

Refuel with Chocolate Milk: Behind the Science

Chocolate Milk has what it takes to help athletes refuel and recover. It has 9 essential nutrients that an athlete needs, including some not typically found in recovery drinks.

CHOCOLATE MILK'S LIQUID ASSETS:

- A natural source of high-quality **protein** to build lean muscle.
- The right **carb-to-protein ratio** scientifically shown to refuel and rebuild exhausted muscles.
- **Electrolytes** including calcium, potassium, sodium and magnesium to help replenish what's lost in sweat.
- **Fluids** to rehydrate.
- **B vitamins** for energy.
- **Calcium, vitamin D, phosphorus, protein** and **potassium** to build and maintain strong bones and reduce the risk of stress factors.
- **Vitamin A** to support a healthy immune system and good vision.

READ MORE ABOUT THE SCIENCE SUPPORTING CHOCOLATE MILK'S BENEFITS

PERFORM

Drinking chocolate milk after a hard workout could give athletes a performance edge, according to a growing body of research. Some studies suggest drinking lowfat chocolate milk after a strenuous workout could help athletes boost power and even improve training times in their next bout of exercise, compared to when they drink a carbohydrate sports drink.

- *New Study!* Recovering with fat free chocolate milk after a hard workout helped recreational runners build more muscle, reduce debilitating muscle breakdown and run longer compared to when they recovered with a carbohydrate drink, according to a new study in the journal *Medicine & Science in Sports & Exercise*. When the runners drank fat free chocolate milk after a strenuous run, on average, they ran 23% longer and had a 38% increase in markers of muscle building compared to when they drank a carbohydrate-only sports beverage with the same amount of calories.¹
- An Indiana University study found endurance-trained cyclists who drank lowfat chocolate milk after an intense period of cycling were able to work out longer and with more power during a second exercise period compared to when the same athletes drank a commercially available carbohydrate replacement drink, and just as long as when they consumed a traditional fluid replacement drink.²
- In another study, after an initial exercise and recovery, cyclists were able to cycle 51% longer during a second bout of exercise after drinking chocolate milk than after drinking a carbohydrate replacement drink with the same number of calories.³
- Researchers at the University of Texas at Austin found that following an exhausting ride, trained cyclists had significantly more power and rode faster, shaving about six minutes, on average, from their ride time when they recovered with lowfat chocolate milk compared to a carbohydrate sports drink and calorie-free beverage.⁴
- In a recent study, 32 healthy but untrained cyclists who recovered with lowfat chocolate milk had twice the improvement in V02max – a measure of aerobic fitness and adaptation – after a 4.5 week cycling regimen – compared to athletes who grabbed a carbohydrate drink.⁵

REFUEL

Lowfat chocolate milk contains the right mix of carbs and protein scientifically shown to help refuel muscles. Chocolate milk helps restore muscles quickly to their peak potential.

- Replacing muscle fuel (glycogen) after exercise is essential to an athlete's recovery. A recent study found that drinking 16 ounces of fat-free chocolate milk with its mix of carbohydrates and protein (compared to a carbohydrate-only drink with the same amount of calories) led to greater concentration of glycogen in muscles at 30 and 60 minutes post exercise.⁶

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- In a study of 13 male college soccer players, post-exercise consumption of lowfat chocolate milk was found to provide equal or possibly superior muscle recovery compared to a high-carbohydrate recovery beverage with the same amount of calories following a four-day period of intensified soccer training.⁷

REBUILD

Lowfat chocolate milk contains high-quality protein to help repair and rebuild muscles after strenuous exercise. It's also been shown to help athletes tone up – gain more lean muscle and lose fat – when compared to drinking a carb-only beverage.

- Several studies have found that subjects who drank regular or flavored milk after a rigorous workout experienced less exercise-induced muscle damage than those who drank typical sports drinks or water.^{8,9}
- In one recent study, post-exercise muscle biopsies in eight moderately trained male runners showed enhanced skeletal muscle protein synthesis after drinking 16 ounces of fat-free chocolate milk compared to when they drank a carbohydrate-only sports beverage with the same amount of calories. This enhancement is a sign that muscles were better able to repair and rebuild.¹⁰
- In another study of healthy, untrained men, those who consumed fat-free milk after exercise gained more muscle and lost more body fat at the end of a 12-week training program than those who drank a soy protein beverage or a carb-only beverage. All three beverages had the same amount of calories. A second study found similar results for women.^{11,12}
- In another University of Texas at Austin study, 32 healthy but untrained cyclists who recovered with lowfat chocolate milk gained more muscle and lost more fat during training, with a 3 pound lean muscle advantage, compared to athletes who recovered with a carbohydrate drink.¹³

REHYDRATE AND REPLENISH

Refueling with chocolate milk after exercise helps replenish what your body has lost – including fluids and critical nutrients lost in sweat. Chocolate milk is natural when it comes to electrolytes, providing some of the same electrolytes that are added to commercial recovery drinks (calcium, potassium, sodium and magnesium) along with fluids to help you rehydrate. In fact, some research suggests milk may help you stay hydrated after exercise, more than some commercial sports drinks.

- Drinking lowfat or fat-free milk after exercise could restore hydration better than other popular post-exercise beverages, according to one study. The study compared the rehydration effectiveness of four beverages: lowfat milk, lowfat milk with added sodium, water and a sports drink. After exercise in a warm climate, participants were given one of the four test beverages and the researchers measured hydration status. They found that milk may be more effective than water or sports drinks at restoring and maintaining normal hydration status after exercise, likely due to milk's electrolyte content and energy density.¹⁴
- In a second study, the same researchers found that drinking fat-free milk after exercise-induced dehydration restored fluid balance better than a commercial sports drink. The researchers concluded that "milk can be an effective post-exercise rehydration drink, with subjects remaining in net positive fluid balance throughout the recovery period."¹⁵
- Drinking milk after exercise can also help replace essential electrolytes that are lost in sweat. These essentials include potassium, sodium, magnesium and calcium. The loss of calcium is of particular concern since research suggests rigorous exercise may cause substantial calcium loss, which could increase the risk of stress fractures.¹⁶⁻¹⁸

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