

Training & Conditioning



Issue:

In The Dark

Most athletes know about the dangers of eating disorders, but they can be in the dark on disordered eating and its negative effects.

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The lean and fit-looking track athlete came into my office with a smile. Her college coach had suggested she see me after telling him she felt her times would improve if she lost a few pounds.

Our first visit went smoothly. She told me about her eating and exercise patterns, I calculated her energy and macronutrient requirements, and then I made some suggestions designed to improve the balance of her intake with expenditure. She left as she came in--with a smile, expressing confidence in her ability to follow through with the recommendations.

During subsequent visits she reported feeling stronger and more energized, although unhappy that the scale didn't budge. I reassured her that the numbers on the scale were not the most important indicator of success and she seemed to understand. But on our fourth visit, our discussion triggered a different response. As I asked her more personal questions about eating and tried to uncover why the scale numbers were more important to her than performance gains, she burst into tears. "I just don't know what to eat," she said, "I'm so afraid."

This scenario, with variation, is repeated over and over again in my work with young athletes of both genders. Our athletes have gotten the message that they need to eat to power their bodies, but they still don't have a clear concept of how to eat to fuel themselves while maintaining an optimal body weight.

They are confused about how strict a diet should be, and they don't understand the balance between eating healthy and "fun" food. They believe they have a lack of self-control if they don't consume only the healthiest meals and snacks. They restrict what they eat, and often restrict the wrong foods at the wrong times. Many have obsessive thoughts about food and eating.

These athletes do not have full-blown eating disorders, but are practicing disordered eating. This can be detrimental to them physically, athletically, and psychologically. When it is recognized and skillfully handled by an athletic trainer, coach, or nutritionist, these athletes can be steered back to an enjoyment of eating and the benefits of a healthy diet.

WHAT'S THE DIFFERENCE?

Disordered eating is recognized as a spectrum, with eating disorders heading the end. Strict criteria is required for the diagnosis of an eating disorder, which can be found in the *Diagnostic and Statistical Manual (4th Edition)*. The U.S. Department of Health and Human Services offers a summary for defining a formal diagnosis:

Anorexia nervosa: Weighs at least 15 percent below what is considered normal for others of the same height and age; misses at least three consecutive menstrual cycles (if a female of childbearing age); has an intense fear of gaining weight; refuses to maintain the minimal normal body weight; and believes he or she is overweight though in reality is dangerously thin.

Bulimia nervosa: At least two binge/purge cycles a week, on average, for at least three months; lacks control over his or her eating behavior; and seems obsessed with his or her body shape and weight.

Binge-eating disorder: At least two binge-eating episodes a week, on average, for six months; and lacks control over his or her eating behavior.

Eating disorder NOS (not otherwise specified) catches those who meet some of the above criteria but not all. For example, an individual who is underweight, fearful of weight gain, and misses occasional menstrual cycles but not three consecutive cycles would fall into this category, as would an individual who binges and purges weekly as opposed to twice a week.

Many athletes, though, have more subtle gradations of disordered eating and generally fly under the eating disorder radar. With these individuals, there is rarely a dramatic change in weight to signal its presence, but there is an unhealthy relationship with food that is significantly affecting the health and well-being of the athlete. The restrained eating and unhealthy eating patterns characterizing disordered eating are accompanied by rigid cognitions, and the athlete's self-esteem is tied into the amount of food consumed. The athlete's poor relationship with food may not be visible to friends, coaches, parents, and others around them.

An individual with disordered eating may fight to limit food intake during the day until finally losing their "willpower" later in the day and digging into a big bag of cookies or chips. This pattern leaves the athlete feeling hungry, tired, often light-headed, irritable, and having difficulty concentrating throughout the day. Giving in to urges late at night may cause the athlete to feel a loss of self worth as they are unable to recognize that their energy deficit has left them more susceptible to binge behaviors.

Individuals with disordered eating may avoid certain food groups they believe contribute to excess body fat. For example, because starchy foods are often associated with weight gain, athletes may shun breads, cereals, rice, pasta, and even fruit, not realizing that these carbohydrate-containing foods should form the basis of an athlete's diet.

Because disordered eating is less extreme than eating disorders and doesn't necessarily result in changes in weight, individuals may not recognize that they have crossed over the line from "normal" eating to disordered eating, and that their eating behaviors are motivated by an underlying unhealthy mindset. Their mind and body become united in their movement away from health, as anxiety regarding food is accompanied by multiple nutrient deficiencies and often forms the basis of life-long issues with weight management.

It is difficult to know the prevalence of disordered eating among athletes. Surveys used to evaluate eating disorders do not adequately capture this population since self-reports of behavior are not always accurate. It's clear, though, that high school and collegiate athletes can easily lose perspective on normal eating as they juggle their need for fuel with concerns about appearance, athletic performance, and the stresses of academic life.

EFFECTS OF DISORDERED EATING

All individuals need energy (calories) to meet their basal metabolic needs, process foods, and allow for baseline levels of

movement. Athletes need significantly more energy to support their high level of activity.

Scientists have coined the term "energy availability" to define the number of calories needed to maintain life processes once exercise is accounted for. It is expressed as total calories consumed minus those used for exercise. Athletes who may easily be burning 500 to 1,000 calories or more daily during training often fail to accommodate for their extra energy needs with a corresponding increase in calories consumed, resulting in low energy availability.

The brain receives a continual stream of signals to keep it apprised of the level of energy availability. As more calories are used to run, row, perform training drills, or work out in the weightroom, fewer are available to keep the millions of body cells alive, keep the body warm, build muscle and other tissues, and support the reproductive system. When confronted with too few calories, the brain responds quickly by orchestrating a cascade of physiological responses designed to preserve the organism.

Many of these physiological responses greatly affect athletic performance. Muscles with sub-optimal fuel stores will fatigue prematurely. Inadequate protein will limit the body's ability to grow and repair tissue in response to training sessions. The many vitamins and minerals involved in bone integrity, the immune system, cardiovascular function, and other physiological functions will be lacking.

The result is an athlete whose body is continually breaking down, unable to recover from the stresses imposed by workouts and competition. Sub-par performance, frequent injuries, infections, and an inability to focus will eventually follow.

Beyond its outward effects, disordered eating can alter the functioning of the reproductive system in females. With a lack of calories coming in, leutinizing hormone, which stimulates the ovary to produce eggs, is inhibited. This occurs within days of the initiation of an overly restrictive diet, well before it is apparent by the absence of the menstrual cycle.

The Female Athlete Triad is a term used to describe the link between disordered eating, amenorrhea (absence of the menstrual cycle), and low bone mineral density. Recent research, though, has demonstrated that inadequate energy availability impacts the integrity of bones well before amenorrhea occurs. Bones are continually remodeled through a process of breakdown and buildup of bone cells. Energy restriction minimizes the formation of new bone cells even when women are menstruating normally. For female athletes, this increases the likelihood of musculoskeletal injuries.

RECOGNIZING THE PROBLEM

Athletic trainers are in an ideal position to identify individuals with disordered eating cognitions and behaviors before health and performance is impaired. There are a number of warning signs an athletic trainer should look for: Athletes may express an excessive concern about ideal body weight, weigh themselves frequently, or eat little at team meals. They may also exercise beyond what is normally required for their sport in an attempt to burn more calories.

It is important that athletic trainers understand the psychological factors behind disordered eating in order to better recognize the problem. Athletes have a higher incidence of poor relationships with food than their non-athletic peers for a variety of reasons.

One of the biggest causes is misinformation about improving performance by modifying body weight. Many athletes incorrectly believe that their performance will always improve if they can lose weight. They strive to achieve this at all costs, not realizing the potential negative effects.

The same personality traits that make an athlete successful--intense focus, perfectionism, persistence, and an ability to push beyond their comfort zone--can contribute to disordered eating. While most would start eating at the first signs of hunger, an athlete with an inclination for toughing it out may forge ahead down the path toward disordered eating.

In some cases, athletes may find that their body type is not appropriate for the sport they have selected, and believe weight loss is a solution. They use restriction of food as a way to achieve what may be an impossible goal: altering their body to try to meet the ideal standard of a given sport.

In other cases, the focus on food actually comes before participation in athletics. Some are initially attracted to sport, especially endurance sports, as a way to burn calories. Their reason for being on the team is more about weight loss than anything else.

A final, but very important factor, is that body weight can be an anxiety-provoking issue for many young people. Our society touts thinness in females and six-pack abs for males as the ideal. Coaches (and parents) can make an offhand remark about an athlete losing weight under the guise of it being "good for them" while not understanding the ramifications. And peer pressure can be a huge problem for some individuals.

Disordered eating occurs in males as well as females, although male athletes' goals are usually different. Men are more likely to link a desire for decreased body fat with a desire for increased lean mass while women tend to focus more on the numbers on the scale.

You might wonder if there is a qualitative way to differentiate between healthy and unhealthy behavior when it comes to athletes' eating patterns. Unfortunately, there are few validated screening tools for this population. However, the Female Athlete Screening Tool has been validated on the collegiate population. It can be administered by a certified athletic trainer, sports dietitian, or sports physician. (See the "Resources" box at the end of this article for more information on where to find the screening tool.)

PROVIDING HELP

Once disordered eating is identified, an appropriate treatment strategy must be implemented. A multi-disciplinary team, which can include the team physician, athletic trainer, and a sports dietitian whose scope of practice includes nutrition assessment, calculation of dietary needs, and nutrition counseling can best provide the necessary interventions. It is critical that all members of the team are delivering the same message: food is fuel, and inadequate fuel will compromise health, physical performance, and school performance.

Athletic success and mental and physical health will best be achieved by teaching student-athletes to focus on diet as a way to support their athletic goals, not as the driving force behind their success. Athletes should be taught to approximate the amount of fuel used in the course of their normal day, and the additional fuel needed for their sport. Athletes also need to clearly understand that cutting calories comes at a cost--by definition, any energy deficit is accompanied by a reduction in the body's ability to respond to exercise and training.

In considering body weight goals, athletes should be reminded that there are no "ideal" body types associated with any sport. Successful competitors come in a variety of shapes and sizes--just think of Serena and Venus Williams!

Athletes at risk for disordered eating are often those who are particularly anxious and critical of their own athletic performance, and who express these concerns by being critical of their bodies. The challenge is to help these athletes regain their trust in themselves and allow their bodies to tell them how much food they need to eat.

The goals for this athlete are to:

- Have the confidence to eat when they feel hungry and stop when they feel satisfied.
- Understand that eating is primarily done to provide nutrition, but is also pleasurable and it's okay to eat something simply because it tastes good.

- Be aware of the need for energy balance, but not consumed by the fear that you are exceeding it.
- Be able to eat without feeling that food choices define self-worth.

As noted in the 2009 ACSM Position Stand on physical activity and body weight, effective behavioral recommendations will include training in problem solving, social support, goal setting, stimulus control, and self-monitoring of eating and exercise behavior. Registered dietitians are trained to help individuals critically evaluate their food logs, evaluate the nutritional adequacy of their diets, find patterns that may make it more difficult for them to eat well, and help guide the individual through the necessary behavior changes.

The NCAA cautions that weight loss goals should be determined by the student-athlete and medical and nutritional personnel in consultation with their coach rather than dictated to the student-athlete directly by the coach, and that weight loss plans should be individualized. Body weight goals must acknowledge the desire of the athlete to achieve a degree of leanness for sports performance, but need to be realistic as well.

CASE STUDY

SW is a 19 year-old swimmer. She swam well during most of her freshman year at college, but by spring her coach had become concerned by her poor times and fluctuating weight. She was referred to me for help with weight management.

During our initial assessment, I asked SW about her weight history and she admitted that she had struggled with her size since puberty. When she was 13, she and her mom attended Weight Watchers together and she lost 20 pounds.

She then became involved in swimming. She performed well, but her mom was concerned about her appetite. She would come home from swim practice ravenous and eat large portions. However, her mom encouraged her to eat less. SW admitted to becoming a closet eater, sneaking candy and cookies and eating until she felt sick. She denied purging.

By the end of her senior year of high school, she had regained the weight she lost. She dieted that summer and felt good when she went to college.

During her freshman year, SW was on the school's meal plan and had difficulty navigating the cafeteria and figuring out how much to eat. She struggled to manage her hectic schedule of academics, two hours of daily swim practice, and two hours of strength and conditioning three times a week.

She would often skip breakfast, run from swim practice to her first class, and not eat until mid-afternoon when she had a break. By that time she'd be ravenous and eat anything from a turkey club with chips and a sweetened iced tea to several slices of pepperoni pizza. She would have a salad at dinner, but around 10 p.m. she would take a break from studying and have ice cream or cookies. She would feel so guilty about this that she told herself she didn't need breakfast the next day, and the cycle would continue.

I estimated that SW used about 2,200 calories a day for normal body functioning and activity, and an additional 1,000 to 1,200 calories to support her exercise. I explained to her that she needed to provide her body with fuel before jumping into the pool in the morning in order to get an effective workout, and that she needed to eat within an hour after activity to promote recovery. She also needed to distribute the calories she ate in a way that mirrored how she was using them instead of eating more calories at the end of the day when she was less active. We discussed the role of carbohydrate, protein, and fat in athletic performance, and I told her how much she needed of each based on the ADA/ACSM guidelines.

SW was nervous about being given permission to eat. This was so different from what her coaches and mom had always told her! She thought for sure she would get fat if she ate 3,000 calories a day. Over the years, she had learned to ignore her body's signals of hunger and satiety. She needed to relearn how to trust her body's signals so she could avoid becoming overly hungry and eating until stuffed.

I worked with SW through the rest of the semester. She learned that fueling herself before and after practice made her feel better and allowed her to put more energy into her practice sessions. She added nutrient-rich calories to her lunch, and carried a homemade trail mix of dry cereal, raisins, and almonds for an afternoon snack. She ate a healthy dinner with one-third of her plate consisting of a lean protein, one-third carbohydrate-rich starch, and one-third vegetables. She balanced out her calorie needs with healthy oils, and ate a healthy evening snack like half a peanut butter sandwich on whole grain bread with a glass of skim milk. Most importantly, she learned to trust herself to know when and how much she needed to eat to keep her body well fueled.

Over the course of her sophomore year, SW's swim times improved and her weight stabilized. She didn't eat perfectly but she ate well, and she no longer felt guilty if she indulged in some ice cream just because it tasted good. She received continued encouragement from her coach and her athletic trainer. She slips up at times, but recognizes that she pays a price by feeling more sluggish. That motivates her to quickly get back on track.

Athletes deserve to take pride in their accomplishments. Body dissatisfaction should not be used as a motivator for change. Rather, coaches and athletic trainers can play a key role in the development of healthy eating behaviors by motivating athletes to take care of their bodies, understand the nutritional demands of their sport, and acknowledge the need to provide the best fuel possible.

What about when it would be beneficial for an athlete to lose weight? For the author's advice on how to handle this sensitive situation, look for "[When It's Okay to Lose](#)" in the blog section of our Web site.

Sidebar: **RESOURCES**

The Female Athlete Screening Tool can be found through this citation:

McNulty KY, Adams CH, Anderson JM, Affenito SG. "Development and validation of a screening tool to identify eating disorders in female athletes." *Journal of the American Dietetic Association* 101(8):886-892, 2001.

The National Institute of Mental Health provides resources on eating disorders at:

www.nimh.nih.gov/health/topics/eating-disorders/index.shtml.

Sports Dietetics USA provides Sports Nutrition Fact Sheets on a variety of topics of interest to exercise professionals and the general population. The fact sheets are reproducible and available in PDF format at:

www.scandpg.org/sports-nutrition/sports-nutrition-fact-sheets.

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