



SPORTS NUTRITION: BEFORE, DURING & AFTER EXERCISE

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ABSTRACT

Athletic performance and recovery from exercise are enhanced by optimal nutrition. The nutrition requirements for an active adult or athlete depends on: duration, frequency and intensity of the exercise. Other factors such as sex, nutritional status (e.g., fasted) and the type of exercise (e.g., strength training vs. endurance exercise) may also influence nutrition needs. Most importantly, competitors need to devour enough vitality to keep up fitting weight and body synthesis while preparing for a game. Inadequate energy intake can hurt performance and impair training adaptations.

KEYWORDS: Athletic performance and recovery , nutritional status.

Hydration: How much fluid do you need?

Dehydration leading to a body mass loss of 2% or more (e.g., a loss of 1.4 kg in a 70 kg athlete) can negatively impact physical performance. There is no one-size-fits-all recommendation for fluid intake. Use body weight changes to guide fluid intake: 2 Weight loss during exercise (kg)* - amount of fluid consumed during exercise (L) = amount you should drink after exercise to replace sweat losses. e.g., 2 kg weight loss - 1L fluid consumed = 1 L needed after exercise.*Assumes 1 ml of sweat loss represents a 1 g loss in body weight. The planning of liquid and nourishment admission can help improve execution and amplify advantages of activity. 3 while no athlete is the same and individual preferences exist, the following practical recommendations can help you make fluid and nutrient choices before, during and after exercise. You should experiment with foods and timing in training before using the strategies during competition.

BEFORE

Begin with a full fuel tank! Timing of fuel and fluid intake is important for good pre-workout nutrition. Eat foods low in fat and fiber, high in carbohydrate and moderate in protein.

CARBOHYDRATE

- 3-4 hours prior: consume 200-300 g to maximize muscle glycogen with high carbohydrate foods/beverages (e.g., bagel, fruit cup, juice, cereal) Less than 1 hour prior: top off fuel tank with liquid carbohydrate(e.g. 6-8% carbohydrate sport drink) (Mark Haregreaves et al)

FLUID

- 4 hours prior: drink 5–7 ml/kg body weight (e.g., 350-490 ml for 70 kg person) to optimize hydration and allow for excretion of any excess fluid as urine(lawrence Armstrong et al)



ELECTROLYTES

Electrolytes are minerals in your body that have an electric charge. They are in your blood, pee, tissues, and other body liquids. Electrolytes are critical in light of the fact that they help

- Balance the measure of water in your body
- Balance your body's corrosive/base (pH) level
- Move supplements into your cells
- Move squanders out of your cells
- Make beyond any doubt that your nerves, muscles, the heart, and the mind work the manner in which they ought to
- Pre-hydrating with refreshments that contain electrolytes (specifically sodium) can help invigorate thirst and hold required liquids (Sport beverages may contain 115-575 mg/L of sodium) (Alexandra A. Taylor)
- Sodium, calcium, potassium, chlorine, phosphate, and magnesium are on the whole electrolytes. You get them from the sustenances you eat and the liquids you drink.

The dimensions of electrolytes in your body can turn out to be excessively low or excessively high. This can happen when the measure of water in your body changes. The measure of water that you take in should rise to the sum you lose. In the event that something upsets this parity, you may have too little water (lack of hydration) or a lot of water (over hydration). A few meds, regurgitating, loose bowels, perspiring, and liver or kidney issues would all be able to irritate your water balance (Medline in addition to)

PROTEIN

- 3-4 hours earlier: moderate measures of protein (e.g., nuts, yogurt) may upgrade muscle protein union Amid

Amid exercise, the objective is to supplant liquid misfortunes and give sugar. This is significantly progressively basic for perseverance occasions over 1hr, when insufficient fuel or liquid is devoured before exercise, or when dynamic in outrageous warmth, cold, or high elevation.

CARBOHYDRATE

- 1 hour or less: 200-400 ml sport drink (6-8% carbohydrate) every 15-30 min to maintain blood glucose levels.
- After 1 hour: 30-60 g carbohydrate per hour.
- Choose glucose or mixtures of sucrose, glucose, fructose and malto dextrin; avoid large amounts of fructose²

FLUID

- Fluid losses will vary. Athletes should attempt to anticipate losses as a guide to fluid intake during activity. 1 L per hour is a good starting point
- Sweat contains on average 920 to 1,150 mg/L of sodium. Salt loss in itself does not directly impact performance, but replacement during activity triggers thirst, increases fluid intake, and reduces fluid output - all responses that promote hydration.

AFTER

After exercise, consumption of fluids, electrolytes, protein and carbohydrate help to refuel your body, rebuild muscles, and rehydrate for a better recovery. Timing is everything! The sooner the muscle is fed, the better the recovery.

CARBOHYDRATE

- Within 30 min: 1.0 – 1.5 g/kg body weight to replenish muscle glycogen (e.g. sport drink or recovery beverage)
- For next 4-6 hours: 1.0-1.5 g/kg body weight every 2 hours with a recovery beverage or high carbohydrate foods (e.g., crackers, fruit)

FLUID

- Drink 1-1.5 L for each kg of body weight lost and not replaced (net loss) during exercise

ELECTROLYTES

- Replace lost electrolytes (primarily sodium) with a sports drink or salty snacks.

PROTEIN

- 10-20 g of protein to help with muscle repair and growth (e.g., recovery beverage, turkey sandwich)

BIBLIOGRAPHY

1. Pre exercise carbohydrate and fat ingestion (Mark Regrevas et al, 2004).
2. Exercise and fluid replacement: American college of sports medicine (Lawrence Armstrong, 1996)
3. <https://medlineplus.gov/fluidandelectrolytebalance.html>
4. <https://www.unitypoint.org/livewell/article.aspx?id=9ab3d290-8767-4e22-8474-ab160992ae82>
5. Beelen M, Burke LM, Gibala MJ, et al. Nutritional strategies to promote postexercise recovery. *Int J Sport Nutr Exerc Metab.* 2010;20:515–532. doi: 10.1123/ijsnem.20.6.515.
6. Burke LM, Mujika I. Nutrition for recovery in aquatic sports. *Int J Sport Nutr Exerc Metab.* 2014;24:425–436. doi: 10.1123/ijsnem.2014-0022.
7. http://www.pepsico.ca/en/downloads/Sports_Nutrition_Before_During_%26_After_Exercise_ENGLISH.pdf