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The relationship between the drive for muscularity and anthropometric measures of muscularity and adiposity

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Abstract

Researchers have found consistently positive associations between women's body dissatisfaction and the desire to be thin and anthropometric indices of the amount of body fat they care on their frame. However, with the increasing emphasis being given to men's body image concerns, such as the drive for muscularity, it is important to study the relationship between men's desire to become more muscular and the actual amount of muscle they carry on their frames. That is, because men who want to become muscular can achieve that through strength training, do those with a high drive for muscularity have a high level of muscle mass? We explored this issue in a sample of 100 college-aged men and found that only one of four anthropometric measure of muscularity (flexed bicep circumference) was predictive of engaging in muscularity-oriented behaviors, while none predicted attitudes about becoming more muscular. These findings suggest either that men's drive for muscularity is unrelated to their actual level of muscularity or that current anthropometric indices are not accurate enough for a significant relationship to emerge. Suggestions for future research and study limitations were discussed.

Keywords: Drive for muscularity; Muscularity; BNI; Fat-free mass index; Body circumferences

Introduction

Until recently, body image research has tended to focus on the role of adiposity on perceptions of body dissatisfaction (e.g., the drive for thinness). However, given that the social standard of bodily attractiveness for women emphasizes a thin ideal (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999), while for men it stresses muscularity (Mishkind, Rodin, Silberstein, & Striegel-Moore, 1986; Thompson & Cafri, in press), the extant research has been fairly one sided. In the last few years, researchers have begun to redress the balance and focus on the muscular ideal and men's *drive for muscularity* (e.g., McCreary & Sasse, 2000; Pope et al., 2000). This growing research literature has shown that the drive for muscularity is associated with dieting to gain weight (McCreary & Sasse, 2002), lower levels of self-esteem (McCreary & Sasse, 2000), as well as higher levels of depression (McCreary & Sasse, 2000; Olivardia, Pope, Borowiecki, & Cohane, 2004), social physique anxiety (Duggan & McCreary, 2004), neuroticism, self-oriented perfectionism (Davis, Karvinen, & McCreary, 2005), traditional masculinity, gender role conflict (McCreary, Saucier, & Courtenay, 2005), gender role conformity (Mahalik et al., 2003), and other aspects of psychological distress (e.g., Cohane & Pope, 2001; Olivardia et al., 2004).

However, when studying body image concerns such as the drive for thinness or the drive for muscularity, researchers often want to determine people's actual or relative body size, as well as their degree of overall body

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fat and muscularity. Knowing the degree to which people are overweight or under muscled can help to determine whether the degree of body dissatisfaction they are experiencing reflects a real deviation from the social standards of bodily attractiveness our culture imposes on men and women or whether the body dissatisfaction is a function of misperceiving the degree to which one is muscular or thin (e.g., McCreary & Sadava, 2001). In other words, are women dieting or dissatisfied with their bodies because they are overweight, or are they a healthy body weight but not satisfied and trying to lose even more weight? Similarly, do men who desire more muscularity actually have relatively little muscle mass? If they already have a lot of muscle mass, do they believe they are small and skinny, thus displaying certain symptoms of muscle dysmorphia (Maida & Armstrong, 2005; Pope, Gruber, Choi, Olivardia, & Phillips, 1997)?

When measuring people's body fat and muscularity, researchers often rely on anthropometric indices, as opposed to other more onerous, but more accurate, measurement tools (e.g., hydrostatic weighing, near-infrared interactance, and dual energy X-ray absorptiometry). Two anthropometric measures are used most frequently when classifying a person as underweight, normal weight, overweight, or obese: estimates of body fat percentage (BFP) and body mass index (BMI). There are several ways researchers and clinicians can estimate a person's BFP, but one of the most common is to measure skinfold thicknesses at a series of points on the body. The number and location of the skinfold measurements depends on the particular estimation formula being used (e.g., Durnin & Womersley, 1974; Jackson & Pollack, 1978), but the overall procedure is similar. This is a very labor-intensive process, however, and can lead to increased errors if those measuring the skinfolds are not trained properly (Heyward & Stolarczyk, 1996).

For these reasons, researchers often rely on the BMI, a measure of weight relative to height, as a group or population level indicator of weight status (e.g., underweight, overweight, or obese). Both the World Health Organization (1998) and the Expert Panel of the National Institutes of Health (1998) suggest that BMI values under 18.5 are indicative of someone who is underweight, while BMI values between 18.5 and 25.0 suggest appropriate weight, and values above 25.0 and 30.0 suggest overweight and obesity, respectively. However, while the BMI is a good, general predictor of weight status in most groups, it is less accurate at predicting the weight status of some athletic individuals. That is, because muscle weighs more than the same physical amount of body fat, someone who has a healthy weight, but is muscular, may have a BMI that is considered to be overweight or obese when this is not really the case.

There are fewer anthropometric measurement options available for assessing the overall amount of muscle a person carries on their frame. The most common method is the index of fat-free mass (FFM; see Heyward & Stolarczyk, 1996), which was transformed by Kouri, Pope, Katz, and Oliva (1995) into the fat-free mass index (FFMI) by normalizing it to the body of a male who is 1.8 m tall. The FFMI has been used widely. It has been shown to identify weight lifters who abuse anabolic–androgenic steroids (AAS; Kouri et al., 1995), it has been used to quantify the actual degree of muscularity among men suffering from muscle dysmorphia (e.g., Olivardia, Pope, & Hudson, 2000), and it has been used in studies assessing the degree of muscularity that men would like to add to their frame (e.g., Pope et al., 2000). A series of body circumference measurements also can provide an index of a person's muscularity (Heyward & Stolarczyk, 1996). For example, Roche, Heymsfield, and Lohman (1996) have demonstrated that fat-free mass is negatively correlated with abdominal circumferences and positively correlated with limb circumferences.

While researchers have shown strong and consistent correlations between body dissatisfaction, the drive for thinness, and anthropometric indices of body fat in women (e.g., Davis, 1990; Friedman, Wilfley, Pike, Striegel-Moore, & Rodin, 1995), no studies have examined the relationship between anthropometric measures of muscularity and the drive for muscularity. The present study addresses this association in a sample of college-aged men. It takes a lot of effort to develop and maintain a muscular physique and past research has shown that men with high levels of the drive for muscularity strength train more often (McCreary, in press) and have higher levels of fitness and appearance orientation (Davis et al., 2005) than those with a lower drive for muscularity. We, therefore, predicted a positive relationship between anthropometric indices of muscularity and the drive for muscularity. That is, a man who has a high degree of muscularity (e.g., as measured by FFMI or circumferences) should possess a high drive for muscularity. However, there is a dual pathway that men who want to be overtly muscular must follow: in order for men to display their muscularity, they also need to have a low BFP. For example, Olivardia et al. (2004) found that, while men wanted to gain substantial amounts of muscularity, they also wanted to lose a slight, but significant, amount of body