

Using an exercise-based instrument to detect signs of an eating disorder

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Abstract

The study employed an innovative exercise-based instrument to identify individuals at risk for eating disorder (ED). The Exercise Orientation Questionnaire (EOQ), a reliable and valid instrument, was used to compare 80 ED patients, 74 obese patients, 99 elite runners, and 214 controls from a previous study. Runners resembled ED patients in scoring high on total EOQ and exercise intensity but differed in that the athletes scored low on self-loathing (SLSS), a sub-scale of the EOQ. SLSS scores clearly distinguished clinical (ED, obese) from non-clinical groups, while other sub-scales (self-control, weight loss, and identity) did not. The study suggests that it is feasible to detect ED risk through assessment of exercise attitudes and behaviors. The SLSS subscale of the EOQ can differentiate clinical from non-clinical groups and anorexic patients from healthy individuals with body mass index within the anorexic range. The SLSS could provide a theoretical bridge between compulsive athleticism and ED. © 2001 Elsevier Science Ireland Ltd. All rights reserved.

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1. Introduction

1.1. Relationship between diet and exercise

The rate of pathogenic weight control behavior ranges from 1 to 60% in various sports with

female and elite athletes at greater risk than other athletes (Sundgot-Borgen, 1993, 1994; Beals and Manore, 1994). Non-elite athletes, at least those in high school, seem at decreased risk (Smolak et al., 2000). In most sports only a small percentage of individuals practice behaviors such as rigorous dieting, vomiting, or laxative abuse that could qualify them for an eating disorder (ED) diagnosis or EDNOS (Eating Disorder Not Otherwise Specified), but in sports that value low

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body weight such as gymnastics the percentage is much higher (Rosen et al., 1986; Davis, 1990; Yates et al., 1992, 1994; Garner et al., 1998).

The consistent association between heightened commitment to exercise and eating pathology implies the existence of a common substrate. Shared features include: (1) personality traits such as perfectionism and neuroticism; (2) the tendency to combine exercise and restrictive diet; (3) fostering of physiologic stress that activates the hypothalamic-pituitary-adrenal axis and secondarily affects activity level, cognition, and mood; and (4) increases in central serotonin synthesis and turnover.

Personality traits of perfectionism and neuroticism are evident in ED patients (Waller et al., 1992; Davis, 1997; Davis et al., 1997; Brewerton et al., 1993; Bulik et al., 1995) and compulsive exercisers (Slade et al., 1991; Yates, 1991; Hauck and Blumenthal, 1992; Yates et al., 1994; Davis et al., 1995; Davis, 1997). Perfectionism influences the severity of anorexia nervosa (AN) and is inversely related to motivation to change (Halmi et al., 2000). Neuroticism intensifies certain aspects of perfectionism such as concern over mistakes and the need to set exacting personal standards. Individuals who score high in neuroticism appear sensitive and anxious; they worry a lot, expect the worst, and are generally dissatisfied with themselves and their performance (Eysenck and Eysenck, 1975). These traits could enhance susceptibility to ED and/or compulsive exercise and could perpetuate either condition once it begins.

Combining diet and exercise greatly increases the chance that either or both activities will become driven or compulsive (Epling and Pierce, 1988). Davis et al. (1994) have shown that when acute phase AN patients eat less, they exercise more, and when they exercise more, they eat less. Sixty percent of ED patients have a history of engaging in competitive sport prior to the onset of their disorder and/or before they began to diet. In some sports, such as long distance running, athletes are not easily distinguished from individuals with ED on the basis of appearance, weight, or eating behavior. Runners strongly endorse thinness and may strive to attain 5% body fat, a value well within the anorexic range (Beals

and Manore, 1994). In spite of maximal exertion, elite runners consume fewer calories than do matched but sedentary controls (Van Erp-Baart et al., 1989; Mulligan and Butterfield, 1990). Extreme diet and/or exercise stress the body, activating the hypothalamic-pituitary-adrenal axis and causing an increase in stress hormones. Many AN patients seem to be in 'sympathetic overdrive' because of their ceaseless activity and refusal to rest, a state that decreases typically elevated parasympathetic tone and heart rate variability (Uusitalo et al., 2000). Athletes who are over-trained often continue to train frenetically in spite of exhaustion and declining performance. This has been described as a state of 'sympathetic overactivity,' characterized by a decrease in elevated parasympathetic tone and heart rate variability (Lehmann et al., 1998).

Food restriction, binge/purge cycle, and exercise independently increase brain serotonin synthesis and turnover (Broocks et al., 1991; Chaouloff et al., 1989). Exercise causes an increase in central serotonin turnover and a corresponding decrease in appetite, making it easier for compulsive exercisers to diet. An increase in serotonin turnover secondarily enhances obsessiveness (Kaye et al., 1998), which in turn could intensify or perpetuate the overcommitment to diet or exercise. Serotonin dysregulation may influence trait as well as state variables as some degree of dysregulation persists in patients who have been successfully treated for anorexia (Frank et al., 2001) or bulimia (Kaye et al., 1999).

1.2. Need for a novel assessment tool

Attempts have been made to identify those athletes who have ED or who are at risk for ED. Unfortunately, athletes tend to omit or distort responses that would indicate a problem even when they are responding anonymously (Brownell and Rodin, 1992; Johnson et al., 1999; Sundgot-Borgen, 1993). Athletes correctly appraise the intent of screening instruments as they are based on self-reported ED symptoms such as pathological weight concern and purging behavior. Athletes are reasonably concerned about the consequences of being identified as having a problem.

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