

ABSTRACT
PROMISE 2025

**Striving, Starving, Struggling:
The Athlete's Battle with REDs and Eating Disorders**

Margo Mountjoy (Canada)

Jorunn Sundgot-Borgen (Norway)

Sport participation has documented mental health benefits, however, for some athletes, sport participation carries added risk of developing mental health disorders. While most psychopathologies have the same prevalence in athletes as in the general population, eating disorders (ED) are more common in sport^{1 2}. Anorexia nervosa (AN), bulimia nervosa (BN), binge-eating disorder (BED) and other specified feeding or eating disorder are examples of common EDs in sport. Some athletes have Disordered Eating, which is abnormal eating behaviours that do not meet the diagnostic criteria for an ED³. Relative Energy Deficiency in Sport (REDs) is a syndrome marked by impaired psychological and physiological functioning caused by exposure to problematic low energy availability (LEA)⁴. REDs can be the result of either under-fueling or over-expenditure of energy (excessive exercise). The under-fueling can be intentional as seen in ED/DE or dieting, or unintentional, as in situations of food insecurity or lack of knowledge. Whatever the mechanism, athletes have a mismatch between energy expenditures and energy intake resulting in a deficit of energy to meet the body's needs for healthy function⁴. The prevalence of EDs is higher in female athletes (42%) than in male athletes (33%)^{1 2 5-7}, and is more commonly seen in aesthetic sports, weight-dependent sports, and weight category sports. Sport participation has inherent risks for ED/DE including erroneous body composition measurement practices, abusive coaching behaviours, injury, performance pressures and early sport participation^{1 3-5}. REDs sport-related risk factors include pressures to conform to sport-specific physique demands, problematic practices to improve power-to-weight ratios, and high training volumes⁴. While both eating psychopathologies and REDs have significant physical impacts, there are also potential serious mental health impacts. Mental health co-morbidities of ED include anxiety, mood, substance use, and trauma- and stressor-related disorders⁸ and suicide⁹. Mental health outcomes of REDs include EDs/DE, exercise dependence, anxiety, mood fluctuations, and sleep disturbances¹⁰. In addition to the mental health

impacts of REDs and EDs/DE, athletes may also experience sport performance deficits⁴. Prevention strategies should be implemented including education, as well as advocacy for rule changes to decrease the impacts of sport-specific risks^{4 11}. Policies to guide safe body composition practices are also recommended¹². Secondary prevention (early detection) can be achieved through screening athletes at risk (e.g., EDE-Q for ED/DE, LEAF-Q or LEAM-Q for REDs). The IOC REDs Clinical Assessment Tool -2 is a validated clinical tool to assist in the diagnosis of REDs¹³. Tertiary prevention, or treatment is best implemented by a multi-disciplinary team approach. Treatment of EDs should address co-morbidities¹⁴. Cognitive Behaviour Therapy has been shown to be effective treating EDs in athletes¹⁵. Fluoxetine is effective in reducing binge eating and purging behaviours and is recommended for the treatment of BN¹⁶. Lisdexamphetamine has efficacy in treating BED¹⁶, but a Therapeutic Use Exemption is required if the athlete is subject to doping control¹⁷. The cornerstone of treatment for REDs is reversing the cause of the low energy availability¹⁴.

References

1. Sundgot-Borgen J, Torstveit MK. Prevalence of eating disorders in elite athletes is higher than in the general population. *Clin J Sport Med* 2004;14(1):25-32.
2. Martinsen M, Sundgot-Borgen J. Higher prevalence of eating disorders among adolescent elite athletes than controls. *Medicine & Science in Sports & Exercise* 2013;45(6):1188-97.
3. Wells KR, Jeacocke NA, Appaneal R, et al. The Australian Institute of Sport (AIS) and National Eating Disorders Collaboration (NEDC) position statement on disordered eating in high performance sport. *Br J Sports Med* 2020;54(21):1247-58. doi: 10.1136/bjsports-2019-101813 [published Online First: 20200713]
4. Mountjoy M, Ackerman K, Bailey D, et al. The International Olympic Committee's Consensus Statement on Relative Energy Deficiency in Sport (REDs), 2023. *British Journal of Sports Medicine* 2023;57:1073-97.
5. Karrer Y, Halioua R, Mötteli S, et al. Disordered eating and eating disorders in male elite athletes: a scoping review. *BMJ open sport & exercise medicine* 2020;6(1):e000801.
6. Torstveit MK, Rosenvinge JH, Sundgot-Borgen J. Prevalence of eating disorders and the predictive power of risk models in female elite athletes: a controlled study. *Scandinavian journal of medicine & science in sports* 2008;18(1):108-18.
7. Lichtenstein MB, Johansen KK, Runge E, et al. Behind the athletic body: a clinical interview study of identification of eating disorder symptoms and diagnoses in elite athletes. *BMJ Open sport & exercise medicine* 2022;8(2):e001265.
8. Hambleton A, Pepin G, Le A, et al. Psychiatric and medical comorbidities of eating disorders: findings from a rapid review of the literature. *Journal of eating disorders* 2022;10(1):132.
9. Arcelus J, Mitchell AJ, Wales J, et al. Mortality rates in patients with anorexia nervosa and other eating disorders: a meta-analysis of 36 studies. *Archives of general psychiatry* 2011;68(7):724-31.

10. Pensgaard AM, Sundgot-Borgen J, Edwards C, et al. The intersection of mental health issues and Relative Energy Deficiency in sport (REDs): a narrative review by a sub-group of the IOC consensus statement on REDs. *Br J Sports Med* 2023;57:1127-35.
11. Vettoretti M. Official website of the International Federation of Sport Climbing. <https://www.ifsc-climbing.org/news/new-competition-policy-places-ifsc-at-forefront-of-fight-against-reds> 2024;accessed 29 June 2025
12. Mathisen T, Ackland TR, Burke L, et al. Best practice recommendations for body composition considerations in sport to reduce the health and performance risks: a critical review, original survey, and expert opinion by a subgroup of the IOC consensus on Relative Energy Deficiency in Sport (REDs). *British Journal of Sports Medicine* 2023;57:1148-58. .
13. Stellingwerff T, Mountjoy M, McCluskey W M, et al. The IOC Relative Energy Deficiency in Sport Clinical Assessment Tool - Version 2 (IOC REDs CAT2): a narrative review by a sub-group of the IOC consensus on Relative Energy Deficiency in Sport (REDs). *British Journal of Sports Medicine* 2023;57:1109-18.
14. Torstveit M, Ackerman K, Constantini N, et al. Primary, Secondary, and Tertiary Prevention of Relative Energy Deficiency in Sport (REDs): A Narrative Review by a sub-group of the IOC consensus on REDs. *Br J Sports Med* 2023;57:1119-26.
15. Ibáñez-Caparrós A, Sánchez I, Granero R, et al. Athletes with eating disorders: Analysis of their clinical characteristics, psychopathology and response to treatment. *Nutrients* 2023;15(13):3003.
16. Costandache GI, Munteanu O, Salaru A, et al. An overview of the treatment of eating disorders in adults and adolescents: pharmacology and psychotherapy. *Advances in Psychiatry and Neurology/Postępy Psychiatrii i Neurologii* 2023;32(1):40-48.
17. WADA. World Anti-doping Code International Standard Prohibited List 2024 [Available from: https://www.wada-ama.org/sites/default/files/2023-09/2024list_en_final_22_september_2023.pdf accessed 17 February 2024.