

NUTRITION FOR FEMALE ATHLETE BONE HEALTH

FOR MORE INFORMATION, SEE THE PAPER ON WHICH THIS INFOGRAPHIC IS BASED, FOUND IN THE FOLLOWING REFERENCE: [LINK TO FULL TEXT](#)

Practical guidelines for the female athlete and their entourage for successful implementation of primary, secondary, and tertiary prevention strategies for bone health.

PRIMARY PREVENTION

Athlete

- Ensure optimal EA [$\sim 45 \text{ kcal} \cdot \text{kgFFM}^{-1} \cdot \text{d}^{-1}$].
- Match and individualise carbohydrates and proteins to the demands of training.
- Aim at 1,000–2,000 IU vitamin D and 1,000–1,500 mg calcium daily.
- Avoid fasting training; focus on fueling around exercise.

Support Team

- Educate and increase awareness of appropriate nutrition and risks of underfueling in female athletes.
- Target athletes, coaches, parents, members of the support team (physician, physiotherapists, etc.)



SECONDARY PREVENTION

Athlete

- Observe signs and symptoms of REDs regularly.
- These may include: weight loss, disordered eating behavior or attitudes, loss of menstruation or never having a period, increased rate of injuries and illness, poor sleep and recovery, depression, anxiety, fatigue.

Support Team

- Implement annual health screening for all female athletes.
- Tools such as the IOC REDs CAT2, or the Triad CRA, or LEAF-Q may be useful.
- Additional physiological testing (DXA scan for bone density or blood work for T3 and lipids) may be warranted for athletes at high risk of REDs.



TERTIARY PREVENTION

Athlete

- Follow the treatment plan from your physician and/or integrated support team.
- Remember that increasing EA remains the number one goal to restore health and performance.
- Try not to be discouraged by lack of immediate results; the process is slow but will be worth it in the long run!

Support Team

- Work together with a team of experts (e.g., physician, dietitian, psychologist).
- Determine whether the athlete is allowed to continue sports or whether conditional clearance or complete removal is warranted.
- Create a plan to improve EA.
- Pharmacological treatment should be used as “second line of defense” only; transdermal β -estradiol combined with cyclic oral progesterone is superior to OCP.



EA, energy availability; FFM, fat-free mass; REDs, Relative Energy Deficiency in Sport; IOC, International Olympic Committee; CAT2, Clinical Assessment Tool Version 2; Triad CRA, Female Athlete Triad Cumulative Risk Assessment Tool; LEAF-Q, Low Energy Availability in Females Questionnaire; DXA, Dual-energy X-ray Absorptiometry; T3, triiodothyronine; OCP, oral contraceptive pill.

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