

RED-S in the Active Female

What is relative energy deficiency in sport?

Relative energy deficiency in sport (RED-S) affects active people. It happens when they burn more calories than they take in. It used to be called the female athlete triad. RED-S affects males and females differently. Not having enough available energy affects the way our bodies work in the following ways:

- Energy levels
- Periods
- Bone health
- Healthy growth and development
- Normal heart function
- Immune function (ability to fight infections)
- Normal musculoskeletal function (ability to recover from workouts and heal muscle injuries)
- Mental health

Recognizing RED-S

Signs and symptoms of RED-S:

- Fatigue
- Weight loss
- Dehydration
- Gastrointestinal (stomach) problems
- Abnormal or absent periods
- Bone loss
- Stress fractures
- Repeated muscle and tendon injuries

- Cold intolerance
- Slow heart rate
- Low blood pressure
- Periods of fasting
- Fasting, limiting food, or binge eating
- Extreme exercise
- Anxiety or depression
- Problems concentrating
- Problems sleeping

What causes RED-S?

RED-S is caused by an energy imbalance. This imbalance may be on purpose or by accident from intense exercise or by not eating enough. Some people with RED-S may have an eating disorder such as anorexia or bulimia. People with prolonged low energy levels will notice fatigue, abnormal periods, mental health issues, increased bone and muscle injuries, and, eventually, bone loss.

Very active patients can be at risk for RED-S if they:

- Are a competitive athlete
- Participate in sports emphasizing leanness or with weight requirements
- Are focused on a certain body image
- Exercise excessively
- Are depressed
- Feel pressured to perform at a high level

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RED-S in the Active Female *(continued)*

How is RED-S diagnosed?

Talk to your doctor if you think that you or someone you know may have RED-S. Your doctor will ask you about your periods, eating habits, exercise routine, mental health, and muscle and bone injuries. They may ask about certain medicines such as birth control. They may also ask if you use medicines such as diet pills or laxatives or if you skip meals or purge your food to lose weight.

How can RED-S be treated?

Your doctor may ask you to keep track of your exercise levels and food intake. Then they may make changes to your diet or activity level. A nutritionist can help create an eating plan, and a counselor or psychologist may also help with depression, low mood, or an eating disorder. There are many things you can do to stay healthy and prevent RED-S:

- Eat a healthy diet with enough fats, carbohydrates, and proteins
- Exercise in moderation and be sure to match your exercise level to the amount of food you eat

- Give yourself time to rest
- Avoid coaches who focus on competition instead of your health
- Avoid coaches who focus on your weight
- Talk to a doctor or counselor for help and resources

Resources

If you or someone you know has an eating disorder, please contact the National Eating Disorders Association at <https://www.nationaleatingdisorders.org/help-support/contact-helpline> or call their hotline at (800) 931-2237.

Female athlete triad
<https://kidshealth.org/en/teens/triad.html>

Relative energy deficiency in sport
<https://www.clearinghouseforsport.gov.au/kb/reds>

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