

# RED-S

## RELATIVE ENERGY DEFICIENCY IN SPORT

### WHAT IS RED-S

RED-S was originally known as the Female Athlete Triad (so-called to describe the interrelationships between three factors: low energy availability, menstrual dysfunction and poor bone mineral density).

Since its clinical classification in 2007, we now understand that underfuelling, leading to an energy deficit, can occur in males and females, and has more widespread consequences beyond only menstrual irregularities and low bone strength.

Measuring energy availability (energy consumed through diet minus energy expended in training and activity) can give you an idea of whether someone is in energy deficit and at risk of RED-S.



### IS RED-S SERIOUS?

RED-S can be very serious and lead to longer-term health problems. However, if signs and symptoms are recognised early on, most people can recover from RED-S and restore health and performance.

### RED-S SYMPTOMS

Can include but are not limited to:

- Irregular menstrual cycles (shorter, longer, lighter, gone)
- Recurrent infection or illness
- Feeling colder
- Weight loss
- Anxiety around food and training
- Tiredness
- Injury
- Changes in sleep patterns
- Lowered performance
- Low mood, anxiety / depression

### WHO IS AT RISK?

Everyone is at risk of RED-S, whether male or female, high performance or amateur. RED-S is caused by a tip in the balance between fuelling and training. It's not just the overall amount of calories consumed, but also the timing of what we eat, and whether we have enough carbs to fuel our activity. RED-S doesn't always happen to people who are lean or underweight either. It can occur in people with healthy BMIs too.

## RED-S FAQs

### Q Can a person recover from RED-S?

**A** Recovering from RED-S means examining where the calorie balance has been compromised. This may have been intentional (weight loss, eating disorders) or unintentional (poor planning or a lack of access to the right food at the right times) actions and these need to be addressed.

### Q How common is RED-S?

**A** The prevalence of RED-S is highest in sports where aesthetics are very important (dance, gymnastics), where athletes are required to make weight (combat sports, racing) and sports with an inherently high training volume (endurance sports, triathlon). At the highest levels of sports like dance, gym and cheer the majority of athletes demonstrate more than three risk factors for RED-S. In very active women, the prevalence of RED-S is about 40%, compared to the general population where the prevalence sits at 2-4%.

### Q Can someone still be suffering with RED-S with a regular cycle?

**A** Yes. They may show other symptoms like fatigue, tiredness, more frequent injuries, under-performance etc. These are early warning signs to look out for.

### Q How can someone know if they have RED-S if they are on the pill?

**A** Hormonal contraception (HC), like the pill, either stops periods altogether or, where there is a bleed, don't enable a natural period. So in women using HC, they can't use their bleed as a monthly sign of health. Women using HC must be vigilant of other signs of RED-S, like mood changes, blunted performance and progress markers, GI issues, illness and injury.

### A QUICK REMINDER

If someone uses hormonal contraception they can't use their period as a sign of good health and must be vigilant in looking out for other RED-S symptoms.

