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Body Image and Psychopathology in Male Bodybuilders

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Key Words
Bodybuilder · Body image · Psychopathology · Eating behavior · Sexuality

Abstract
Background: To compare male bodybuilders to men with eating disorders and control men regarding body image, psychopathology and sexual history. ***Method:*** We compared 28 male bodybuilders, 30 men with eating disorders (anorexia nervosa, bulimia or binge eating disorder defined by DSM-IV), and 30 controls, using a battery of questionnaires covering weight history, eating behavior, body image, lifetime history of psychiatric disorders, and sexuality. Eating-disordered and control men were recruited from a college student population and studied during the course of an earlier investigation. ***Results:*** Bodybuilders exhibited a pattern of eating and exercising as obsessive as that of subjects with eating disorders, but with a 'reverse' focus of gaining muscle as opposed to losing fat. Bodybuilders displayed rates of psychiatric disorders intermediate between men with eating disorders and control men. In measures of body image, the bodybuilders closely resembled the men with eating disorders, but significantly differed from the control men, with the former two groups consistently displaying greater dissatisfaction than the latter. Sexual functioning did not distinguish the three groups except for the item 'lack of sexual desire' which was reported significantly more often by both bodybuilders and men with eating disorders. ***Conclusion:*** On measures of body image and eating behavior, bodybuilders share many features of individuals with eating disorders.

Most of the available information on body image in men comes from studies of men with eating disorders [1–4]. Studies in both Europe and America have consistently showed marked dissatisfaction with body image in men with anorexia nervosa, bulimia nervosa or binge eating disorders compared to control men [5, 6]. However, fewer studies have investigated body image in men without eating disorders. These studies have generally found that men perceive themselves as underweight [7–11], in contrast to women, who tend to perceive themselves as overweight regardless of their actual weight. Men's self-perceptions of being underweight are usually associated with a desire for greater muscularity, but not more fat [12–14]. Therefore, sports which emphasize muscularity, such as bodybuilding, may attract men with prominent body dissatisfaction. For example, Pasman and Thompson [15] and Blouin and Goldfield [16] have found that bodybuilders, as compared to other athletes, displayed an increased

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Table 1. Demographical and physical characteristics of the three groups

	BB (n = 28)	ED (n = 30)	CO (n = 30)	p value[g]
Age, years[a, b]	29 (5.1)	26 (4.8)	24 (3.1)	0.001
Married	3 (11%)	3 (10%)	2 (7%)	NS
Educational status[b, c]				0.000
College or postgraduate	7 (25%)	30 (100%)	30 (100%)	
High school or lower	21 (75%)	0	0	
Height, cm[b, d]	177 (0.5)	180 (0.6)	183 (0.5)	0.002
Body Mass Index[b, c, e]	29.2 (3.1)	23.1 (4.2)	22.7 (2.5)	0.000
Difference between current and desired weight, kg[b, c, d, f]	−11.5 (13.4)	3.8 (7.4)	0.6 (4.6)	0.000

Figures are mean ± SD if not indicated otherwise. BB = Bodybuilders; ED = subjects with eating disorders; CO = college student controls.

[a] BB vs. ED, $p < 0.05$.

[b] BB vs. CO, $p < 0.001$.,

[c] BB vs. ED, $p < 0.001$.

[d] ED vs. CO, $p < 0.05$.

[e] Body Mass Index = weight in kg × (height in meters)^2.

[f] Positive values indicate that the desired weight was lower than the current weight.

[g] Comparison of all three groups: Kruskal-Wallis test, d.f. = 2 for age, height, BMI and difference between current and desired weight, χ^2 test, d.f. = 2 for the other variables.

preoccupation with their body appearance, similar to that of individuals suffering from eating disorders. Unlike individuals with eating disorders, however, the bodybuilders focussed on gaining muscle rather than losing fat. One group of investigators has characterized these preoccupations of bodybuilders as 'reverse anorexia nervosa' [11]. The same group has subsequently renamed this phenomenon 'muscle dysmorphia' [17]. Other studies have examined psychological aspects of bodybuilding, but many of these studies were primarily concerned with aspects of anabolic steroid use in this population [11, 18–22]. Thus the literature on body image in bodybuilders still remains limited.

Recently, we had an opportunity to recruit a group of bodybuilders. We used this opportunity to compare these bodybuilders to men with eating disorders and to control men with regard to body image, eating behavior, sexual functioning, and psychopathology.

Methods

We advertised in three gyms in Innsbruck, Austria, for men 18–35 years old who had participated in at least one bodybuilding competition within the past three years. We induced bodybuilders to participate by offering free measures of body composition and blood draws for the analysis of glucose, lipid and hormonal parameters (unpublished data). Our study was based on self-reported data, assessed either by personal interview involving demographic data, weight history, eating attitudes and behavior, and body-image measures, or self-administered questionnaires regarding sexual functioning. We also administered the Structured Clinical Interview for DSM-IV [23, 24] to assess lifetime history of DSM-IV Axis I disorders. These measures were essentially identical to those that we used in a recent previous study of 30 male college students with eating disorders and 30 male college student controls. A detailed description of these measures has been presented in our earlier report [6].

Comparisons of the three groups with respect to continuous variables were performed by the Kruskal-Wallis test followed by post-hoc Mann-Whitney U tests whenever the Kruskal-Wallis test had yielded a statistically significant result ($p < 0.05$). For group comparisons with regard to nominal variables the χ^2 test was used based on the same testing procedure. Throughout the analysis, a two-tailed α level of 0.05 was used for significance testing. It was difficult to calculate a Bonferroni correction to correct for the effect of multiple comparisons in this study, because many of the measures were correlated with one another. Accordingly, the significance levels are presented without correction. Therefore, the reader should bear in mind that some findings, especially those of marginal significance, may represent chance associations.

Results

Twenty-eight bodybuilders met inclusion criteria for the study. As shown in table 1, they were slightly older than the two comparison groups and reported a lower level of educational attainment, presumably since the two

Table 2. Lifetime psychopathology

DSM-IV diagnoses	BB (n = 28)	ED (n = 30)	CO (n = 30)	p value[g]
Mood disorders[a, b, c]	5 (18)	16 (53)	1 (3)	0.000
Mayor depressive syndrome	4 (14)[f]	15 (50)	1 (3)	
Dysthymia	1 (4)	1 (3)	0	
Substance abuse	8 (29)	11 (37)	4 (13)	NS
Alcohol	7 (25)	11 (37)	3 (10)	
Drugs	3 (11)	6 (21)	1 (3)	
Anabolic steroids[d, e]	26 (93)	0	0	0.000
Anxiety disorders	6 (22)	6 (20)	2 (6)	NS
Panic	1 (4)	0	0	
Social phobia	1 (4)	2 (7)	0	
Simple phobia	4 (14)	1 (3)	1 (3)	
Obsessive compulsive disorder	0	3 (10)	1 (3)	
Eating disorders	0	x	0	NS

Figures are numbers and percentages.
BB = Bodybuilders; ED = subjects with eating disorders; CO = college student controls.
[a] BB vs. ED, $p < 0.01$.
[b] BB vs. CO, $p < 0.05$.
[c] ED vs. CO, $p < 0.001$.
[d] BB vs. ED, $p < 0.001$.
[e] BB vs. CO, $p < 0.001$.
[f] Substance-induced.
[g] Comparison of the three groups, χ^2 test, d.f. = 2.

Table 3. Sexual history

	BB (n = 28)	ED (n = 30)	CO (n = 30)	p value[e]
Sexual orientation				
Homo- or bisexual	1 (4)	3 (10)	0	NS
Sexual functioning				
No sexual desire[a, b]	9 (32)	12 (43)	2 (7)	0.006
Erectile problems	2 (7)	4 (14)	1 (3)	NS
Ejaculative problems	2 (7)	3 (11)	3 (10)	NS
Orgasmic problems	2 (7)	4 (14)	0	NS
During childhood				
Sexually educated[a, c]	4 (15)	12 (40)	14 (47)	0.031
Nudity as a taboo[a, d]	11 (42)	12 (40)	4 (13)	0.024

Figures are numbers and percentages.
BB = Bodybuilders; ED = subjects with eating disorders; CO = college student controls.
[a] BB vs. CO, $p < 0.05$.
[b] ED vs. CO, $p < 0.001$.
[c] BB vs. ED, $p < 0.05$.
[d] ED vs. CO, $p < 0.05$.
[e] Comparison of all three groups, χ^2 test, d.f. = 2.

comparison groups had intentionally been selected from a college population [6]. Also, as might be expected from our selection criteria, bodybuilders exhibited a significantly greater body mass index (BMI) than either comparison group. Two findings were less expected: bodybuilders were significantly shorter and showed a significantly larger discrepancy between their current weight and their desired weight than either comparison group.

The bodybuilders revealed a preoccupation with food, body image, and exercise similar to anorexic and bulimic students. Seventy-four percent reported that their eating habits were determined by schedule and not by hunger in order to build their bodies. During the weight-gaining phase of their program, 26 (93%) reported using anabolic steroids, and consuming a mean (SD) of 3,720 (970) calories daily, at a mean monthly cost of 500 (SD 180) US dollars. Almost all of them (93%) stated that they cooked for themselves, avoiding social gatherings and restaurants, to be sure of getting a low-fat and high-protein diet, supplemented with protein powders, diet pills, diuretics, or other nutritional products. Eighty-two percent said that they felt guilty when skipping their diet for a week, e.g. when they are on vacation or on a business trip, referring to these lapses as 'garbage days'. However, in the course of time they have learned to either avoid conditions which interfered with their lifestyle or to be very selective.

On measures of body image, the bodybuilders resembled the men with eating disorders more closely than controls (fig. 1). Even though the bodybuilders were strikingly fit and muscular, they nevertheless were more likely to feel fat and less likely to like their bodies than control college men. Indeed, 71% of the bodybuilders stated that they started bodybuilding because they felt too fat [7 (25%)], too thin [8 (29%)], and/or not sufficiently masculine [5 (18%)].

Bodybuilders displayed lower rates of psychopathology than eating-disordered men but higher rates than controls (table 2). The differences, however, reached high levels of statistical significance only for mood disorders. However, it should be noted that all four cases of major depression in the bodybuilders occurred exclusively during withdrawal from 'cycles' of anabolic steroids. Eight bodybuilders reported a past history of drug and/or alcohol abuse; all reported that the rigorous training and mental discipline of bodybuilding helped them to quit their abuse. None of the bodybuilders met formal DSM-IV criteria for anorexia nervosa, bulimia nervosa, binge eating disorder, or eating disorder NOS, even though they displayed single features of eating disorders especially before and after a competition.

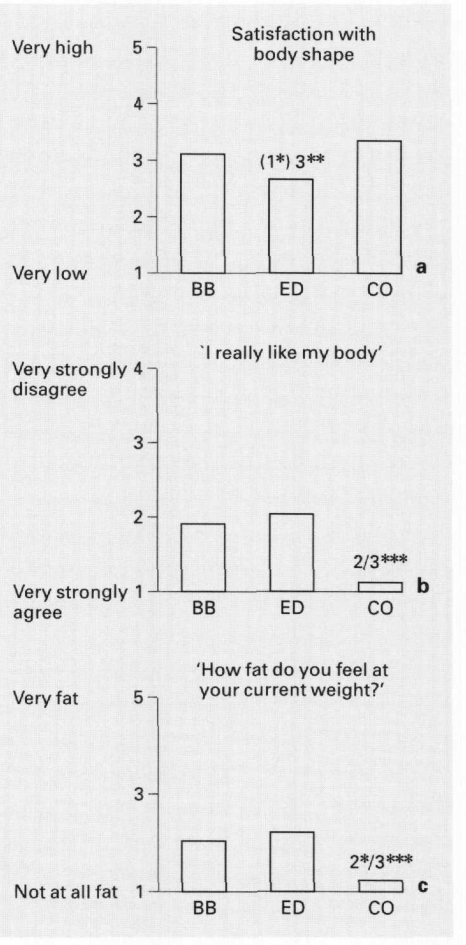

Fig. 1. Body image. **a** Comparison of all three groups, p = 0.023, Kruskal-Wallis test, d.f. = 2. 1 = Comparison between BB and ED; 3 = ED vs. CO; * p = 0.06; ** p < 0.01. **b** Comparison of all three groups, p = 0.000, Kruskal-Wallis test, d.f. = 2. 2 = Comparison between BB and CO; 3 = ED vs. CO; *** p < 0.001. **c** Comparison of all three groups, p = 0.001, Kruskal-Wallis test, d.f. = 2. 2 = Comparison between BB and CO; 3 = ED vs. CO; * p < 0.05; *** p < 0.001. BB = Bodybuilders; ED = subjects with eating disorders; CO = college student controls.

Although few differences emerged among the groups on questions regarding sexual history and functioning, we found one striking phenomenon: both the bodybuilders and the men with eating disorders were far more likely to report 'no sexual desire' than control men (table 3).

Discussion

We compared 28 male bodybuilders to 30 men with eating disorders and 30 control men on measures of eating behavior, body image, psychopathology, and sexual func-

tioning. Our findings suggest that bodybuilders, like individuals with eating disorders, exhibit obsessional preoccupations with body image. But while individuals with eating disorders were 'fat-phobic', the bodybuilders were 'phobic' about not having enough muscle. Klein [14] has described this fear of size loss as 'femiphobia': a fear of becoming less of a man. He argues that bodybuilding as a hypermasculine sport compensates for an insecure gender identity. Alternatively, the excessive 'body-modeling' behavior of the bodybuilders might be based on a negative body image, as suggested by their low scores on the item 'I really like my body'. This hypothesis appears consistent with the findings of Porcerelli and Sandler [19], who found significantly higher pathological narcissistic scores in steroid users than in non-users.

Anderson et al. [20] have questioned whether bodybuilders are at increased risk for developing an eating disorder. Interestingly, none of our bodybuilders met all criteria for either anorexia nervosa or bulimia nervosa, although most described binge eating behavior after competitions, and a very rigid and strict diet before. In other words, even though the bodybuilders did not technically meet criteria for eating disorders, most displayed abnormal eating behavior.

Our data do not indicate that bodybuilders exhibit markedly greater overall psychopathology than other men. However, the rates of substance abuse disorders and anxiety disorders were modestly higher in the bodybuilders than in controls. Perhaps the most striking of these substance abuse disorders is the abuse of anabolic steroids. Since this use is illegal, bodybuilders have to get their steroids from the black market and do not get them prescribed. Bodybuilders take anabolic steroids for their muscle-growing potency and not for their psychoactive action, but steroid abuse nevertheless represents a frank form of substance abuse associated with substantial morbidity [25, 26]. Therefore, anabolic steroid use is included in the category 'substance abuse', although it is listed separately from 'regular substance abuse': mood disorders were the only other disorders that differed significantly in prevalence between the two groups. However, it should be noted that the significantly higher rate in bodybuilders was largely attributable to the effects of withdrawal from anabolic steroids.

Although the use of anabolic steroids usually increases sexual desire and steroid withdrawal decreases the sex drive, our bodybuilders reported loss of sexual desire. The explanation for this finding may be that bodybuilders focus rigidly on dieting, training, and sleep, and no waste of energy – possibly to the detriment of sexual desire. Their attempts to maintain extremely low levels of body fat may blunt sexual desire as well.

It is difficult, on the basis of our data, to establish the origins of the body image dissatisfaction exhibited by these bodybuilders. Biological and genetic factors, such as a predisposition to obsessive compulsive symptomatology, may well contribute to this phenomenon [17, 27]. In addition, growing societal pressures on men to achieve a lean and muscular physique may combine with these factors to produce prominent body dissatisfaction, together with a preoccupation with weightlifting and body appearance, in certain predisposed individuals [25, 27–29].

In assessing these findings, several methodologic limitations should be considered. First, because of the method of subject selection, bodybuilders differed from the eating-disordered and control men in educational attainment. However, this sociodemographic difference probably resembles that found in the overall Austrian population: our anecdotal impression is that competition bodybuilders in Austria are rarely members of the higher socioeconomic classes, whereas men with eating disorders appear equally distributed throughout the socioeconomic classes.

Second, it is difficult to assess possible effects of subjects' self-selection. For example, bodybuilders or eating-disordered men with serious psychopathology might be less likely to participate in the study than the average bodybuilder. However, similar cross-cultural phenomenology and rates of psychopathology in previous studies of both male bodybuilders [11] and eating-disordered men [6] argue against a serious selection bias.

Third, our study was limited to the assessment of phenomenology and psychiatric disorders in the three groups compared. We did not assess personality disorders, which might represent possible confounding variables and which should be examined in further research.

In conclusion, our study comparing bodybuilders and eating-disordered men showed similar levels of body image dissatisfaction in both groups, but in opposite directions. Bodybuilders displayed rates of lifetime psychopathology lower than men with eating disorders but higher than those of controls. Our findings suggest that bodybuilding may represent an alternative response to disordered body image which shares many features with that seen in eating disorders.

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