

What is Relative Energy Deficiency in Sport (RED-S)?

Relative Energy Deficiency in Sport (RED-S) is a mismatch between energy burned through sport and energy recovered through nutrition and recovery. This can lead to poor long-term health, worse sport performance and greater risk of injury and depression.

What is low energy availability?

Low energy availability (LEA) is what causes RED-S. When an athlete doesn't eat enough to support the energy demands of training and daily living, a low energy state is created. There are health and performance consequences if this low energy state persists.

What does RED-S mean for my athletic performance?

An athlete will not compete at their best with RED-S. There are many health and performance consequences of RED-S that will limit athletic performance, like decreased strength and endurance, impaired coordination, depression, and risk of bone fractures.

Am I at risk for RED-S?

Both male and female athletes can develop RED-S. Athletes who compete in sports that have high energy demands (like running and swimming), a focus on weight control (like wrestling) or a focus on aesthetics (like dance or gymnastics) are at a greater risk of RED-S, but any athlete in any sport can develop RED-S.

For females, menstrual dysfunction is the main sign of RED-S. Losing your period from playing sports is common but never normal. This is a sign that you may have an energy deficit.

For all athletes, a history of eating disorder/disordered eating, sleeping < 8 hours per night, playing one sport > 8 months out of the year, high stress levels, and a perfectionist mindset can put an athlete at risk of RED-S.

What are signs of RED-S?

Females:

- Amenorrhea (menstrual cycles stop or never starts after age 15)
- Difficulty sleeping well even though you're tired
- Mood swings, irritability, and depression
- Worse athletic performance and strength
- Injury, especially to bones

Males:

- Lack of morning erection
- Difficulty sleeping well even though you're tired

- Mood swings, irritability, and depression
- Worse athletic performance and strength
- Injury, especially to bones

What do I do if I have RED-S?

- Seek help. There are many health care providers who can help this condition, like physicians, physical therapists, registered dietitians, and counselors. In fact, RED-S is best treated with a multi-disciplinary approach.
- If treated early, recovery time can be significantly less.
- RED-S is avoidable. Know the signs and symptoms!

Katie Noble is a Doctor of Physical Therapy, a journalist, and a runner. She enjoys empowering and supporting female runners with evidenced-based education at DrKatieNoble.com.