**Muscle dysmorphia: a new syndrome in weightlifters**

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Recently more men have reported a desire for larger, more muscular bodies. Muscle dysmorphia (MD) is a new syndrome in which individuals (usually men), although highly muscular, have a pathological belief that they are of very small musculature. As more men are motivated to take up training with weights in order to develop greater musculature, more cases of MD are likely to be encountered. A greater understanding and awareness of the syndrome are therefore needed. Therefore the aim of this study was to investigate perceptions of physical self in male weightlifters, one group with MD (n = 24) and one without (n = 30). Between group comparisons were made using the multidimensional body-self relations questionnaire. The findings confirm the nature of the disorder in that those with MD syndrome have poorer body image and are less happy with their bodies. Moreover, in addition to a desire for greater muscularity, they are very concerned not to gain fat. The results also suggest that future research into perceptions of specific body parts and health is warranted.

Research evidence indicates that body dissatisfaction in men has increased in recent years and that the nature of this dissatisfaction is not so much a desire for smaller and thinner bodies, as is the case with women, but larger and more muscular ones. One study of men in Austria, France, and the United States found that their ideal bodies were about 28 lbs more muscular than their perceived actual bodies. The authors suggest that this discrepancy may be a contributing factor in the apparent rise in eating and body dysmorphic disorders, including muscle dysmorphia (MD), in men.

MD has been observed to be a condition that afflicts primarily men, although it can be present in women. It is a unique form of body dysmorphic disorder where, instead of being pathologically dissatisfied with a single body part, the person is dissatisfied with their whole body. Those with MD, although often highly muscular, believe themselves to be of very small musculature. This belief leads them to become obsessed with exercising, particularly weightlifting, and at risk of misusing anabolic-androgenic steroids. People with MD also tend to avoid situations and places where they might be seen without clothing (and if that is unavoidable it causes them severe distress) and often wear many layers of clothing, even in hot weather, to avoid their bodies being seen. For many, social relations and occupational functioning are adversely affected as a result. For full diagnostic criteria see Pope et al. These criteria were later confirmed in a psychiatric case-control study of 24 men with MD and 30 comparison weightlifters. There are no prevalence estimates for MD, as epidemiological studies are still to be conducted on this new disorder. It is therefore an under-researched condition and the aim of this study was to explore further its nature by examining body image perceptions in those with MD compared with weight lifting controls using the multidimensional body-self relations questionnaire (MBSRQ). This instrument was considered suitable because we were interested in more than just differences in perceptions of physical size and appearance. The MBSRQ also measures attitudes towards cognitive-behavioural and evaluative dispositions of the physical self including the body's physical ability and its health. Given what is already known about the disorder, we hypothesised that the MD group would be more dissatisfied with their weight and appearance and would engage in more appearance improvement behaviours than the controls. However, as so much is still to be discovered about MD, we did not make any predictions about differences between the groups on attitudes towards, or behaviours of, health and fitness.

**METHODS**

Participants were recruited from 23 gymnasiain the Boston area. They were screened by telephone using screening questions to allocate them to either the MD group (n = 24) or the control group (n = 30). As these participants are the same as those recruited for the study by Olivardia et al., full details of participant recruitment can be found there together with the results confirming that the MD group did indeed meet diagnostic criteria for MD. Participants came to the laboratory and, after providing written informed consent, completed a battery of psychiatric and psychological tests as well as providing a number of physiological measures. The data reported here are from the MBSRQ. The other data are reported in Olivardia et al.

The MBSRQ is a 69 item questionnaire that contains seven factor subscales (appearance evaluation, appearance orientation, fitness evaluation, fitness orientation, health evaluation, health orientation, illness orientation) plus three others related to body area and weight satisfaction. All subscales have been found to have acceptable internal consistence and confirmed convergent, discriminant, and construct validity. Taking the appearance subscales as an example, higher scores on appearance evaluation indicate that the person feels physically attractive and is satisfied with his/her physical appearance. Higher scores on appearance orientation indicates a greater investment in one's physical appearance through, for example, “grooming behaviours”.

**RESULTS**

The groups were similar in terms of educational level ($\chi^2 = 5.98$, df = 3, $p>0.05$) and occupational status ($\chi^2 = 6.71$, df = 7, $p>0.05$). They were also similar in age, percentage body fat, weight, height, fat free mass index, and exercise frequency and duration (minimum $t = 0.3$, df = 52, $p>0.05$). The groups were similar in educational level ($\chi^2 = 5.98$, df = 3, $p>0.05$) and occupational status ($\chi^2 = 6.71$, df = 7, $p>0.05$). They were also similar in age, percentage body fat, weight, height, fat free mass index, and exercise frequency and duration (minimum $t = 0.3$, df = 52, $p>0.05$).

Three sets of two tailed analyses were conducted on the MBSRQ data. The first set analysed the affective and cognitive-behavioural components—that is, the appearance evaluation, appearance orientation, fitness evaluation, fitness orientation, health evaluation, health orientation, illness orientation. The results confirmed that the MD group did indeed meet diagnostic criteria for MD. Participants came to the laboratory and, after providing written informed consent, completed a battery of psychiatric and psychological tests as well as providing a number of physiological measures. The data reported here are from the MBSRQ. The other data are reported in Olivardia et al.

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**Abbreviations:** MD, muscle dysmorphia; MBSRQ, multidimensional body-self relations questionnaire
The findings of this exploratory study confirm the nature of the disorder in that people with MD do indeed have poorer body image than controls. The MBSRQ showed that not only did those with MD desire even greater musculature, they were also very concerned not to gain fat. The results of the questionnaire also disclosed greater dissatisfaction with overall appearance and muscle tone and weight, which was not surprising to us, but we found their greater dissatisfaction with lower torso areas (buttocks, hips, thighs, and legs) noteworthy.

**DISCUSSION**

The near significant finding that the MD group consider themselves to be less healthy was also surprising, and this warrants further investigation. As recent research on women has shown that good health is associated with having an attractive body, we wonder if this is becoming the case for men too, which may account for the self perceived poorer health of the MD group.

In conclusion, this study aimed to explore further the nature of MD by examining body image perceptions in a group of weightlifters with MD and a control group. In addition to confirming previous findings, we report some new findings that indicate investigation of perception of body parts and health is warranted. In a changing culture where men's bodies are becoming more visible alongside an increased acceptance of physical exercise as a desirable activity, MD in men may be one negative consequence of physical exercise behaviour, particularly weight training, being motivated primarily by physical appearance. How to prevent this and, if it occurs, what to do about it are important questions for both researchers and practitioners.

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**REFERENCES**


Research on women and eating disorders has long dominated the body image literature.¹ This report expands our understanding of men experiencing a form of body dysmorphic disorder (BDD) related to self-perceived muscularity. Although readers must consult another publication for details on recruitment and diagnostic procedures and criteria,² the authors use a validated, multidimensional assessment to elucidate the nature of the body image differences associated with MD among weightlifters. Sample size limits statistical power to detect smaller apparent differences. In view of evidence that weightlifting can benefit body image,³ future studies with larger samples might include a third matched cohort who do not regularly lift weights. We clearly need continued research on the epidemiology of MD, how it differs from other forms of BDD, the extent to which it entails general appearance and muscularity concerns versus a preoccupation with an individually variable aspect of the body’s definition, and its distinctive psychosocial diatheses and sequelae.

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REFERENCES