If you’re a basketball, football, soccer, wrestling or hockey coach, recent research suggests your players could benefit by consuming carbohydrates. Although sports drinks and nutritional terms like “carbohydrate loading” are usually associated with endurance sports, various new studies suggest that carbohydrates may be just as useful during stop-and-go activity.

The performance benefits of carbohydrates before, during and after endurance exercise have been well documented. More importantly, runners, cyclists, triathletes and other endurance athletes have confirmed the findings of sports physiologists in laboratory studies and with improved race times.

But how can carbohydrates affect performance in sports that require short, highly intense bursts of effort? To answer this question, let’s examine two recent university studies. Then we’ll take a look at some specific sports to find the connection.

STOP-N-GO STUDIES

First, it’s important to note that research on the stop-and-go-carbohydrate connection is fairly new, and continued work in this area is needed. Nevertheless, initial evidence does suggest enough of a performance advantage for coaches to make the effort to manipulate their player’s diets.

Each of the two studies described below has a different focus. One study focuses on the ingestion of a sports drink before and during high-intensity efforts. The other tracks the effects of diet over a longer time period.

At the University of South Carolina, men and women exercised in one-minute bursts of high-intensity activity, followed by three minutes of rest. Although these tests were done on a stationary bicycle, the power bursts were performed at intensities 20% to 30% beyond their “anaerobic threshold” (generally considered the point at which lactic acid accumulation is greatly accelerated). Thus, the high-intensity efforts were similar to what a basketball player or hockey player might experience as he or she moves up and down the court or rink at top speeds.

One group drank an 18% carbohydrate concentration drink before exercise and a 6% solution every 20 minutes during exercise. Another group drank similar volumes of a placebo beverage containing no carbohydrates.

The results showed that the group that took in carbohydrates could maintain high-intensity effort for an average of 28 minutes longer than the placebo group.

In the second study, researchers at the University of Toledo fed one group of runners a diet made up of 52% of calories as carbohydrates for three days, followed by three more days of 73% of calories as carbohydrates. Another group was fed a diet of only 40% of calories as carbohydrates and, thus, more fat and protein for the entire six day period. On the seventh day, both groups sprinted at a maximal effort until exhaustion.

The result: the high-carbohydrate group was able to sprint an average of 23 seconds longer.

THE CARBOHYDRATE CONNECTION

Granted, these studies don’t necessarily prove that feeding your players a high-carbohydrate diet and the properly-concentrated sports drink before and during exercise will guarantee a winning performance. But if we take a look at the unique demands of two sports with typical high-intensity play, the stop-and-go carbohydrate connection becomes obvious.

Basketball: Court play requires bursts of power followed by aerobic effort. Carbohydrate intake can significantly affect the intensity with which high power activity can be performed, and may influence the rate of recovery between burst of power. When a player steals a ball, sprints across the court, jumps and slams the ball through the hoop, the amount of carbohydrate stored in his or her muscles affects not only his or her ability to make the play, but also the rate of recovery from this effort. Because of the fast tempo inherent in the game, if players are slow to recover after every “power play” due to low carbohydrate reserves, strategies can be difficult to execute and overall performance may be compromised.

Soccer: Soccer is unique in that it demands an extremely high level of endurance and power. The game is played over the crucial first 5-10 yards of handling a ball to escape a defender, or to cover an opposing player. And during a typical 90-minute game, the average top class or international player runs approximately 5 miles or more. Thus, adequate carbohydrate intake is extremely important to facilitate both vigorous anaerobic skills and endurance. If fact, a recent study indicated that consumption of a carbohydrate beverage 10 minutes before a match and at half-time significantly spared muscle glycogen.

Similar examples of the value of carbohydrates can also be found in sports like hockey, football, wrestling, volleyball and gymnastics. The important point to remember is that carbohydrates can make a significant difference in the intensity with which your team practices and, ultimately, performs.

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