

## Applied Exercise and Sport Physiology, with Labs, 4e

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### Chapter 16 – Study Guide Answers

How do ergogenic aids function? Name two methods.

1. By improving the capacity of the muscles and/or the oxygen transport and utilization systems to do work
2. By removing or reducing inhibitory mechanisms to allow the use of previously untapped reserves

What are some side-effects of amphetamine use?

- Restlessness
- Tremor
- Irritability
- Confusion
- Psychotic behavior
- Vomiting
- Diarrhea
- Abdominal cramps
- Headaches
- Elevated heart rate
- Hypertension
- Severe weight loss
- Hallucinations
- Paranoia

Why do laboratory studies of anabolic steroid use show only modest effects on strength or weight, yet athletes claim otherwise?

Athletes report taking doses that are 10 to 100 times those used therapeutically. At these levels, there's no doubt that steroids increase muscle mass and strength.

What should coaches look for as indicators of possible steroid use?

Large, rapid increases in body weight and muscle mass

How does growth hormone work to increase muscle mass?

It works directly by increasing amino acid transport and protein synthesis in skeletal muscle and indirectly by stimulating the production of insulin-like growth factor.

How does bicarbonate loading affect athletic performance?

Sodium bicarbonate reduces the fatigue-causing effects of lactic acid buildup during moderate to high-intensity physical activity.

To what is the improved exercise performance associated with arginine supplementation probably attributable?

The improved exercise performance is probably attributable to reduced concentrations of metabolic byproducts such as lactate and ammonia or to improved blood flow from increased nitric oxide synthesis.

What are some of the effects of creatine supplementation?

- Improved anaerobic capabilities
- Improved body composition
- Improved muscular strength
- Increased body weight
- Increased fat-free weight
- Increased muscle mass

What is beta-alanine?

It is a nonproteogenic (not involved in protein synthesis) amino acid produced in the liver.

Name some ergogenic aids that have been banned by the IOC.

- Amphetamines
- Anabolic steroids
- Androstenedione
- DHEA
- Growth hormone
- Blood doping
- Artificial erythropoietin

What is the purpose of carbohydrate loading before an endurance activity?

Carbohydrate loading is designed to increase the amount of glycogen stored within muscle and thereby delay the onset of fatigue during endurance activities.