carbohydrate requirement as opposed to worrying about timing issues.

In terms of nutrient timing, there is compelling evidence that the body is primed for anabolism following intense exercise. Muscles become sensitized to nutrient intake so that muscle protein synthesis is blunted until amino acids are consumed. However, the body of research suggests that the anabolic window of opportunity is considerably larger than the 1-hour postworkout period often cited in the literature. The practical application of nutrient timing should therefore be considered for the entire periworkout period (before, during, and after workout). Although research is somewhat equivocal, it seems prudent to consume high-quality protein (at a dose of ~0.4 to 0.5 g/kg of lean body mass) both pre- and postexercise within about 4 to 6 hours of each other depending on meal size. For those who train partially or fully fasted, on the other hand, consuming protein immediately postworkout becomes increasingly more important to promote anabolism.

**PRACTICAL APPLICATIONS**

**NUTRIENT TIMING GUIDELINES**

It is important to consume high-quality protein (at a dose of ~0.4 to 0.5 g/kg of lean body mass) both pre- and postexercise within about 4 to 6 hours of each other depending on meal size. Those who resistance train partially or fully fasted should consume protein (at a dose of ~0.4 to 0.5 g/kg of lean body mass) as quickly as possible postworkout, preferably within 45 minutes of the bout. Those who perform 2-a-day (morning and evening workouts in the same day) should consume carbohydrate (at a dose of ~1.0 to 1.5 g/kg of lean body mass) within 1 hour postworkout.

**TAKE-HOME POINTS**

- A positive energy balance is necessary for maximizing the hypertrophic response to resistance training, but overconsumption ultimately is detrimental to gains.
- Those seeking to maximize hypertrophy should consume at least 1.7 g/kg/day of protein. Qualitative factors are not an issue for those eating a meat-based diet. Vegans must be cognizant of combining proteins so that they get sufficient quantities of the full complement of EAAs.
- Carbohydrate intake should be at least 3 g/kg/day to ensure that glycogen stores are fully stocked. Higher carbohydrate intakes may enhance performance and anabolism, but this may be specific to the individual.
- Dietary fat should comprise the balance of nutrient intake after setting protein and carbohydrate amounts. People should focus on obtaining a majority of fat from unsaturated sources.
- At least three meals consisting of a minimum of 25 g of high-quality protein should be consumed every 5 to 6 hours to maximize anabolism.
- Nutrient timing around the exercise bout should be considered in the context of the periworkout period. It seems prudent to consume high-quality protein (at a dose of ~0.4 to 0.5 g/kg of lean body mass) both pre- and postexercise within about 4 to 6 hours of each other depending on meal size. Those who train partially or fully fasted should consume protein as quickly as possible postworkout.