



ADDRESSING DEFICIENCIES IN ATHLETE NUTRITION: VITAMINS AND MINERALS

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DEFICIENCIES IN ATHLETES

Vitamins and minerals are abundant in the foods we eat, but it is not uncommon for athletes to be predisposed to nutrient deficiencies.^{1,2} Athletes susceptible to such deficiencies need to consider strategic approaches to supplementation.

GET THE FULL PICTURE

Some of the symptoms of a nutrient deficiency are similar to those caused from general training fatigue. **If these symptoms are persistent,** make an appointment with your medical physician, who may decide to run some specific tests to get a well-informed picture.

Predisposing Factors^{1,2}

- Dietary restriction (e.g., vegetarian)
- Female/menstruating
- High training load/volume
- Time poor for recovery
- Low Energy Availability diet
- Weight sensitive/aesthetic sport

General Signs and Symptoms^{1,2}

- Low on energy
- Lethargy and fatigue
- General weakness and joint soreness
- Increased incidence of illness or injury
- Poor recovery

DEFICIENT? WHAT ARE YOUR OPTIONS?

Food First

Considerations

- Can I eat enough to address the deficiency?
- When should I eat?
- What other foods may impact the outcome?

Chat with your Sports Dietitian

Oral Supplements

Considerations

- What's in the bottle?
- How much and when?
- What are the risks (intolerance, source)?

Chat with your Sports Physician and Dietitian

Alternative Approaches (i.e., parenteral)

Considerations

- Have I exhausted my other options?
- Have I discussed with my sports physician?
- What are the risks?

Chat with your Sports Physician

STRATEGIC CONSIDERATIONS

As part of the supplement approach, athletes should consider the timing of their nutrient intake (i.e., morning vs. evening, and proximity to exercise),³ and the potential implications (positive and negative) of co-consuming certain vitamins and minerals (e.g., calcium and iron or vitamin C and iron).^{4,5}

REFERENCES

1. Garthe, I., et al., Athletes and supplements: Prevalence and perspectives. *Int J Sport Nutr Exerc Metab.* 2018; 28(2): 126-38.
2. Larson-Meyer, D. E., et al., Assessment of nutrient status in athletes and the need for supplementation. *Int J Sport Nutr Exerc Metab.* 2018; 28(2): 139-58.
3. McCormick, R., et al., Refining treatment strategies for iron deficient athletes. *Sports Med.* 2020; 50(12): 2111-23.
4. Lönnerdal B. Calcium and iron absorption—mechanisms and public health relevance. *Int J Vitam Nutr Res.* 2010; 80(4-5): 293-9.
5. Cook, J. D., et al., Vitamin C, the common cold, and iron absorption. *Am J Clin Nutr.* 1977; 30(2): 235-41

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