

Sports Nutrition Tips

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Recovery Nutrition

Refueling after training is like putting money in the bank—it's the body's safe deposit box for muscle sugars called *glycogen*. This investment for muscles ensures adequate energy for daily training and overall health. Without food or fluid after exercise, the body is unable to completely recover from workouts and improve performance.

The post workout snack, beverage or meal also helps tendons and ligaments to heal, builds and maintains a healthy hormonal & immune system, and keeps *electrolytes* in balance—minerals that helps muscles to contract and relax on every run and for each hit, kick or tackle. Post training nutrition is especially important for athletes who workout twice daily; compete in all day, multiple day and/or in events where morning prelims are wedged between afternoon finals.

Furthermore, recovery nutrition covers all the bases when life steals the body's best and destroys it with stress, work responsibilities and sleepless nights. Recovery nutrition catches us before we fall into *overtraining syndrome*—a potentially serious condition when the mind and body collapse— motivation, muscle mass, and health decline and take months to heal. Without proper foods and fluids, even the best athletes self destruct.

Recovery Nutrition Science 101

The body continues to burn calories after a workout, called *exercise post oxygen consumption* (EPOC) which lasts 15 minutes to 48 hours after training. EPOC causes an additional calorie burn and higher metabolism beyond the workout—a benefit for weight and fat management—a drawback when calories are needed for building the performance athlete. The amount of EPOC calories burned depends on gender, training status, training intensity and duration, and fitness level— accounting for a few to several hundred calories. Why are extra calories burned?

EPOC calories are burned because:

- The body replenishes sugar in muscles and replaces the simplest energy form called adenosine triphosphate (ATP) at the cellular level
- Lactate responsible for post exercise muscle soreness needs removal
- Normal breathing, heart rate and body temperature needs restoration to pre-exercise levels
- Blood needs re-oxygenation after muscles cease working out

Recovery Fuel

✱ Food

The post workout food formula can consist of fluids or solid food as long as it's stomachable by the athlete, literally. Since the gut shuts down after exercise, not all foods will work for everyone. Depending on training type and timing of the next workout, the composition and amount can vary while keeping in mind the golden recovery rule; *getting something*—anything as long as it's within the window of refueling opportunity, about 15 minutes to 2 hours after training for adequate replenishment.

The best foods to eat are those high in carbohydrates. Planning ahead by storing a sports drink, bar, or snack in the gym bag or stopping for a smoothie on the way home is one way to ensure adequate replenishment within the recovery window. Meals/snacks with 65% carbohydrates or more, about 0.8g to 1 gram/kg bodyweight / hour have been shown to replenish muscle stores best. For the 150-pound athlete (68 kg) (kg = pounds / 2.2), a snack or beverage with about 54-68 grams carbohydrates. See the Recovery Fuel Chart below for snacks that meet this requirement.

It's just as important to refuel after shorter high intensity workouts as it is for longer workouts. The difference between the recommended foods depends on whether or not it is the last workout of the day. If athletes have a second workout, lower fat, lower fiber and bland foods are best over high fiber, fat and spicy foods to prevent gut distress. For example, the two-a-day athlete would do better with a plain turkey sub with lettuce and tomato after the first workout instead of a Mexican Taco salad with cheese, refried beans, ground beef, guacamole, salsa and the shell.

Recovery Fuel Chart

Food	Calories	Carbohydrates (Gms)
1 oz dry cereal	110	23
1 slice bread	70	12
Breakfast/snack bar SOYJOY	140	17
Plain mini bagels	160	31
Saltine crackers, 4	50	9
Rice, ½ c	110	23
Pasta, 1 c	159	34
1 blueberry muffin	130	20
Cookies, fig, 1	53	11
Baked chips, 1 small bag	140	24
Pretzels, 1 oz	106	21
Orange juice, ½ c	56	13
Banana, 1	105	27
Muscle Milk Bars, collegiate	170	18
Muscle Milk, RTD collegiate	250	28
Cytomax sport drink, 1 scoop	90	22
Cytomax, 1 packet 40 g	140	35

Gummy bears, 10	87	22
Sport gel, 1 pack	110	27
Canned/plastic pack fruit/own juice	60	15
Unsweetened applesauce, ½ c	50	14
Fruit smoothies, small 20oz	375	84

✱ Fluid

Replacing fluids at a rate of 1-1 ½ times, about 16-24 oz for every pound lost in sweat, is crucial for adequate rehydration. A fluid loss of just 2% of body weight can impact performance. Weighing before and after a training session can provide a good guesstimate of fluids lost during exercise. And while it's not necessary to weigh daily, seasonal weightings are recommended since ambient temperature affects fluid losses, especially in South Florida.

Urine color is the simplest and one of the most accurate measures of hydration. If the urine is pale yellow, that's good, while dark urine means dehydration. Completely clear urine is a concern since it suggests overhydration—the overconsumption of water and potential loss of electrolytes. The chart below gives you a range to shoot for although colors may be slightly off than the original.

Recovery fluids should include water, electrolyte rich sport drinks, and recovery fuels with sugar and protein (depending on the intensity of the workout) to cover all bases and replace all losses. When food doesn't work, a sport shake is an easy, portable way to replace carbohydrates and protein needed for maintaining muscle gains and strength accomplished during workouts.



- **Interpretation:** The lower the number, the better the result. A urine color rating of 1, 2 or 3 is considered to be well-hydrated.
- **FYI:**—Certain medicines and vitamins may cause the color of the urine to change (especially the Bs and C). If any of these have been taken, this test is unreliable.

The Extras—Supplements for Recovery

No need to look far—whether roaming on the internet, in magazines or at the vitamin store, you'll find a plethora of products promoted to target recovery nutrition. What works, what doesn't?

Keep in mind, whole foods are always best since nutrients in food work synergistically with recovery compounds such as antioxidants, omega 3s, vitamins and minerals. Most supplement formulas provide too much of a good thing, some prepared with additional substances that is illegal in collegiate or professional sports. Many include just what the athlete needs to replace electrolytes lost in sweat, carbs to replenish glycogen stores and protein to repair muscle tissue. Reading nutrition labels is key to meeting your personal needs.

Bottom line—get something in the body after workouts and if you can't eat whole foods, look for a shake, bar or sport drinks company that is USP and NSA certified. Most important, recovery fuel is a 24/7 job for athletes. Don't wait until after workouts to try and catch up with a good overall diet.

If in doubt, make an appointment today with a sports nutrition specialist to make sure your performance diet and recovery plan to meet your training needs and to take your athletics to the next level.

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