



Energy Availability and RED-S

Why eating enough is the foundation of health and performance

Training hard only works if you fuel enough to support it. When you consistently take in less energy than your body needs for exercise plus everyday functions, both health and performance suffer. This is called low energy availability, and it is more common than most people realise, particularly in active women. This guide is for awareness, not diagnosis.

What is energy availability?

Energy availability is the energy left for your body's basic functions after training. If you burn 1000 kcal in sport and eat 2500 kcal, only 1500 kcal is left for "living". It is measured per kilogram of fat-free (lean) mass.

Around 45 kcal per kg of lean mass supports good energy availability. Below about 30 kcal per kg for more than a few days, the body starts to shut down non-essential systems. Research suggests around half of athletes are at risk.

It is not the same as low intake, or weight loss

- You can eat a lot and still be low, if you train a lot.
- Common causes: raising training without raising food, no time to plan meals, or cutting out food groups.
- Weight can stay stable. The body conserves energy by shutting down non-vital systems, such as the menstrual cycle, so the scales can hide the problem.

Why it matters

Sustained low energy availability is the main driver of Relative Energy Deficiency in Sport (RED-S). It can affect nearly every system in the body, sometimes seriously, and even short periods can cause disruption. Effects include:

Health

- Missed or irregular periods (in women)
- Weaker bones, higher stress-fracture risk
- Hormonal disruption and lower metabolic rate
- Reduced immunity

Performance

- Poor recovery and more injuries
- Reduced muscle protein synthesis
- Low mood and concentration
- Stalled or declining performance

This is a health matter, not just a performance one. If several of these ring true, please speak to your GP or a sports dietitian. Fuelling more is usually the first step, but RED-S needs proper support, and this leaflet cannot diagnose it.

The foundation

- Fuel to match your training, not just your appetite.
- Eat regularly and plan food around your sessions.
- Do not cut whole food groups without a good reason.
- If in doubt, seek qualified help early rather than pushing through.

Where to learn more: the NHS, the British Dietetic Association (BDA) and Sport and Exercise Nutrition register (SENr), the British Association of Sport and Exercise Medicine (BASEM), and the IOC RED-S guidance. If any of this resonates, please speak to your GP or a sports dietitian.

This leaflet is general nutritional guidance and awareness for education only. It is not medical advice, diagnosis or treatment. RED-S is a medical condition that needs assessment by a qualified professional. Always speak to your GP or a registered dietitian, particularly if you have missed periods, recurring injuries, or a health condition.

Ready to take the next step? Book a free call or start your food diary analysis at performancenutritionlondon.co.uk