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Eating Disorders in the Male Athlete

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Abstract

Eating disorders do occur in male athletes. They are less prominent than in female athletes, and therefore in danger of being missed. The high-risk sports fall into the same categories as with females: aesthetic sports, sports in which low body fat is advantageous, such as cross-country and marathon running, and sports in which there is a need to 'make weight', including wrestling and horse racing.

Athletic involvement may foster the development of an eating disorder. Some male athletes, in their preoccupation with body image, will abuse anabolic steroids. While sports participation may contribute to the aetiology of an eating disorder, the converse is also true. Exercise may be used as therapy for some cases of eating disorder.

In order to adequately treat eating disorders in the male athlete, it is first essential to identify cases. Psychoeducation of athletes, their families, coaches and trainers is an important first step. Counselling an athlete to pursue a sport appropriate to his body type, or to leave his sport behind altogether (an unpopular recommendation from a coach's perspective) can be important to treatment. Treatment of co-morbid psychiatric conditions is essential. Treatment can be structured using a biopsychosocial approach, and all appropriate modalities of therapy, including individual, family and group, as well as psychopharmacotherapy, where appropriate, should be applied.

Eating disorders in male athletes may seem unlikely, given that eating disorders are far less prevalent in males than females. While anorexia nervosa occurs in <1% of females, reliable data are lacking on the prevalence in males.[1] Bulimia nervosa occurs in 1–3% of the general female population, and is five to ten times more frequent in females than in males.[2] Also, it is theorised that involvement in sports may in fact protect athletes from eating disorders; however, this does not appear to be true of all athletes.

It is also important to be cognizant of the therapeutic role that sports can play in the treatment of eating disorders, including the relatively newly described entity 'binge-eating disorder', and in the treatment of other psychiatric conditions, including anxiety and affective disorders.[3]

The protective effect in the athlete on the development of eating disorders in this population, if and when it does occur, may be afforded through an improved body image, enhanced psychological well-being, and perhaps a decreased inclination to diet.[4] The genesis of many an eating disorder can be traced to a diet that goes awry. Increased physical activity may contribute to a healthier attitude towards food and eating, perhaps fostering the food-as-fuel motif.

1. Aetiology

Involvement in athletics may in fact perpetuate or even lead to the development of an eating disorder. Some studies suggest that athletes are actually at higher risk than non-athletes for the development of an eating disorder.[5] One reason may be the high stakes athletes face, whether it is the drive to win, or

financial success. A 1988 survey of male and female athletes at 22 midwestern colleges in the US demonstrated that 3% met criteria for anorexia nervosa, and 21.5% for bulimia nervosa by the Diagnostic and Statistical Manual of Mental Disorders third revised edition (DSM-III-R) criteria.[6]

A subsequent study using DSM-IV criteria failed to establish as robust a connection between athletic involvement and eating disorder, with none of the student athletes meeting criteria for anorexia nervosa. While no male athletes met criteria for bulimia nervosa, and just 1.1% of the females did, the males with weekly or greater bingeing outnumbered the females (13.02% vs 10.85%, respectively) with females displaying purging behaviours more often than their male counterparts (5.52% vs 2.04%, respectively). Therefore, according to these results, it can generally be said that female athletes struggle more with eating-disordered behaviours than do male athletes. It may be that the difference between male and female athletes can be attributed in part to the fact that female athletes report lower self-esteem than male athletes, but also that male athletes can far more easily sustain dramatically lower body fat (in the order of 1%) without profound medical sequelae, while female athletes must maintain about 17% body fat to avoid amenorrhoea.[7] These results were comparable with those of a large Norwegian study of elite athletes.[8] These conservative data, may, however, reflect a general tendency for athletes to underreport their symptoms to protect their athletic departments[7] or perhaps out of denial or personal protection.

Sex differences in the eating-disordered athlete can be thought of by sport, by differences in attitude and susceptibility, and on a continuum with the non-athlete. Phenomenologically, eating disorders in men and women present quite similarly, and tend to respond to treatment in much the same way,[9] although partial eating-disorder syndromes are seen more often in men than are the full syndromes.[9] This is an important concept to remember when evaluating males for pathological eating behaviours that might benefit from treatment.

A German study of male athletes, wrestlers and rowers, all competing in low-weight divisions, demonstrated an increase in the prevalence of bingeing (52%) or subclinical eating disorders (11%) compared with non-athlete controls. These results are comparable with the statistics for high-risk women in areas such as ballet and modelling.[10]

One study compared the responses of male and female athletes to negative (emphasis on performance) and positive (emphasis on health) coaching vignettes, in relation to bodyweight, hypothesising that females would be more affected by the negative vignette. However, it was discovered that sex did not seem to divide the athletes, who uniformly responded more pathologically to the negative coaching vignette, with more dieting, anxiety about body image and fear of fat.[5] It can therefore be said that a coach's attitude can have a significant impact on the genesis of disordered behaviour in the athlete. It would be interesting to look at whether the sex of the coach might have an impact here.

In contemporary Western society, traditionally, there has been more pressure to externalise, to emphasise appearance, and to focus more on body image for women than men. However, a recent study[11] contrasted the male body image in Taiwan with the Western view, as body image disorders seem to be more frequent in men in the West. Indeed, the study revealed more preoccupation with body image in Western than in non-Western men. The ideas underlying this included the traditional thinking that masculinity is often equated in our society with being fit and muscular, and that we are increasingly bombarded by the media (as woman have been for a far longer period of time) by the muscular male ideal. An additional theory put forth is that with the attrition of traditional Western male roles, physical masculinity may be becoming increasingly important.

While the conventional societal aesthetic emphasising the slim feminine ideal has contributed to an increase in eating disorders among women, this trend towards body consciousness is also increasingly true for men. There has been a rise in the number of young males who seem preoccupied with their body image. There is more eating-disordered behaviour and anabolic steroid abuse among both male athletes and non-athletes, and at increasingly younger ages of onset. While a 2002 survey of high-school seniors demonstrated that 4% had used steroids, a recent National Collegiate Athletic Association study revealed that almost half of college ath-

letes who used steroids had begun to use them in high school.[12] The motivation is performance enhancement as well as a boost to self-esteem and sexual attractiveness.

Sometimes an eating-disordered athlete is predisposed to this form of psychopathology, and may choose a sport (consciously or unconsciously) that serves to sustain the disorder. In other cases, the sport itself may engender eating-disordered behaviour.

2. Phenomenology

The sports where eating disorders or eating-disordered behaviour are most prevalent include sports in which aesthetics are critical to the judging or scoring process, sports where the athlete has to make weight for competition, and sports in which low body fat is deemed advantageous to performance.[13]

These sports include figure skating, diving, dance, gymnastics and body-building. Prominent gymnasts and gymnastics governing bodies have been known to deny the existence of eating disorders among their athletes. A similar form of denial can be seen when athletic trainers have been probed in the world of ballet.

Within the last several years, international figure skater Michael Weiss adopted a new training strategy when he felt he was not achieving his goals, to improve his performance. This regimen included significant weight loss. The goal of weight loss can be an infectious/epidemic phenomenon outside elite levels of competition, and perhaps even outside the sport itself, as prominent athletes frequently become role models.

The abuse of anabolic steroids has long been a stronghold in the armamentarium of the male athlete. Whether it is a desire to bulk up in a sport like football or baseball, or to body sculpt in the case of a body-builder, anabolic steroids are widely used and abused, and fraught with dangerous adverse effects. These include premature closure of the epiphyses, high blood pressure, liver tumours, sterility, and psychiatric sequelae, including depression, psychosis, and suicidal ideation and behaviour. Suicide attempts are particularly likely in the context of stopping steroid use.[12] As long ago as the 1970s, it was estimated that as many as 80–90% of weight-lifters, and 75% of all professional football players were using anabolic steroids. At that time, steroids were the drug of choice in the National Football League and in the Olympic arena, before there was an awareness of their dangers. Now, after significant media coverage of this growing problem, particularly focused of late on track and field and professional baseball, the president of the US raises this is as an issue of such national importance that it is mentioned during a State of the Union address in the year 2004 (personal communication), and in 2005, it has been the focus of a congressional hearing on Major League Baseball.

Pope et al.[14] described a condition they labelled ‘muscle dysmorphia’, a constellation of symptoms related to body dysmorphic disorder, wherein the athlete becomes preoccupied, to the exclusion of much else, with increasing muscle mass. Athletes particularly susceptible to muscle dysmorphia include body-builders and weight-lifters. This is a population particularly susceptible to anabolic steroid abuse.

An Italian study[15] of noncompetitive male body-builders suggested an increased risk for the development of eating disorder based on a higher body mass index than the control group, as well as a higher incidence of dieting and weight fluctuation, alcohol abuse and anabolic steroid use. However, with an increased focus on banning anabolic steroids, behaviours may increasingly shift towards manipulating the physique through changes in eating behaviour and physical activity.

Sports in which there is a need to make weight are notorious for encouraging the development of, sustaining, or attracting those with a vulnerability to eating disorders. These sports include rowing, wrestling, some of the martial arts, including judo and karate, and horse racing. In the latter, male jockeys are more susceptible than their female counterparts, since women are naturally lighter and smaller. To achieve the same goals, male jockeys tend to have to go to greater lengths to weigh in. It is not uncommon for a male jockey to experience significant weight fluctuations between the racing season and the off-season. Many abnormal behaviours are employed to re-achieve racing weight after gains in the off-season. Some jockeys will sit in heated cars wearing rubber suits (an uber-sauna) to lose weight. One

retired jockey was quoted as saying that "…for many jockeys, the hot-box [sauna] is their home away from home".[16] One 1995 study revealed that 69% of jockeys skipped meals, 67% used 'hot-box saunas', 30% employed self-induced vomiting, and 14% used laxatives. Cocaine and amphetamines are used to suppress appetite, and deaths in jockeys have resulted from cardiac arrhythmias in the context of hypokalaemia, and drug overdoses. There has been an ever so gradual shift in the weight limit for jockeys, which came as a result of steady pressure by the Jockey's Guild, resulting in an amendment of the cut-off weight from 52 to 53kg (114 to 116lb) at many tracks.[16]

In addition to bingeing and purging, extreme calorie and fluid restriction, laxative and diuretic abuse, and over-exercise are common practices among male wrestlers as they struggle to make weight hours before a match. One study revealed that 1.7% of high-school wrestlers met DSM-III-R criteria for bulimia nervosa.[4] Their goal is often to compete in the lowest possible weight class for their size, to achieve a strength advantage. Ironically, their potency is often undermined by their eating-disordered behaviours.

In response to pre-match restricting, wrestlers will commonly binge immediately following a competition. This is often also a ritual bonding among team-mates. The resultant gastrointestinal discomfort, as well as the knowledge that they will soon again be facing the need to make weight will lead to purging again, often as either a team activity, or with the full knowledge and support of their team-mates.

One wrestler reported being on-line to purchase laxatives with a team-mate, only to be observed by their coach. The coach literally, and figuratively, looked the other way. This tacit approval of disordered eating and exercise is often practiced by coaches and trainers who do not wish to expose this, as their goals are more frequently focused on the success of their team, than on the overall, long-term health and wellbeing of the individual athlete.

Some of the more dramatic weight shifts have been observed as young athletes transition from one sport season to another. One such example is high-school football players dropping significant amounts of weight (and engaging in multiple pathological eating behaviours to do so) as they enter the wrestling season. There have been deaths in such scenarios, and there is particular concern about the effects of such unhealthy practices among growing, developing adolescents.

Crew athletes will embark on 'sweat runs' in which they will clothe themselves in many layers and go for a run in high heat in order to diurese kilograms just prior to weighing in before a regatta.

One of the difficulties wrestlers and jockeys and rowers face is the tendency to revert to their increasingly entrenched patterns of eating-disordered behaviour outside the context of their sport. These abnormal practices, such as bingeing and purging, and the attendant preoccupation with weight and body and self-image become routine and incorporate themselves into the athlete's psyche and strategies for coping with life in general. These disorders can become a lifelong difficulty.

Finally, eating disorders are seen in athletes in sports where low body fat is correlated with enhanced performance. Because males have a naturally lower percentage of body fat than women, pathological eating behaviours are more rampant in, although not exclusive to, women in these sports, which include track and field, cross-country and other forms of long-distance running, and swimming. An Australian study revealed that male athletes usually have an adequate intake of carbohydrates in their diet, while their female counterparts, as they struggle to attain lower body fat, do not.[17]

3. Treatment of Eating Disorders in the Male Athlete

Because eating disorders in the athlete can outlive involvement in sport, and the morbidity and mortality associated with eating disorders is significant, it is important to identify cases as early as possible. Early treatment can lead to a far better outcome.

There remains significant stigma surrounding psychiatric illness in the athletic arena, and perhaps more so still among male athletes. If a psychiatrist is perceived to be a part of the team of coaches, trainers and other medical sub-specialists treating athletes, this may help to break down these barriers. Primary care doctors and nutritionists will be an important part of a team approach to an athlete with

an eating disorder. Baum[3] describes a model of sport psychiatry using an outpatient consultation-liaison approach. The idea is that the ready access of a psychiatrist within an athletic setting, or closely linked to an athletic department may improve the identification and treatment of cases.

An important first step in the identification of athletes with eating disorders or eating-disordered behaviour is psychoeducation. Talks can be given to athletes and their families, and to coaches and athletic trainers. This kind of communication can also contribute to primary prevention. Education may play a vital role in diminishing some of the secrecy surrounding these disorders in general, and specifically the conspiracy of silence so often seen among coaches and trainers, when maintenance of the eating disorder actually works to a team's advantage. Coaches can be encouraged to approach weight management in the athlete with an emphasis on overall health versus performance,[5] to understand and convey that lower body fat or weight do not necessarily correlate with improved performance, and to be aware that it may not be advisable to stop an athlete's involvement in sport if there is some abnormal eating behaviour, unless he is medically compromised, but rather to work with the athlete in a cooperative fashion, while allowing them to continue in the sport.[18]

When there is the threat of medical or psychological compromise, a psychiatrist's role may be to counsel an athlete that it is no longer in his best interest to remain involved in a particular sport. A psychiatrist with an empathic understanding of the athletic temperament (i.e. a psychiatrist specialising in the treatment of athletes, who may have been directly involved in sports, and perhaps competitively) is helpful. It may also be useful to assist an athlete in identifying a sport best suited to his body type, rather than trying to conform his body to a specific sport.

There can often be co-morbid anxiety and depressive disorders in the eating-disordered athlete. One study showed that males with eating disorders, when compared with non-eating-disordered male controls, had more depression and substance use.[9] While malnourishment in the anorexic athlete can mimic many of the symptoms of depression, once refeeding has been established, it is then important to evaluate the athlete for any concomitant disorders, which may require specific treatment. It is not uncommon to observe some crossover of obsessive compulsive symptoms with eating disorder, the latter being the manifestation of either the obsessions or compulsions.

Treatment can be best viewed using George Engel's biopsychosocial approach.[19,20] This assures a thorough assessment of the gamut of contributory factors, and is crucial in establishing a comprehensive treatment plan.

The restoration of a healthy weight and metabolic balance is of primary importance, and may even require hospitalisation in a medical inpatient setting. A psychopharmacological approach may then be used to treat either the eating disorder itself, such as the use of serotonin-specific reuptake inhibitors to decrease the urges to binge and purge, or to treat underlying conditions, such as the use of antidepressants for affective disorder, or anxiolytics for disorders in the anxiety spectrum. However, it is important to be mindful of the level of competition, and the possible ban on various substances by different governing bodies within the athletic arena. Once this is established, there may be some difficult choices to be made by the athlete, his coaches and the treatment team.

Psychological treatments may include individual psychotherapy, or group or family work, with the view of family potentially including team-mates, coaches or trainers, in what is often the intimate world of a sports team. An athlete may need to work on understanding the psychological underpinnings of his eating disorder as it predated his involvement in athletics. This might revolve around a parent with an eating disorder, which may have created an environment of competitiveness about body image, or an atmosphere in which there was an unhealthy focus on food, weight or shape.

If, after treatment, it is felt that an athlete's continued involvement in his sport is detrimental to his health, then there may be a need to counsel the athlete about either alternative sports, or, in the case of an elite or professional athlete, other career paths. Because an athlete's involvement in his sport may be closely tied to his self-esteem, this can be a difficult hurdle. Time, patience, self exploration, and even vocational rehabilitation may be required.

4. Conclusions and Future Research

Eating disorders are an underrecognised problem in male athletes. There are some sports with particular vulnerability, (not unlike the general categories in which one is likely to see eating disorders in female athletes), including sports with an emphasis on aesthetics, sports where low body fat is advantageous, and sports in which one has to make weight for competition. Anabolic steroids can play an important role in the disordered body image of the male athlete. It is important to diagnose these disorders, with psychoeducation of those in the sports world an essential part of this. Treatment is best thought of using a biopsychosocial approach, and enlisting all of those surrounding an athlete, including team-mates, family, coaches and athletic trainers.

Future research is needed to more firmly establish the epidemiology of eating disorders and eating-disordered behaviours, first in the general male population, and then, in the male and female athlete. There needs to be a more clear delineation of sex differences in eating disorders in both athletes and non-athletes, both phenomenologically, and aetiologically. Only then can an optimally effective prevention and treatment strategy be established in the athletic population.

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References

1. Frances A. Diagnostic and statistical manual of mental disorders. 4th ed. Eating disorders, Washington, DC: American Psychiatric Association, 1994: 543
2. Pope Jr HG, Hudson JI. Bulimia nervosa: persistent disorder requires equally persistent treatment. Curr Psychiatry 2004; 3: 12-22
3. Baum A. Young females in the athletic arena. In: Tofler IR, editor. Child and psychiatric clinics of North America, sport psychiatry. Philadelphia (PA): WB Saunders Co., 1998: 745-55
4. Cooper M. The psychology of bulimia nervosa: a cognitive perspective. Oxford: Oxford University Press, 2003: 122-3
5. Biesecker AC, Martz DM. Impact of coaching style on vulnerability for eating disorders: an analog study. Eating Disord 1999; 7: 235-44
6. Burckes-Miller ME, Black D. Male and female college students: prevalence of anorexia nervosa and bulimia nervosa. Athl Train J Natl Athl Train Assoc 1988; 23 (2): 137-40
7. Johnson C, Powers PS, Dick R. Athletes and eating disorders: the National Collegiate Athletic Association Study. Int J Eat Disord 1999 Sep; 26 (2): 179-88
8. Sundgot-Borgen J. Eating disorders among male and female elite athletes. Br J Sports Med 1999 Dec; 33 (6): 434
9. Woodside DB, Garfinkel PE, Lin E, et al. Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. Am J Psychiatry 2001; 158: 570-4
10. Thiel A, Gottfried H, Hesse FW. Subclinical eating disorders in male athletes: a study of the low weight category in rowers and wrestlers. Acta Psychiatr Scand 1993; 88: 259-65
11. Yang JC, Gray P, Pope HG. Male body image in Taiwan versus the west: yanggang zhiqi meets the adonis complex. Am J Psychiatry 2005; 162: 263-9
12. Longman J. An athlete's dangerous experiment: using steroids enhanced his physique, but he died trying to stop. New York Times; 2003 Nov 26; C15-16
13. Baum A. Psychopharmacology in athletes. In: Begel D, Burton R, editors. Sport psychiatry: theory and practice. New York: WW Norton & Co., 2000: 249-59
14. Pope Jr HG, Gruber AJ, Choi P, et al. Muscle dysmorphia: an underrecognized form of body dysmorpic disorder. Psychosomatics 1997; 38: 548-57
15. Oliosi M, Riccardo DG, Burlini S. Eating attitudes in noncompetitive male body builders. Eating Disord 1999; 7: 227-33
16. Christine B. Body blows: jockey's never-ending weight battles can have deadly results. Los Angeles Times; 2001 Feb 3; D1
17. Burke LM, Cox GR, Cummings NK, et al. Guidelines for daily carbohydrate intake: do athletes achieve them? Sports Med 2001; 31 (4): 267-99
18. Powers PS, Johnson C. Small victories: prevention of eating disorders among athletes. Eating Disord 1996; 4 (4): 364-77
19. Baum A. Sports psychiatry: an outpatient consultation-liaison model. Psychosomatics 1998 Jul-Aug; 39 (4): 395-6
20. Kaplan HI, Sadock BJ. Synopsis of psychiatry. 5th ed. Contribution of the social sciences to human behavior. Baltimore (MD): Williams & Wilkins, 1988: 100

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