDD-YBOCS)</i> Phillips et al. (1997) |
| <i>Body Parts Satisfaction Scale for Men</i> McFarland and Petrie (2012) |
| <i>The Upper Body Strength Subscale of the Body Esteem Scale</i> Franzoi and Shields (1984) |
| <i>Shape and Weight Based Self-Esteem Inventory (SAWBS)</i> Geller, Johnston, and Madsen (1997) |
| <i>Eating Disorder Examination</i> The Eating Disorder Examination (12th Ed.), (1993) |
| <i>Eating Disorder Examination Questionnaire (EDEQ)</i> Fairburn and Beglin (1994) |

challenging misconceptions in thinking regarding food, weight, body image, and the compulsion to exercise, as well as to neutralize triggers, which perpetuate dysfunctional behaviors. No studies have directly compared the efficacy of CBT to pharmacotherapy, but the relative success of a psychotherapeutic approach would likely depend on a number of factors, including patient treatment preference, motivation, history of medication tolerance, and availability of qualified psychotherapists. Whatever the psychotherapeutic approach, addressing shame, anxiety, social avoidance, and body image concerns is arguably vital to the process of recovery. Concurrent medication treatment can make it possible for severely distressed, delusional, or suicidal patients to engage in and tolerate CBT. Under favorable circumstances, the treatments are complementary and mutually enhancing.

As prevalence rises and the presentation of body image disturbance in males becomes increasingly complex, there is a need for more sophisticated assessment tools. A summary of gender-specific measures for assessing self-image conflict and disordered eating in males is presented in Table 20.1. In the eating disorder assessment for men, for example, Stanford and Lemberg (2012) focus on the following core diagnostic issues: binge eating, disordered intake behaviors, body dissatisfaction, and muscularity concerns. While the majority of the scales highlight the importance of assessing the level of anxiety and distress that accompanies the process of striving to achieve a specific body type, a critical objective with each of these instruments is to distinguish a healthy focus on weight training, athleticism, and body image from the collection of obsessive thoughts and compulsive

Table 20.2 Instruments developed to assess symptoms for potential diagnosis of muscle dysmorphia

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| <i>Muscle Dysmorphia Symptom Questionnaire (MSDQ)</i> Olivardia, Pope, and Hudson (2000) |
| <i>Muscle Appearance Satisfaction Scale (MASS)</i> Mayville, Williamson, White, Netemeyer, and Drab (2002) |
| <i>Muscle Dysmorphia Inventory (MDI)</i> Rhea, Lantz, and Cornelius (2004) |
| <i>Muscle Dysmorphic Disorder Inventory</i> Hildebrandt, Langenbucher, and Schlundt (2004) |

behaviors which may characterize pathological extremes of body dissatisfaction in BDD. Although scales and inventories designed to detect BDD are likely to provide useful information, caution should be used since these instruments may not necessarily be sensitive enough to detect the presence of muscle dysmorphia. A number of instruments that were developed to more directly evaluate muscle dysmorphia are included in Table 20.2.

Concluding Perspectives

Many studies in the past decade reveal a surprisingly high proportion of adolescent and adult males are dissatisfied and preoccupied—even impaired by concerns about their appearance (Knoesen, Thai Vo, & Castle, 2009). In muscle dysmorphia, the associated thoughts and behaviors are persistent, pathologically amplified, and associated with profound subjective distress. The condition shares many characteristics with EDs (including persistent and rigid attention to behavioral habits focused on control of body weight/shape/image), obsessive-compulsive disorder (e.g., compulsive body monitoring and physical activity), and body dysmorphic disorder (such as extreme preoccupation/dissatisfaction with outward appearance). Formerly a rare, or rarely recognized, occurrence, muscle dysmorphia may be an increasingly prominent psychiatric condition—a predilection for fitness resulting from cultural trends and attitudes regarding appearance which evolves into pathological behaviors among certain subpopulations. The condition is almost wholly exclusive to men, presumably given the greater cultural pressures for men to be muscular, as well as their greater genetic potential to achieve this objective. When the clinical picture includes other psychiatric comorbidities or involves abuse of anabolic steroids and other drugs, the potential for disrupting social and occupational functioning is significantly increased. More research is needed to uncover neurobiological and psychosocial drivers that may underpin the unique pressures males experience with respect to accepting or trying to perfect their physical appearance. Earlier recognition and acceptance of treatment by affected individuals will start with better tools for initial assessment, with sustainable recovery based on therapeutic strategies aimed at normalizing the self-destructive thoughts, emotions, and behaviors that characterize this complex and incompletely understood condition.

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