NUTRITION IN FOOTBALL

GENERAL DIET

Football requires aspects of both strength and endurance over a period of 90 minutes. As a result, players are likely to benefit from a protein intake above average recommendations, not only because of their potential to enhance strength, but also to provide a supply of amino acids for increased amino acid oxidation that may occur during training and in competition. Footballers, as endurance athletes, need more protein than other individuals to maintain their auxiliary fuel source, which appears to become increasingly important as training and matches go on. As strength athletes they can also benefit from a greater protein intake because in combination with heavy-resistance training, protein can provide an enhanced stimulus for muscle development. Based on the related exercise studies completed to date, it appears that a protein intake of 1.4-1.7 grams per kg of weight is best for footballers (Lemon, 1997).

Carbohydrate is the key energy-providing nutrient that players must optimise during the lead-up to (including the day of) a match. Players who start a game with low glycogen stores will likely fatigue quickly. 'Carbohydrate-loading' is a great idea for these days building up to a game. Eating a large quantity of carbohydrate, about 8-10 g per kg of body weight per day, will within 2-3 days result in very high levels of muscle glycogen stores (Burke, Hawley, Wong, et al., 2011).

1.4-1.7g *protein per kg body weight each day*

8-10g *carbohydrate per kg body weight each day*

PREPARATION

Nutritional preparation for matches should begin several days prior to kick-off and focus on intake of carbohydrate and maintenance of hydration. The pre-match or training meal should focus on carbohydrate-rich foods to provide a total of 1-4 g/ kg body weight of carbohydrate during the 6-hour period before a match (Hargreaves, Hawley and Jeukendrup, 2003). The main mistake players might make is not eating enough carbohydrate (below 1g per kg body weight) during the 1-6 h period before playing and then failing to consume carbohydrate during the game. Having a small carbohydrate meal helps players to rely more on blood glucose. Ideally to counteract dehydration in-game, players should consume 200-300 ml of water or a suitable carbohydrate solution 5 to 10 minutes before kick-off.

UTILISATION

The period in-game or training including half-time and breaks can be seen as a utilisation stage. Here our bodies are utilising nutrients, electrolytes and water to fuel our performance. Given football is comprised of 45 minute halves it is difficult to re-fuel. Therefore, half-time and stoppages for injuries should be used to refuel as a matter of importance. At half-time 300-500 ml of a sports drink can be very beneficial for replacing lost electrolytes in time for the second half. Injury stoppages should be used as a chance to sip from a sports drink or water bottle. During hot weather or strenuous training sessions, coaches should try to provide their players with a break for drinks about every 20 minutes.

RECOVERY

Recovery post-match or training must address three key principles known as the '3R's of recovery': rehydrate, refuel, repair. The first process, rehydration, involves replacement of lost fluid and electrolytes. During a 90-minute football match it is expected that players will lose between 0.5kg and 2.5kg of body weight (Shirreffs, Aragon-Vargas, Chamorro, et al., 2003). Baring this in mind, adequate hydration is imperative for the recovery process. Flavoured milk is a strong candidate for a post-match drink given its ability to replace lost electrolytes, rehydrate and offer protein and amino acids that aid muscle cell reparation. When co-ingested with a caffeine-based supplement, footballers can achieve all their key objectives of recovery. (Pedersen, Lessard, Coffrey, et al., 2008). As well as rehydration, it is important to refuel our bodies after football. This principle looks to replenish depleted glycogen levels in muscles and the liver. The best way footballers can quickly replenish muscle and liver glycogen is to consume 1.5 g of high-glycaemic carbohydrates per 1 kg of body weight immediately after exercise (Jentjens and Jeukendrup, 2003). Examples of such foods are pasta, rice, noodles and bread. The final principle to consider in recovery is reparation of muscle damage and promotion of body adaption. This focuses on increased consumption of protein and amino acids which are required to help maximize the speed of cell reparation. Footballers should look to consume 20 to 40 g of protein that includes 3 to 4 g of leucine per serving to increase muscle protein synthesis (Yang, Breen, Burd, et al., 2012). This can be found with adequate amounts of chicken, turkey, salmon and many more food items.

Past theories suggested it was important to receive the adequate nutrition for recovery within a short period post-exercise known as an anabolic window to be effective (Candow and Chilibeck, 2008; Kukuljan, Nowson, Sanders, et al., 2009) although more recent studies have dispelled this as somewhat of a myth (Aragon and Schoenfeld, 2013). Either way, consumption of all the stated nutrition above should look to be taken as early as possible to begin the recovery process.

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