Muscle Dysmorphia

An Underrecognized Form of Body Dysmorphic Disorder

HARRISON G. POPE, JR., M.D., AMANDA J. GRUBER, M.D.
PRECILLA CHOI, PH.D., ROBERTO OLIVARDIA, B.A.
KATHARINE A. PHILLIPS, M.D.

In the course of several ongoing studies, the authors have encountered men and women who display a form of body dysmorphic disorder in which they become pathologically preoccupied with their degree of muscularity. This condition, which the authors have tentatively termed "muscle dysmorphia," may cause severe subjective distress, impaired social and occupational functioning, and abuse of anabolic steroids and other substances. Epidemiologic data suggest that muscle dysmorphia, though rarely recognized, may afflict substantial numbers of Americans. The authors summarize the features of muscle dysmorphia, present several case examples, and offer proposed diagnostic criteria that may be useful for subsequent research.

(Psychosomatics 1997; 38:548–557)

Recent years have witnessed a growing interest in psychiatric disturbances involving body image. For example, many studies in both men and women have assessed body dissatisfaction associated with anorexia and bulimia nervosa.[1,2] A growing literature has also characterized body dysmorphic disorder (BDD), a distressing or impairing preoccupation with a nonexistent or slight defect in body appearance.[3,4] It is not clear whether these forms of body dissatisfaction are more common today than a generation ago, or simply more widely recognized, but there is little doubt that they currently account for substantial morbidity.

We describe a novel form of BDD, probably underrecognized, which we have termed "muscle dysmorphia." Unlike typical patients with BDD, who are usually concerned with a specific body part (e.g., face, skin, hair, or nose), persons with muscle dysmorphia are pathologically preoccupied with the appearance of the body as a whole; they are concerned that they are not sufficiently large or muscular; their lives become consumed by weightlifting, dieting, and associated activities. Consequences include profound distress about having their bodies seen in public, impaired social and occupational functioning, and abuse of anabolic steroids and other drugs. We describe the evolution of our research on muscle dysmorphia and review studies from

Received September 30, 1996; revised December 13, 1996; accepted January 10, 1997. From the Biological Psychiatry Laboratory, McLean Hospital/Harvard Medical School, Belmont, Masssachusetts; the Department of Psychology, Keele University, Staffordshire, England; and the Butler Hospital and the Department of Psychiatry and Human Behavior, Brown University School of Medicine, Providence, Rhode Island. Address reprint requests to Dr. Pope, McLean Hospital, 115 Mill St., Belmont, MA 02178.

other centers that are relevant to this topic. Next we summarize the features of this condition, offer preliminary evidence about its frequency, and present several case examples. We conclude with proposed diagnostic criteria for muscle dysmorphia that may be useful for further research.

PREVIOUS AND ONGOING RESEARCH

In the course of an earlier study of anabolic steroid use among men, we recruited 156 male weightlifters (88 steroid users and 68 nonusers) by placing advertisements in gymnasiums in the Boston, Massachusetts, and Los Angeles, California, areas.[5] All subjects were administered the Structured Clinical Interview for DSM-III-R (SCID),[6] together with additional psychiatric and medical questions. In the course of this study, we found 16 subjects (10% of the total group) who perceived themselves as physically small and weak, even though they were in fact large and muscular. In a preliminary report describing nine of these cases, we called this syndrome "reverse anorexia nervosa."[7] Interestingly, two of these nine men reported a history of classic anorexia nervosa, but had "replaced" their earlier preoccupation with being too fat with the new preoccupation that they were too small. All nine men reported use of anabolic steroids. Some had used steroids to "treat" their problem of feeling too small, whereas others developed reverse anorexia nervosa only after they had started using steroids.

Subsequently, a research group in Canada obtained somewhat similar findings in a comparison study of 43 bodybuilders, 48 runners, and 48 martial artists.[8] The bodybuilders as a whole showed significantly greater body dissatisfaction than either comparison group. In that study, 19 (44%) of the bodybuilders reported use of anabolic steroids, compared with only 1 (2%) of the runners and none of the martial artists. The steroid-using bodybuilders differed from the nonusers on several psychological measures, with the former group reporting lower "Self-Esteem" scores and higher "Drive for Bulk" scores than the nonusers. However, these comparisons involved the groups as a whole and did not focus on individual cases in the manner of our study described earlier. Similar findings have emerged from several other recent studies that have examined body image and/or eating disorders among athletes.[9-12] However, these studies also have used survey designs and have not sought individual cases of pathological preoccupation with muscularity.

Currently, we are engaged in three ongoing studies in which we have encountered subjects with a similar syndrome of body dissatisfaction. In the first study, we have advertised in Boston area gymnasiums for men who are "concerned that they look too small." To obtain a comparison group, we have also posted advertisements in other gymnasiums seeking "men who have lifted weights for at least 2 years." All respondents are administered the current version of the SCID, together with additional interview questions to obtain demographic indices, body-image assessments, medical history, and aspects of lifestyle. We also calculate the subject's fat-free mass index (FFMI), a measure of overall muscularity described in a previous paper.[13]

FFMI is calculated in Equation 1:

$$\text{FFMI} = W \times \left(\frac{1-BF}{100}\right) \times h^{-2} + 6.1 \times (1.8 - H)$$

where W = total body weight in kilograms, H = height in meters, and BF = percent of body fat. This calculation has been developed only for men, where a figure of greater than 25 kg/m^2 strongly suggests prior anabolic steroid use. A comparable formula, with a cut-off value to suggest steroid use, has not yet been developed for women. The reader is referred to the original paper for a full discussion of this formula.[13]

To date, we have interviewed 15 men who were severely preoccupied with their muscularity, recruited from the first advertisement, and a comparison group of 30 men without muscle dysmorphia, recruited from the second advertisement.

The second study, involving women, was originally designed for a different purpose, namely to compare women bodybuilders who