

Eating Attitudes, Exercise Identity, and Body Alienation in Competitive Ultramarathoners

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This study examined the relationships among eating attitudes, exercise identity, and body alienation in ultramarathoners. Eighty-seven competitive ultramarathoners (73 males, 14 females) completed the Eating Attitudes Test-26, Exercise Identity Scale, and Body Alienation Scale as part of their pre-race registration. Correlation coefficients revealed that eating attitudes were positively related to exercise identity ($R = 0.31$) and injury tolerance ($R = 0.43$), and that exercise identity was positively related to injury tolerance ($R = 0.33$). MANOVA further indicated that subjects with high exercise identity reported more eating disorder behaviors [$F(2, 80) = 7.73, P < 0.001$] and higher injury tolerance [$F(2, 80) = 3.69, P < 0.05$] than persons with low exercise identity. Female ultramarathoners scoring high on exercise identity were more likely to report aberrant eating behaviors [$F(2, 80) = 3.39, P < 0.05$] and higher training intensity levels [$F(2, 80) = 3.91, P < 0.02$] than were average males and the low- or moderate-exercise identifying females.

Key Words: distance runners, eating disorders, injury tolerance

Considerable research has focused on the prevalence of eating disorders in a variety of populations. In particular, weight-dependent sports (e.g., distance running, dancing, and wrestling) in which aesthetic appeal and leanness are essential to competitive success have received much of the research attention (11, 12, 16, 37). Although the results are somewhat equivocal, it appears that male and female athletes who participate in sports requiring substantial levels of endurance and pain tolerance (known as grim asceticism; 41) might be at greater risk of developing disordered eating behaviors than nonathletes or athletes who participate in other sports (11, 12). This link between abnormal eating attitudes and athletic participation has been of particular interest in long-distance runners (e.g., 5, 18, 19, 40), revealing that distance runners have reported higher disordered eating scores especially when differentiating between obligatory and nonobligatory runners (e.g., 28, 32, 36). Thus, obligatory runners often demonstrate a compulsive need to exercise or to engage in activities believed to promote performance.

Given the obsessive-compulsive nature of obligatory runners, many researchers have focused on comparison studies with clinical patients to gain a better

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understanding of these behaviors. Some researchers found that these patients had significantly more evidence of psychopathology than male or female distance runners (31, 34), that high intensity or habitual female runners were similar to anorexics in their views of body image (34), preoccupations with food (13), and motivation to decrease percent body fat (13, 40). Moreover, 25% of the female participants who ran > 30 mi/wk had Eating Attitudes Test scores indicating a higher risk for anorexia (13, 36), and women runners displayed more disordered eating patterns than men (36, 40).

A 2nd avenue explored in disordered eating research has been identifying various psychological factors associated with eating disorders. These psychological factors include body image (26, 28, 32, 33), social physique anxiety (9, 22), and obsessive personality traits (10, 33). Overall, research seems to suggest that individuals with lower body image, higher social physique anxiety, and higher obsessive traits are more prone to eating disorders.

One subgroup of distance runners that has not received much attention in relation to eating attitudes is ultramarathoners. McCutcheon and Yoakum (25) have classified ultramarathons as races exceeding distances of traditional marathon length (26.2 mi), sometimes reaching distances of up to 100 mi. As such, ultramarathoners represent perhaps the ultimate in grim asceticism among distance runners. If the findings from previous research on other subgroups of distance runners can be accurately applied to ultramarathoners, it would seem that this group would be at an even greater risk for developing abnormal eating behaviors given the hyperendurance nature of their sport and their increased pursuit of leanness to facilitate performance. Furthermore, although the identification and findings of the previously mentioned psychological variables have provided significant insight into eating attitudes, several variables have yet to be explored regarding the disordered eating-athletic participation relationship. Two such variables are exercise identity and body alienation.

Exercise Identity

Exercise identity is a relatively recent construct introduced by Anderson and colleagues (1-3) based on the reciprocal relationship between behavior and role identity (7). As integral parts of one's self-concept, role identities give meaning and value to previous behaviors and influence future behaviors (1). Thus, according to Anderson and colleagues (1, 2, 4), role identities motivate or stimulate behaviors that support one's identification with a particular role and can be predictors of actual behavior. Further, when actual behaviors are consistent with one's role identity, those behaviors serve to reaffirm the individual's identity. Role identification might be best understood through Social Identity Theory, which suggests that identity development begins with the process of self-categorization (39). This process suggests that persons 1st identify themselves as a member of a specific group. Behaviors and values of the group are then learned and eventually acted out (21). Accordingly, self-categorization ultimately influences how one defines his or her place in society as well as provides self-esteem and a sense of purpose. For example, as running becomes an aspect of role identity, one could engage in specific behaviors or lifestyle changes defined by the exercise subculture (e.g., increased training volume or intensity, dietary behaviors, wearing fitness apparel) that reinforce and validate this role (1). As the exercise role becomes more salient,

these behaviors might become obsessive or deviant. For the distance runner, this might result in disordered eating or the adoption of excessive training volume levels to facilitate performance.

Body Alienation

A 2nd factor that might be linked to disordered eating in ultramarathoners is body alienation. Body alienation refers to the exploitation of the human body in sport and has been described as viewing one's body as a tool or instrument for use in human performance or production (6, 17). Brohm (6) has suggested that as athletes become more committed to their sport, they can become disassociated or isolated from their bodies, coming to view themselves as machines that, if constantly modified and trained, will be able to achieve maximal force or speed production. Thus, some athletes could become so obsessed with maximizing physical output and performance that they fail to consider the impact their behaviors have on their long-term health or their personal and social development (35). Even worse, harmful efforts towards maximizing performance, such as developing disordered eating or engaging in extreme training volumes, are often encouraged or insufficiently discouraged by others in the sport subculture (i.e., peers, coaches, media). Based on the previous discussion of Social Identity Theory, it would seem that persons who are highly identified with exercise might be at particular risk for developing body alienation given their desire to conform to the normative behaviors of the subculture.

Recent research by Adams, Anshus, and Lantz (unpublished data) identified 3 major body alienation components including injury tolerance, training through pain, and use of the body as a tool. According to these authors, injury tolerance is the persistence of an athlete to play through injury even if the effects are potentially harmful to the body. Several authors have noted the normalization and acceptance of injury in sport and a growing sport culture that encourages and pressures athletes both to accept and minimize injury tolerance as a routine part of sport (29, 30).

Training through pain refers to conditioning the body beyond the psychological limits of pain tolerance. Given that pain intensity is an important determinant of activity tolerance, individuals who are better able to minimize their pain experience might be able to persist longer in pain-inducing activities (24, 38). Indeed, research by Sullivan and colleagues (38) indicates that athletes might be particularly tolerant of pain, and although pain tolerances have not been determined to be sport specific, it would seem that ultramarathoners require particularly well-developed pain tolerance mechanisms given their need to manage significant pain intensity over extended time periods. Body as a tool refers to viewing the body as a mechanical device or instrument used to help a person achieve his or her performance goals in sport (6, 8, 27).

It would appear that body alienation, as represented by pain tolerance, body as a tool, and training through pain, might be related to eating attitudes and exercise identity levels because of the extreme demands placed on the body in highly selective sports requiring intense dedication. Therefore, the purpose of this study was to examine the relationship among eating attitudes, exercise identity, and the 3 dimensions of body alienation in competitive ultramarathoners. A secondary purpose was to examine the effects of gender and exercise identity on eating attitudes and body alienation. Based on previous research on distance runners (11, 12), 3 hypotheses were identified. First, it was anticipated that eating attitudes and the 3

Table 1 Demographic Characteristics of the Sample

Factor	Males (n = 73)		Females (n = 14)		Total (n = 87)		Range
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation	
Age	45.51	10.06	37.64	7.92	44.23	10.13	17-68
Height (cm)	177.00	7.40	164.60	5.20	175.00	8.50	142-193
Weight (kg)	74.07	9.66	57.04	5.57	71.27	11.09	50-115
No. of ultramarathons	18.47	28.73	16.36	18.24	18.13	27.22	0-75
Years of training	16.65	9.44	14.93	6.65	16.37	9.04	0-5
Training volume (mi/wk)	48.38	25.15	34.58	28.88	37.74	25.57	0-100

dimensions of body alienation would be positively related to exercise identity such that those persons reporting higher identification with the exercise role would exhibit more aberrant eating behaviors and greater use of the body as a tool, injury tolerance, and training through pain. Second, it was hypothesized that eating attitudes would be positively related to the 3 dimensions of body alienation indicating that persons who engage in aberrant eating behaviors would be more likely to engage in other forms of deviant behaviors such as body alienation in an effort to improve performance. Lastly, it was hypothesized that persons with a high level of exercise identity would exhibit greater body alienation and abnormal eating behaviors than those with a low level of exercise identity.

Method

Participants and Procedures

Eighty-seven competitors (73 males, 14 females) from 2 separate sanctioned ultramarathons in 2 distinct geographical regions of the country participated in the study. One ultramarathon was 80 km and the 2nd was 160 km in length. To be included in the study, participants from the 80-km race must have previously completed at least 1 competitive ultramarathon and participants from the 160-km race must have completed a 100-km race in less than 13 h or a 160-km race in fewer than 24 h, depending on age. Participants in the 80-km race posted an average time of 13.1 h (range, 10.2 to 15.8) and those who completed the 160-km race (69%) posted an average time of 27.0 h (range, 20.3 to 29.9).

Approximately 90% of respondents completed the Eating Attitudes Test-26, Exercise Identity Scale, Body Alienation Scale, and a demographics sheet at the time of race registration. The number of participants who completed the questionnaire and completed the race is unknown. Participants' ages, height, weight, years of training, and the number of ultramarathons in which they have competed are presented, by gender, in Table 1. The Institutional Review Board for the Protection of Human Subjects approved the study prior to data collection.

Instrumentation

Eating Attitudes Test-26 (EAT). Eating attitudes were assessed using the EAT-26 (15), a shortened version of the EAT-40 introduced by Garner and Garfinkel (14). The EAT-26 is a widely used, self-report inventory that asks participants to indicate the degree to which each item applies to them using a 6-point Likert scale of *always, usually, often, sometimes, rarely, or never*. Each extreme response in the disordered eating direction was scored as 3 points and the adjacent alternatives were weighed as 2 points and 1 point, respectively. No score was assigned for nondisordered eating responses. The numerical values were then summed with values exceeding 20 indicative of populations at higher risk for developing eating disorders. The EAT-26 has been shown to be internally consistent and to have strong test-retest reliability (15, 23). Cronbach's alpha indicated the EAT-26 items to possess acceptable internal consistency with the current sample ($\alpha = 0.77$).

Exercise Identity Scale (EIS). The EIS is a 9-item, self-report inventory that measures the salience of one's identification with exercise as an integral part of the self-concept (1). Respondents were asked to indicate the level to which each

