



ALT PERFORMANCE NUTRITION



Relative Energy Deficiency in Sport (RED-s)

RED-s is a relatively new term that describes the effects of not consuming enough calories on physiological function. While diagnostic criteria does not exist yet for this disorder, RED-s is often characterized by a high focus on clean eating which could potentially lead to disordered eating patterns. Both can be dangerous to health.

Who is at Risk?

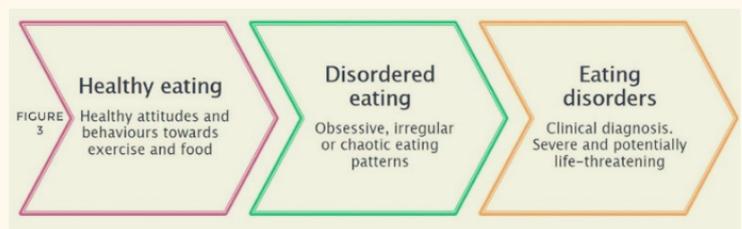
Athletes are especially at risk for RED-s because of the competitive nature of the sport. Highly competitive sports often demand high rigidity and discipline, even in the diets of athletes. Some statements made by coaches, teammates, and parents can trigger an athlete to feel the need to control their diet for better performance.

Health Consequences

The female athlete triad is a term that is characterized by the combination of disordered eating (restriction) and loss of menstrual period which leads to low bone mineral density (health concern for developing osteoporosis). The difference between the female athlete triad and RED-s is that RED-s includes several more health risks that are linked to a caloric deficit in athletes.

Low energy intake impacts several physiological functions, including bone health, menstrual function, gastrointestinal mobility, growth and development, metabolism, immunity, protein synthesis, and cardiovascular health. In addition, low energy intake can hinder performance. Those who suffer from long-term caloric

restriction are at risk for nutrient deficiencies, chronic illness, and a hindrance on optimal sports performance. When the body is not getting enough calories, it starts to find sources in the body to create energy. Many times, this starts with using the fat storage. Once fat stores are taken up, your body reaches for your protein stores which are in your muscles. There are several health consequences when your body is in starvation mode. Your GI tract slows down and there is delayed gastric emptying, which can cause constipation, bloating, and discomfort. Hormones are altered, which can lead to lack of the hunger and growth hormone and menstrual disorders. In the long-term, hormone imbalances can lead to endocrine disorders, infertility, stunted growth, and more. Bone health is important in the growing body and when there is a lack of menstrual cycle in combination with decreased caloric intake, it declines and can lead to bone fractures short-term, and osteoporosis in the



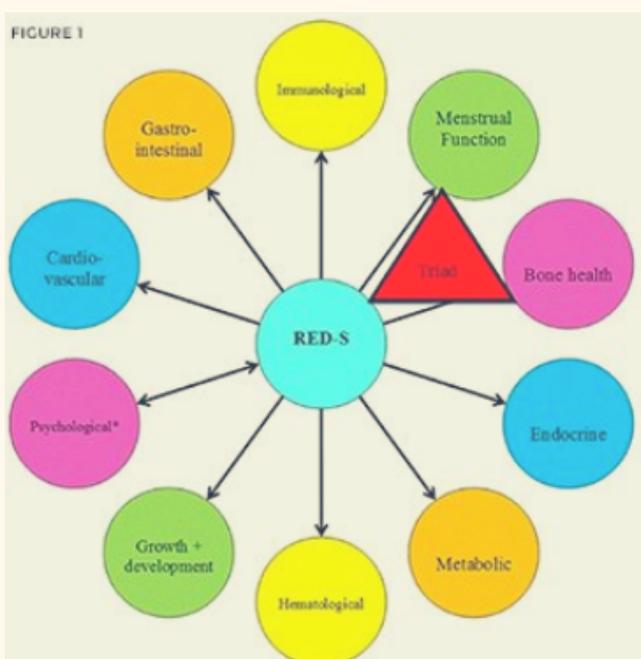
Source: <https://www.athleticsweekly.com/performance/relative-energy-deficiency-in-sport-76148/>

long run. The body's immune system is compromised short-term and the likelihood of getting sick is high. The metabolism slows down which could be a harmful long-term effect.

In addition, sports performance will be compromised. In a low energy consumption state, your body is lacking the most efficient source of energy, glucose. Your body will be reaching for muscle stores, making it difficult to maintain muscle and harder to create energy.

Warning Signs of Disordered Eating

There is a fine line between disordered eating and an eating disorder. Often times, eating disorders start with the focus on clean eating and can lead to disordered thoughts and behaviors. The warning signs of an eating disorder can include sudden changes in weight and changes in eating habits, like cutting out entire food groups and avoiding eating out or with others. It is important to realize these habits and navigate a conversation with the individual. If it is a challenge to talk to this person, consider seeking a therapist or dietitian's help. They may be able to provide you with suggestions or meet with the individual.



Source: Mountjoy M et al. *BrJ Sports Med.* 2014; 48:491-497.