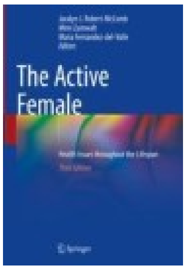

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Ergogenic Aids and the Female Athlete

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Abstract

Female athletes tend to choose their supplements for different reasons than their male counterparts. Collegiate female athletes report taking supplements "for their health," to make up for an inadequate diet, or to have more energy. Multivitamins, herbal substances, protein supplements, amino acids, creatine, fat burners/weight-loss products, caffeine, iron, and calcium are the most frequently used products reported by female athletes. Many female athletes are unclear on when to use a protein supplement, how to use it, and different sources of protein (animal vs. plant-based). This chapter addresses protein supplementation, amino acid supplementation, and creatine. In this chapter we also address the reported performance benefits, if any, of Echinacea, ginseng, caffeine, energy drinks, pre-workouts, and iron. The chapter concludes with a discussion on contamination of supplements and banned substances for competition. Competitive athletes should be aware of the banned substance list for their governing body and that over the counter (OTC) nutritional supplement products are not currently regulated by the food and drug administration

(FDA). This lack of regulation may lead to supplements that are contaminated with banned substances.

Keywords

- Anabolic steroids
- BCAA
- Creatine
- Echinacea
- Ginseng
- Protein
- Energy drink

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Chapter Review Questions

1. 1.

   What is the currently recommended daily range, in g/kg of body mass, for protein intake in female athletes?

   1. (a)

      0.1–0.8 g

   2. (b)

1.2–2.0 g

3. (c)

5 g

4. (d)

1 g

2. 2.

Which of the following protein supplements is more effective to stimulate protein synthesis under exercise conditions?

1. (a)

Whey

2. (b)

Caesin

3. (c)

Soy

4. (d)

They are all equal in protein synthesis rate during exercise

3. 3.

What is an appropriate amount of high-quality protein for the post-workout intake

1. (a)

No protein intake is recommended post-workout

2. (b)

Less than 100 mg/kg

3. (c)

   Between 240 and ~400 mg/kg

4. 4.

   The central fatigue hypothesis states that low blood concentrations of BCAAs:

   1. (a)

      Increase glycogen restoration

   2. (b)

      Increase production of 5-HTP

   3. (c)

      Reduce production of 6-HTP

   4. (d)

      Decrease the amount of tryptophan entering the brain

5. 5.

   Arginine is a conditional EAA synthesized from:

   1. (a)

      Ornithine

   2. (b)

      Citruline

   3. (c)

      Glutamine

4. (d)

   Both A and B

6. 6.

   The recommended dosage of L-carnitine per day is:

   1. (a)

      >4 g/day

   2. (b)

      630 g/day

   3. (c)

      2–3.5 g/day

   4. (d)

      15 g/day

7. 7.

   Which of the following statements is true about Ginseng?

   1. (a)

      All forms have been equally as effective improving performance

   2. (b)

      8 weeks of supplementation with Chinese ginseng improved Wingate performance

   3. (c)

      Siberian ginseng is more effective at improving VO_{2max}

   4. (d)

Results are equivocal regarding ginseng performance improvements

8. 8.

   Echinacea has been reported to:

   1. (a)

      Improve immune system function

   2. (b)

      Enhance protein synthesis at rest

   3. (c)

      Enhance VO_{2max}

   4. (d)

      Both A and C

9. 9.

   Supplementation of Iron in iron deficient, non-anemic female athletes resulted in:

   1. (a)

      Correction of the deficiency

   2. (b)

      Improved performance

   3. (c)

      Both A and B

   4. (d)

None of the above

10.10.

Adverse effects of anabolic steroid use may include:

1. (a)

   Decreased HDL

2. (b)

   Enlargement of the clitoris

3. (c)

   Muscle hypertrophy

4. (d)

   Both A and B

Answers

1. 1.

   b

2. 2.

   a

3. 3.

   c

4. 4.

   b

5. 5.

   d

6. 6.

   c

7. 7.

   d

8. 8.

   c

9. 9.

   a

10. 10.

   d

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