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Exercise dependence and the drive for muscularity in male bodybuilders, power lifters, and fitness lifters

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ABSTRACT

Researchers have hypothesized differences in exercise dependence and drive for muscularity between bodybuilders and power lifters, while others have not found the predicted differences. This study assessed 146 weight lifters (bodybuilders, $n = 59$; power lifters, $n = 47$; fitness lifters, $n = 40$) on the Exercise Dependence Scale, Bodybuilding Dependence Scale, and the Drive for Muscularity Scale. Results showed that bodybuilders and power lifters were significantly higher than fitness lifters on EDS Total, 7 EDS scales, and the 3 BDS scales. In contrast, power lifters were found to be significantly higher on DMS Total and DMS Behavior scales than bodybuilders. The regression results suggest that exercise dependence may be directly related to the drive for muscularity.

Introduction

In today's western societies struggling with huge increases in obesity and sedentary behavior, it is ironic that exercise scientists also study excessive exercise habits and the obsessive drive for a muscular physique. Excessive exercise or exercise dependence (ED) has been defined as "a craving for exercise that results in uncontrollable excessive physical activity and manifests in physiological symptoms, psychological symptoms, or both" (Hausenblas & Symons Downs, 2002a, p. 90). Research (Allegre, Souville, Therme, & Griffiths, 2006; Hausenblas & Symons Downs, 2002b) in exercise dependence has focused on behavioral factors (e.g., exercise frequency), psychological factors (e.g., compulsive behavior), and physiological factors (e.g., tolerance and withdrawal). From a body image perspective, McCreary and Sasse (2000) have suggested that men and boys in western society have developed significant body concerns that cause them to generate a 'drive for muscularity' to meet a perceived high societal standard for a muscular physique. This drive for muscularity (DM) among primarily young boys and men involves a strong body image concern that they are not as muscular as the average male body shape (McCreary & Sadava, 2001). Initial findings that connect the two variables have suggested that males who desire more muscularity seem to lift weights with greater frequency than men low in DM (McCreary & Sasse, 2000).

To date, epidemiological findings on ED seem unclear. Several studies (Garman, Hayduck, Crider, & Hodel, 2004; Zmijewski & Howard, 2003) have reported that between 22% and 46% of their undergraduate college exercise samples were at risk for 'exercise dependence', while other researchers (Allegre et al., 2006; Hausenblas & Symons Downs, 2002a; Terry, Szabo, & Griffiths, 2004) have reported that the exercise dependence prevalence in their samples was more conservatively in the 3–13% range. As yet, no study has presented data on exercise dependence prevalence in a purely anaerobic (weightlifting) sample.

Szabo (2000) has further suggested that the prevalence for exercise dependence declines with age as older exercisers develop a more balanced lifestyle. Recently, Edmunds, Ntoumanis, and Duda (2006) provided evidence that study participants grouped into two younger cohorts (less than 24 years old, 25–34 years) were significantly higher in total exercise dependence scores on the validated Exercise Dependence Scale (EDS; Hausenblas & Symons Downs, 2002b; Symons Downs, Hausenblas, & Nigg, 2004) than those above 35 years of age. Other evidence by Weik and Hale (2009) found prevalence rates in male and female adult exercisers (mean age of approximately 40 years) that were similar to those of published undergraduate samples (Hausenblas & Symons Downs, 2002a). It remains unclear as to what the actual prevalence really is, but this study will examine possible age differences in ED in weight lifters.

In order to accurately measure this specific form of weight lifting ED, Smith, Hale and Collins (1998) also created a three-dimensional Bodybuilding Dependence Scale (BDS). They subsequently validated the questionnaire in a series of studies (Hurst, Hale, Smith, & Collins, 2000; Smith & Hale, 2004, 2005) that

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investigated the psychological antecedents and typical behaviors found among bodybuilders and weightlifters.

Most researchers studying these anaerobic activities realized early on that different kinds of weight lifters may have different goals for their workouts, which might impact their susceptibility to ED behaviors. Since power lifters and Olympic lifters train to lift as much as possible in one repetition and are not as concerned with muscular development, it has been hypothesized (Hallsworth, Wade, & Tiggemann, 2005; Lantz, Rhea, & Cornelius, 2002) that they may be less likely to develop obsessive overtraining routines designed to satisfy possible body image concerns. On the other hand, since many bodybuilders train to develop a hypermesomorphic physique and do so to overcome body image and self-esteem weaknesses (Hildebrandt, Schlundt, Langenbucher, & Chung, 2006; Hurst et al., 2000; Olivardia, Pope, & Hudson, 2000; Pope, Phillips, & Olivardia, 2000), they may be more susceptible to excessive exercise routines, obsessional eating disturbances, and steroid usage.

The research findings to date are unclear regarding these hypothesized ED differences in lifters. Hurst et al. (2000) reported that experienced bodybuilders scored significantly higher on the Social, Training, and Mastery Dependence subscales of the BDS and social physique anxiety (Hart, Leary, & Rejeski, 1989) than their power lifting sample. In contrast, Lantz, Rhea, and Mayhew (2001) found no significant differences between competitive bodybuilders and power lifters on the ED subscale of the Muscle Dysmorphia Inventory (Rhea, Lantz, & Cornelius, 2004). Furthermore, on an unvalidated measure of ED with a small sample of 14 power lifters, Pierce and Morris (1998) reported that the sample seemed to have a high degree of ED. Therefore, a purpose of this study was to again compare ED scores between bodybuilders, power lifters, and fitness lifters on several psychometrically validated ED questionnaires (Bodybuilding Dependence Scale and Exercise Dependence Scale) to attempt to further clarify this relationship.

Since the primary goal of bodybuilding is the development of a hypermesomorphic physique and that of power lifting is to enhance strength, it seems logical to suggest that bodybuilders may also be higher in the DM. But once again, research findings to date show no clear pattern regarding this hypothesis. Hallsworth et al. (2005) reported that while bodybuilders placed a greater emphasis on the importance of appearance in their self-esteem than power lifters, there was no significant difference with power lifters on their unvalidated measure of DM, although they were significantly higher than the psychology class control group. Similarly, Pickett, Lewis, and Cash (2005) also reported that both competitive bodybuilders and 'non-competitive weight trainers' were equally more 'appearance-invested' than active athletic controls who did not weight lift (no measure of DM was taken). In contrast, Lantz et al. (2001) reported that bodybuilders had significantly higher concerns regarding the size and shape of their physique than power lifters (again no measure of DM was taken). Therefore, a further purpose of this study was to compare scores in DM between bodybuilders and power lifters on a validated psychological questionnaire (Drive for Muscularity Scale, DMS; McCreary & Sasse, 2000; McCreary, Sasse, Saucier, & Dorsch, 2004) to see if any differences exist among the lifters.

While studies (Litt & Dodge, 2008; McCreary & Sasse, 2000) have shown that males high in DM spend more time lifting weights than those with lower levels of DM, only one study to date (Chittester & Hausenblas, 2009) has explored the relationship between DM and ED in male exercisers. They found a significant correlation of the EDS with Muscle-oriented Body Image (MBI; $r = .35$) and Muscularity-related Behaviors (MB; $r = .57$) of the DM scale. Therefore, this study will attempt to see if the two components of DM or its total score can significantly predict ED on both the EDS and BDS questionnaires and frequency of weight lifting behavior.

In summary, there are several purposes to this investigation involving ED and DM. First, since Edmunds et al. (2006) have reported that ED symptoms may decrease with age, this study will predict that young adult lifters will show higher scores in ED and DM than adult male weight lifters. Second, since the literature (Hallsworth et al., 2005; Lantz et al., 2001) is unclear as to whether there are differences in ED prevalence among different types of weight lifters (bodybuilders, power lifters, fitness lifters) even though anecdotal reports (Fussell, 1991; Klein, 1993) suggest that each group has uniquely different motives for weight lifting, no prediction was made about possible group differences between lifting types on several well-validated measures of ED (EDS, BDS). Similarly, although logic dictates that bodybuilders may have a stronger DM than power or fitness lifters, to date no validated measure of DM has been utilized to test this hypothesis. Therefore, it was predicted that no group differences on the DMS (McCreary & Sasse, 2000) would occur in this study. Finally, based on logic and several studies' (Chittester & Hausenblas, 2009; Litt & Dodge, 2008) results, this study suggests that DM and its components can significantly predict ED risk.

Method

Participants

One hundred and forty-six male men, predominantly Caucasian, middle class weightlifters (self-labeled as 59 'bodybuilders', 47 'power lifters', 40 'fitness lifters') volunteered to complete a demographic and psychological questionnaires packet before or after their typical workout at six different health clubs and one University fitness center in southeastern Pennsylvania. Participants self-reported that they had been lifting weights for approximately eight years ($M = 7.88$, $SD = 5.50$), typically lifted about four times a week ($M = 4.18$, $SD = 1.04$) for a duration of about an hour and a half per bout ($M = 1.54$, $SD = 1.23$). No information on any competitive weightlifting experience was obtained. Response rate for questionnaire returns was 91% with 10 packets not returned. All participants volunteered anonymously and read implied informed consent forms before completing the questionnaires; prior approval was gained by the University's institutional review board (ORP) before the participants were recruited.

A subsample of 100 participants was categorized by age in order to test the hypothesis of possible age-related effects on ED. Forty-five participants were designated as 'young adults' 18–24 years of age, and 55 participants were designated as 'adults' 25–55 years of age. No specific ages were obtained on the questionnaire, and participants just labeled themselves as in either category.

Instruments

The Exercise Dependence Scale (EDS; Hausenblas & Symons Downs, 2002b; Symons Downs et al., 2004) is a 21-item multidimensional questionnaire with 6-choice Likert scale items ranging from 'Always' to 'Never' created based on DSM-IV criteria for substance dependence. The seven subscales (Tolerance, $r = .78$; Withdrawal Effects, $r = .90$; Continuance, $r = .90$; Lack of Control, $r = .82$; Reductions in Other Activities, $r = .75$; Time, $r = .86$; Intention, $r = .89$) of the EDS have all shown acceptable scale score reliability and were supported by results of a confirmatory factor analysis according to Symons Downs et al. (2004). Participants are categorized on total score as 'exercise dependent', 'non-dependent symptomatic', or 'non-dependent asymptomatic'. Hausenblas and Symons Downs (2002b) and Hausenblas and