

# Muscle Dysmorphia and the DSM-V Conundrum: Where Does It Belong? A Review Paper

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## ABSTRACT

**Objective:** Muscle dysmorphia is a relatively recently identified psychological condition that, since its inception, has been variously conceptualized as an eating disorder and subsequently as a type of body dysmorphic disorder within the somatoform disorders. This review aims to inform and encourage ongoing debate surrounding the diagnostic placement of this disorder.

**Method:** We present a review and synthesis of the extant literature with a view to informing future decisions regarding the conceptualization of muscle dysmorphia.

**Results:** The validity of muscle dysmorphia as a clinical entity has been empirically demonstrated. While the condition bears little semblance to somatization as currently conceptualized, the research suggests a strong conceptual similarity

with anorexia nervosa. However, future research needs to utilize more appropriate measures of male eating disorder pathology. Muscle dysmorphia is also inclusive of obsessive compulsive features that are typical to those seen in eating disorder presentations.

**Discussion:** We suggest that muscle dysmorphia be reanalyzed through the lens of an eating disorder spectrum. Recognition of muscle dysmorphia as an eating disorder may offer more clinical utility in recognizing the male experience of eating disorder pathology and also help reduce the number of current male cases falling into the EDNOS category. © 2010 by Wiley Periodicals, Inc.

**Keywords:** muscle dysmorphia; DSM-V; male eating disorders; muscularity

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## Introduction

With the release of the fifth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM-V)* approaching, much research is currently being targeted at refining the categorization of many psychiatric disorders, as well as modifying the diagnostic criteria for various psychiatric disorders and establishing diagnostic guidelines for recently identified psychiatric disorders.<sup>1</sup> Muscle dysmorphia is a disorder which, since its inception as a "reverse anorexia," has been somewhat contentiously classified under several different categories, with little consensus to guide

research or clinical practice. The aim of this article is to synthesize the extant literature pertaining to muscle dysmorphia with a view to informing and encouraging debate regarding its future diagnostic placement.

There currently exists a vast literature pertaining to the disorders of body image in women<sup>2</sup> demonstrating that eating disordered women typically evaluate themselves to be unacceptably large and often aspire to unattainable levels of thinness.<sup>3</sup> Although comparatively few studies have explored such issues in males,<sup>4</sup> a growing interest in male body image research has recently emerged,<sup>5,6</sup> consistently concluding that males more commonly desire a larger and more muscular body, with this preference for a muscular physique already evident in boys as young as six.<sup>7,8</sup>

Such research has postulated that male body image disturbance is becoming increasingly prevalent, such that men now experience similar levels of body dissatisfaction to women,<sup>9</sup> and that up to 95% of college age American men may be dissatisfied with some aspect of their body,<sup>10</sup> most typically reporting a sense of pressure to develop a muscular physique.<sup>6,11</sup> Male body dissatisfaction,

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in the form of a strong desire to increase muscularity, may result in the development of muscle dysmorphia.<sup>12</sup>

## The Symptomatology of Muscle Dysmorphia

Muscle dysmorphia, which was originally conceptualized as the opposite form of anorexia nervosa and termed “reverse anorexia,” was initially identified in a study of male body builders in 1993, a proportion of whom displayed behavioral and cognitive similarities to patients with anorexia nervosa.<sup>13</sup> Specifically, Pope et al.<sup>13</sup> identified characteristics of anorectic symptomatology in a sample of male body builders, and a prevalence of previous anorexia nervosa far higher than rates found in the general population. However, the anorectic features identified were the reverse form of those seen in traditional anorexia nervosa, such that the core body image distortion manifested as a belief in oneself appearing small and skinny, despite often being large and muscular, and that such men harbored a desire for larger and more muscular body types. Furthermore, those afflicted with “reverse anorexia” frequently declined social invitations, refused to be seen partially undressed in front of others, and wore heavy clothes in the heat of summer due to their fear of being perceived as being too small.

Further research by Pope et al.<sup>5</sup> illuminated the symptomatic presentation of this disorder and resulted in the proposal of tentative diagnostic criteria. Crucially, this seminal paper also reconceptualized this cluster of symptoms as “muscle dysmorphia,” which is located within the body dysmorphia spectrum, as opposed to reverse anorexia nervosa, as was initially proposed.

Underpinning this conceptual shift was in part the notion that the primary disturbance in muscle dysmorphia was pathological exercise behavior, with eating disturbances deemed to be only a secondary and unnecessary feature of the disorder. This contrasts with the eating disorder spectrum, in which there may exist disturbed exercise behavior, although this is often secondary to the central pathological eating disturbances.<sup>14</sup>

The proposed diagnostic criteria for muscle dysmorphia include the following:

- (a) Preoccupation with the idea that one’s body is not sufficiently lean and muscular. Char-

acteristic associated behaviors include long hours of lifting weights and excessive attention to diet.

- (b) The preoccupation is manifested by at least two of the following four criteria:
  1. The individual frequently gives up important social, occupational, or recreational activities because of a compulsive need to maintain his or her workout and diet schedule.
  2. The individual avoids situations where his or her body is exposed to others, or endures such situations only with marked distress or intense anxiety.
  3. The preoccupation about the inadequacy of body size or musculature causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
  4. The individual continues to work out, diet, or use ergogenic substances despite knowledge of adverse physical or psychological consequences.
- (c) The primary focus of the preoccupation and behaviors is on being too small or inadequately muscular, as distinguished from fear of being fat as in anorexia nervosa, or a primary preoccupation only with other aspects of appearance as in other forms of body dysmorphic disorder.

Cognitively, the hallmark symptom of muscle dysmorphia is a marked preoccupation with one’s physique not being muscular enough, despite often being of above average muscularity.<sup>6</sup> Thus, muscle dysmorphia is often inclusive of a level of body image distortion, which is common to other body image disorders. This distorted body image can predispose some men afflicted with muscle dysmorphia to experience obsessive thoughts pertaining to their perceived lack of muscularity, with reports of up to 5 hours per day being consumed with such thoughts.<sup>4</sup> Nevertheless, muscle dysmorphia in comparison to other forms of body dysmorphic disorder is characterized by better insight into the skewed perception of this “flaw,” and research has posited that up to 42% of patients with muscle dysmorphia have “excellent” insight, while over 50% have “fair” insight.<sup>4</sup>

Behaviorally, muscle dysmorphia is characterized by excessive working-out and lifting weights,<sup>6</sup> and extreme anxiety in the event of missed workouts,<sup>4</sup> which consequently disrupts occupational and social functioning. Case reports have depicted men

suffering from muscle dysmorphia who forego important job interviews or even leave lucrative and professional jobs that were interfering with their rigorous workout schedules.<sup>15</sup> In addition, men with muscle dysmorphia may pay excessive attention to their diet, adhere to rigid diet plans, calculate the macro-nutritional values of every item of food they consume, and experience difficulty eating out at restaurants if this information is not provided.<sup>4,16</sup>

Furthermore, muscle dysmorphia also appears to be highly associated with anabolic steroid abuse.<sup>6</sup> In a recent study, more than 50% of men with muscle dysmorphia were found to have used steroids,<sup>4</sup> although it is likely that a higher proportion of men with muscle dysmorphia engage in steroid use, with under-reporting likely to be a common problem due to the potential legal ramifications of acknowledging illicit substance use.<sup>17</sup> Consistent with this assumption, other studies, albeit with smaller samples, have reported 100% of men with muscle dysmorphia endorsing anabolic steroid use.<sup>18</sup> Interestingly, 73% of steroid using males with muscle dysmorphia reported symptoms of the disorder for approximately a year before using anabolic steroids,<sup>4</sup> suggesting that in the majority of cases, anabolic steroid use may be a symptom of muscle dysmorphia, rather than a factor contributing to its development.<sup>19</sup>

Further behavioral manifestations include reflective surface and mirror checking to reduce the anxiety attached to preoccupations of feeling small and inadequately muscular,<sup>14</sup> social avoidance and body concealment,<sup>5</sup> and impaired interpersonal and sexual relationships.<sup>6,14</sup>

On the basis of the proposed diagnostic criteria, this constellation of symptoms represents a valid diagnostic entity<sup>4,20</sup> that can adequately distinguish between gym users afflicted with muscle dysmorphia and those without<sup>4</sup>; between gym users with muscle dysmorphia and those who were nonpathologically concerned with their muscularity<sup>21</sup>; and between weightlifters with and without muscle dysmorphia.<sup>22</sup>

## The Epidemiology of Muscle Dysmorphia

Currently, it is widely accepted that muscle dysmorphia occurs much more frequently in men, although there have been documented cases of women with severe muscle dysmorphia.<sup>23</sup> The number of men afflicted by muscle dysmorphia is still largely

unknown, as no formal epidemiological studies have been conducted. Early research proposed that up to 10% of bodybuilders may be afflicted,<sup>18</sup> with conservative estimates reporting that several hundred thousand men in the US may suffer from clinical muscle dysmorphia.<sup>6</sup> Alternative estimates propose that the prevalence of muscle dysmorphia may be commensurate with the rate of anorexia nervosa in women<sup>24</sup> and that, as such, potentially millions of men may suffer from muscle dysmorphia. In terms of the onset of muscle dysmorphia, the most common age of onset is reportedly around age 19, during late adolescence,<sup>14</sup> although studies substantiating this finding are lacking.

These epidemiological features of muscle dysmorphia share many similarities with those of anorexia nervosa, including a heavily polarized gender ratio, frequent onset in mid-late adolescence,<sup>14</sup> and prevalence rate.<sup>24</sup> In contrast to these similarities, between muscle dysmorphia and anorexia nervosa is evidence of a more even gender distribution in the case of body dysmorphia.<sup>25,26</sup>

## The Diagnostic Placement of Muscle Dysmorphia within the Eating Disorder Spectrum

Although the diagnostic criteria and constellation of symptoms constituting muscle dysmorphia have been well validated in a range of cultural contexts, suggesting that it is a valid diagnostic entity,<sup>4,20,22</sup> its diagnostic placement within the somatoform disorder spectrum has been repeatedly questioned.<sup>16,27,28</sup> In investigating this diagnostic placement, no relationship between measures of muscle dysmorphia and somatization have been found, although somewhat contrastingly, there exists a strong relationship between muscle dysmorphia symptomatology and features of obsessive compulsive and eating disorder pathology, suggesting that muscle dysmorphia may be better conceptualized beyond the somatoform spectrum.<sup>28</sup> Furthermore, Chung<sup>27</sup> regards conceptualizing muscle dysmorphia as a body dysmorphic disorder as problematic arguing that, unlike other body dysmorphic disorders, muscle dysmorphia appears to be inclusive of seemingly obsessive-compulsive features centering around intensive training and rigid dietary intake (comparable to anorexia nervosa).<sup>27</sup>

Indeed, men who pathologically pursue hypermuscularity consistently endorse a strikingly similar psychological profile to that of eating disordered patients, including a similarly elevated profile of

perfectionistic, obsessive, and anhedonic traits, and sustained and elevated preoccupations with body image, diet, and exercise.<sup>29,30</sup> Furthermore, men with muscle dysmorphia closely resemble men with an eating disorder on a wide range of indices of eating disorder pathology (e.g., exhibiting similar scores on Eating Disorder Inventory subscales), suggesting that “the term ‘reverse anorexia’ may be apt, as the pursuit of ‘bigness’ shows remarkable parallels to the pursuit of thinness” (p. 1295).<sup>4</sup> Such similarities have also been documented between females pursuing hyper-muscularity and females with anorexia nervosa.<sup>31,32</sup>

An important component of symptomatic overlap between muscle dysmorphia and anorexia nervosa is disordered eating given that the removal of muscle dysmorphia from the eating disorder categorization was partly based on the assumption that eating pathology was only a secondary feature of the disorder.<sup>14</sup> This is despite the fact that the proposed diagnostic criteria for muscle dysmorphia repeatedly make reference to disordered eating (such as “excessive attention to diet” and the “compulsive need to maintain his/her diet schedule”).<sup>5</sup> Moreover, subsequent research has documented high levels of eating disturbance in men with muscle dysmorphia, including the fact that muscle dysmorphic symptomatology may escalate as a result of eating practices alone, independent of exercise status.<sup>33</sup> A consistent finding in men with muscle dysmorphia is adherence to a rigid and often nutritionally unbalanced diet plan, which is typically very high in protein and low in fat, has specific calorific calculations,<sup>5</sup> and may cause pervasive feelings of guilt and distress if not adhered to.<sup>30</sup> The consumption of 5 g of protein per kilogram of bodyweight (a level of protein consumption which may facilitate a range of renal malfunctions<sup>34,35</sup>) and eating every few hours even if not hungry<sup>16</sup> are reported features of the eating behavior seen in muscle dysmorphia. Deviation from this diet plan frequently results in marked anxiety and immediate attempts at compensation, such as extra workout sessions,<sup>5</sup> which is a feature commonly reported in cases of anorexia nervosa and indicates that eating disturbance can be primary to the exercise disturbance.<sup>36</sup> Moreover, strict dieting and eating related disturbances are common in bodybuilding,<sup>37</sup> such that bodybuilding itself has been postulated as a risk factor in the development of eating disorders.<sup>38</sup> Implicit in this finding is the notion that there is indeed a level of disordered eating inherent in the pursuit of a hypertrophied muscular physique.

Just as initial research may have underestimated the level of disordered eating occurring in individu-

als with muscle dysmorphia, the role of exercise in anorexia nervosa may be more centrally implicated than was earlier assumed,<sup>39</sup> particularly in males.<sup>40</sup> Compulsive exercise has been implicated in over 80% of cases of anorexia nervosa in the acute phase,<sup>41,42</sup> and patients with anorexia nervosa who engage in excessive exercise have been found to evince higher levels of psychopathology.<sup>43</sup> The features of exercise in anorexia nervosa include adherence to a rigid exercise regimen, priority of exercising over other activities, detailed record keeping, and extreme distress if one is unable to exercise,<sup>42</sup> all of which have been noted frequently in muscle dysmorphia presentations.<sup>6,14</sup> Further indications regarding exercise in anorexia nervosa suggest that its functional utility goes beyond simply controlling shape and weight by expunging calories, as it appears to serve self-validation<sup>44</sup> and affect regulation purposes.<sup>39</sup> Further research might seek to elucidate the psychological function exercise serves in muscle dysmorphia presentations. Greater understanding of the prevalence and function of excessive exercise in anorexia nervosa and muscle dysmorphia may serve to further narrow the diagnostic distance between the two disorders, as both are clearly inclusive of pathological eating and exercise practices.

Those differences that are apparent in the symptomatic presentation of muscle dysmorphia and anorexia nervosa likely reflect the distinct sociocultural pressures impacting on males and females. Cultural representations of gender-specific body ideals are polar opposites, so that for men to engage in pathological appearance enhancing behavior, they are more likely to engage in strength training exercises, adhere to extreme high protein dietary regimens, and utilize supplements to enhance muscle mass.<sup>37</sup> In contrast, females are more likely to engage in the pursuit of thinness.<sup>45</sup> Thus, the two disorders are conceptually very similar, differing only as a function of the culturally sanctioned body ideals that the respective disorders propel affected individuals towards.

In addition to the high degree of symptomatic overlap that argues for the categorization of muscle dysmorphia as an eating disorder is the relationship between the two disorders over time. Specifically, up to 29% of men afflicted with muscle dysmorphia have previously suffered from a clinical eating disorder, a rate far higher than that found in the general population or in individuals with other psychiatric conditions.<sup>4</sup> Progression between different disorders of eating and body disturbance is consistent with the postulation of the transdiagnostic model of eating disorders<sup>46</sup> that all eating

disorders share a common pathogenesis and, as such, that migration between eating disorder categories is common.<sup>47</sup>

A recent case report depicted a middle-aged male who in the months prior to treatment had swung from behaviors consistent with anorexia nervosa into behaviors highly characteristic of muscle dysmorphia.<sup>48</sup> This particular patient was diagnosed as Eating Disorder Not Otherwise Specified (EDNOS) as “there is no eating disorder diagnosis which is specifically geared towards the male experience of eating pathology” (p. 469).<sup>48</sup> Interestingly, this patient, who likely suffered from muscle dysmorphia given his use of muscle-building supplements, consumption of a low-carbohydrate, high-protein diet which he charted rigorously in a log-book, and marked anxiety in relation to losing muscle mass as a result of therapy, was successfully treated using standard therapy for an eating disorder. Indeed, research suggests that muscle dysmorphia may be effectively treated with both psychological<sup>24</sup> and pharmacological<sup>15</sup> approaches utilized in the treatment of eating disorders, lending further support for the inclusion of muscle dysmorphia within an eating disorder dimension.

In addition to symptomatic overlap, diagnostic crossover with time, and response to similar treatment approaches, are findings from twin and family studies that support a connection between eating disorders and muscle dysmorphia. Recent twin studies have illustrated a strikingly common presentation of muscle dysmorphia in the twins of male anorexia nervosa patients, suggesting that muscle dysmorphia may be an alternative phenotype of eating disorders in men.<sup>49</sup> Interestingly, this pattern of familial aggregation between muscle dysmorphia and anorexia nervosa is remarkably similar to the familial transmission of anorexia nervosa between first-degree relatives.<sup>50</sup>

### Possible Differences Between Muscle Dysmorphia and Eating Disorders

Despite such similarities, research has also highlighted significant differences in the profiles of eating disorder symptomatology among anorexia nervosa and muscle dysmorphia patients<sup>28</sup> such that anorexia nervosa patients typically score significantly higher on subscales of the Eating Disorder Inventory measuring bulimia, introspective awareness, and interpersonal distrust. Further research illustrated that anorexic samples often

exhibit a more elevated drive for thinness,<sup>30</sup> which is not surprising given the hallmark drive for muscularity/bulk inherent in muscle dysmorphia. However, it should be noted that very few studies have directly compared muscle dysmorphia and male anorexia nervosa. Instead, research has utilized samples of female patients with anorexia nervosa<sup>29</sup> as grounds for comparison despite mounting evidence that male and female manifestations of anorexia nervosa present as markedly dissimilar.<sup>40</sup> The use of bodybuilding males as a group against which to compare males with eating disorders is also problematic given that the male bodybuilders do not necessarily have muscle dysmorphia; this approach is thus vulnerable to minimizing the eating disordered concerns of males with muscle dysmorphia.<sup>30</sup>

Furthermore, it is noteworthy that such research has typically utilized assessment tools designed for and validated in samples of eating disordered women, such as the Eating Disorder Inventory,<sup>51</sup> which may not be appropriate for measuring the body image dissatisfaction and eating psychopathology of men.<sup>28</sup> Given the nature of men's body dissatisfaction, EDI questions pertaining to the hips and buttocks are of questionable face validity in indexing men's body image concerns.<sup>28</sup> It is therefore possible that research illustrating the differences in eating disorder psychopathology between muscle dysmorphia and anorexia nervosa may have drawn premature or invalid conclusions because of the insensitivity of the measures in detecting men's body image and eating concerns.<sup>28</sup> Assessment tools that are sensitive to the symptomatic presentations of males with eating and body image concerns are clearly needed if meaningful comparisons are to be made between males and females with disturbances in these domains.<sup>28,52,53</sup> As one example of this endeavor, items on the drive for thinness and body dissatisfaction subscales of the EDI have been reversed (e.g., the item ‘If I gain a pound, I worry that I will keep gaining’ has been altered to ‘If I lose a pound, I worry that I will keep losing’) with the psychometric properties of the revised scale awaiting thorough investigation.<sup>53</sup>

Interestingly, there have also been recent claims that the measurement of muscle dysmorphia symptomatology in women is insufficiently sensitive, and parallels the insensitivity of detecting eating disorder pathology in men using traditional eating disorder measures.<sup>54</sup> As such, items on muscle dysmorphia measurement tools have been reversed to enhance sensitivity to women's muscularity concerns. For example, the item “if you see a man who is clearly more muscular than you, do you think

about it or feel envious for some time afterwards?" has been modified to read "If you see a person who is more muscular than you, do you think about it or feel envious for some time afterwards?"<sup>54</sup> In the absence of psychometrically sound measures in this area, researchers are vulnerable to underestimating the muscle dysmorphic concerns occurring among females paralleling the possible underestimate of eating disorder concerns in males.

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### The Possible Inclusion of Muscle Dysmorphia within the Obsessive Compulsive Spectrum of Disorders

Several investigators have advocated the positioning of muscle dysmorphia within an obsessive compulsive spectrum of disorders.<sup>27,28,55</sup> For example, Chung<sup>27</sup> argued that both muscle dysmorphia and anorexia nervosa are accompanied by obsessive compulsive features (e.g., preoccupation with body shape and weight and rigid dietary and exercise regimens) and stated that the theoretical advantage of conceptualizing muscle dysmorphia as an obsessive compulsive spectrum disorder would allow treatment to focus on the abnormal chronic exercise, rather than pathologizing feeling inadequate about one's body, which is common in the general population.<sup>27</sup>

In support of this position, one study investigated the diagnostic placement of muscle dysmorphia and found that muscle dysmorphia symptomatology was best predicted by a combination of obsessive compulsive features, body dissatisfaction, and hostility.<sup>28</sup> However, this study also found that the predictive value of obsessive compulsive features in muscle dysmorphia presentations was mediated largely by hostility and body dissatisfaction. Since body dissatisfaction in particular has been implicated in the pathogenesis and symptomatic presentation of eating disorder presentations<sup>2,3</sup> but has not been strongly implicated in obsessive compulsive type presentations, these findings lend further support to muscle dysmorphia as an eating disorder. Moreover, the measure of eating disorder pathology utilized in this study was insufficiently sensitive to accurately detect male eating disorder pathology, thus precluding any accurate analysis of the role of eating disorder pathology in predicting muscle dysmorphia symptoms. This finding reiterates the need for developing psychometrically sound instruments of the eating, shape, and weight concerns occurring in males.

The existence of obsessive compulsive type features in eating disorder presentations is well docu-

mented,<sup>56-58</sup> and hence the obsessive compulsive features occurring in muscle dysmorphia do not necessarily argue for muscle dysmorphia being more akin to an obsessive compulsive disorder versus an eating disorder. There does appear to be a level of conceptual similarity between muscle dysmorphia, anorexia nervosa, and obsessive compulsive disorder, prompting some to argue for the inclusion of all three within an obsessive compulsive spectrum.<sup>6,21</sup> However, the inclusion of muscle dysmorphia within an obsessive compulsive spectrum will encounter difficulties in presenting as comprehensive a case of similarity as that between muscle dysmorphia and the eating disorders (e.g., symptomatic overlap, epidemiological features, and treatment approach). To provide just one example, the categorization of muscle dysmorphia within the obsessive compulsive spectrum is inconsistent with the gendered nature of muscle dysmorphia and eating disorders given that obsessive compulsive disorders are largely balanced between genders.<sup>59</sup>

As with obsessive compulsive features, other anxiety symptoms have also been found to be related to muscle dysmorphia, with social physique anxiety and trait anxiety showing the most robust association with muscle dysmorphia.<sup>55</sup> Again, however, these relationships echo the role of social physique anxiety and trait anxiety in eating disordered women in relation to their eating disorder.<sup>60</sup>

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### Retaining Muscle Dysmorphia as a Body Dysmorphic Disorder

Despite the current consensus that muscle dysmorphia bears no features or semblance to somatization,<sup>27,28</sup> there exist similar arguments that other forms of body dysmorphic disorder are equally ill-accounted for in this spectrum.<sup>61</sup> Such arguments posit that muscle dysmorphia, along with other more common forms of body dysmorphic disorder, may benefit from being reconceptualized within a different spectrum, but nonetheless still posit muscle dysmorphia as a type of body dysmorphia.

Muscle dysmorphia is without doubt inclusive of a core perceptual disturbance and imagined flaw in appearance,<sup>21</sup> although these features in muscle dysmorphia appear strikingly similar to the presence of the very same features in eating disorder presentations,<sup>62</sup> and this perceptual disturbance may even help form a pathway into the development of anorexia nervosa for some individuals.<sup>63</sup>

While perceptual distortions may be an overlapping feature of those with muscle dysmorphia and eating disorders, they may conversely help to distinguish individuals with muscle dysmorphia from other forms of body dysmorphic disorder. Specifically, as previously mentioned, individuals with muscle dysmorphia typically have a greater degree of insight into their perceived defect in appearance relative to those with body dysmorphia.<sup>4</sup>

In directly comparing eating disordered patients with patients afflicted with body dysmorphic disorder, far greater psychopathology and psychosocial impairment was reported in samples of eating disordered patients.<sup>64</sup> Further, in a later study comparing muscle dysmorphia patients with patients afflicted with other forms of body dysmorphic disorder, similar conclusions were drawn, in that muscle dysmorphia patients experienced greater psychosocial impairment, poorer quality of life, and greater suicidality.<sup>65</sup> This suggests that muscle dysmorphia, alongside eating disorders, is inclusive of more severe and widespread psychopathology than other types of body dysmorphic disorder,<sup>66</sup> again supporting the conceptualization of muscle dysmorphia as more akin to eating disorders and distinct from other body dysmorphic disorders.

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## Concluding Comments

The categorization conundrum presented by muscle dysmorphia taps into broader debates occurring in regards to psychiatric classification such as whether to simplify or proliferate the range of disorders, whether to adopt dimensional versus categorical descriptions of psychopathology, and the case for returning to an etiologically-based classification system. Yet based on the assumptions of the current DSM system and the available research, we would argue for a recategorization of muscle dysmorphia as an eating disorder, most especially given the similarities in symptomatology between conditions entailing a pathological pursuit of weight loss (anorexia nervosa) and weight gain (muscle dysmorphia)—including disordered eating practices—but also in terms of similar epidemiological features, diagnostic crossover with time, common etiological factors, response to comparable treatment approaches, and evidence of shared familial transmission. Alternative classification responses are certainly conceivable. For instance, obsessive compulsive disorder, anorexia nervosa, and muscle dysmorphia may constitute alternative manifestations of an underlying dimension of

obsessional thought (e.g., with germs, thinness, and muscularity, respectively) and compulsive behavior (e.g., of washing, weight-reducing, and body-bulking, respectively) and we hope to encourage theoretical and empirical work that develops and evaluates these alternative conceptualizations.

The last 20 years have witnessed dramatic increments in the prevalence and severity of male body image disturbance to such an extent that parity between the genders in this regard may now exist.<sup>9</sup> Yet the prevalence of recognized eating disorders in males during this same period has not increased,<sup>67</sup> which is perhaps not surprising given the absence of an eating disorder diagnosis “geared towards the male experience of eating pathology” (p. 469).<sup>51</sup> The same period has entailed a proliferation of EDNOS cases, with current estimates reporting as much as 60% of eating disorder cases falling under this category.<sup>68</sup> The inclusion of muscle dysmorphia within the eating disorder dimension may thus help to differentiate meaningful subcategories within the EDNOS category while also acknowledging the male experience of disturbances in eating, shape, and weight.

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