

Make Sure It's **MILK** on the Training Table: Advice From An Expert

POWER UP
with **CHOCOLATE MILK**

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The following information is reprinted with permission from an article by David Lightsey, Adjunct Professor of Nutrition Bakersfield College. Milk: The superior product with inferior marketing, originally appeared in Progressive Dairyman, Issue 5 (March 21, 2013) 57-59.

I will focus on athletes because their daily fluid consumption needs are high. I believe these athletes would nearly double their milk intake, if they received and understood the right information about milk's health benefits. This statement is based upon hearing the responses of coaches and athletes at coaches' clinics and other sports-related seminars where this issue is often discussed.

Most athletes, as well as their coaches, still embrace the following six classic misconceptions or myths about muscle tissue structure and its developmental needs. This makes it easy for the sport supplement industry to exploit athletes. These misconceptions result in the athlete bypassing milk as a post-training beverage, opting instead for a more expensive competing product with no additional benefit.

Myth #1: One pound of muscle is composed of mostly protein, and protein needs post-training are significant.

Fact: One pound of muscle is roughly 70 percent water by weight and only contains roughly 22 percent (100 grams) of amino acids or protein. Post-training protein needs have been clearly shown to be no more than 20 to 25 grams of protein for most athletes, which is easily met with three cups of milk post-training. This is easily within the normal fluid needs of most athletes.

Myth #2: Large protein intakes after training sessions will enhance muscle recovery.

Fact: As stated above, protein in excess of 20 to 25 grams for most athletes after a training session is irreversibly oxidized. Excessive protein post-training actually hinders muscle recovery and development due to its diuretic effect, which can cause a fourfold to fivefold increase in urine production post-training. This increased urine output, or fluid loss, is necessary

in order to excrete the excess free nitrogen produced from the excessive protein intake, which would be toxic if it were not eliminated from the body.

The exacerbation of overall body and muscle tissue dehydration will inhibit muscle tissue recovery, not enhance it. (Remember the ratio of protein-to-water composition in muscle tissues from the first myth.) Milk's water and protein composition is ideal for meeting both the hydration and protein needs of an athlete after training, and at a cheaper cost.

Myth #3: Muscle tissue damage during training sessions warrants abnormally high levels of protein post-training.

Fact: The body readily recycles amino acids, which simply means that when muscle tissue damage does occur, most of those same amino acids are reincorporated back into the muscle tissue they came from. Any additional amino acids that are needed are easily provided by the diet or additional milk consumption.

Myth #4: I need protein supplements in order to support muscle growth over the course of a week of training.

Fact: The maximum amount of actual muscle tissue development that can occur in one week is roughly half a pound of muscle tissue. Any additional weight gain is related to water retention and/or increased sugar stores in muscle and liver tissue as muscles adapt to training demands. This can account for an additional several pounds of weight gain during the early stages of training, unrelated to muscle tissue development or a gain in fat weight. The half-pound of new muscle tissue which may be developed (50 grams of protein) can be easily met by the added additional caloric intake from milk.

Myth #5: Over-the-counter products contain a proprietary blend of compounds that make them more effective than milk.

Fact: It has been documented that many over-the-counter products, which compete with milk, can contain heavy metals, stimulants, designer steroids and steroid precursors, as well as other ingredients which may have both short-term and long-term potential side effects. Some also contain other ingredients of unknown safety and efficacy due to a lack of regulatory oversight of the supplement industry. These liability issues alone should cause coaches to rethink what they recommend their athletes consume.

Myth #6: I feel and perform better with the use of over-the-counter protein drinks.

Fact: Many athletes do perform better when they consume some over-the-counter products, but there are some very simple explanations as to why, and it is not related to some “proprietary mix of amino acids.” The supplement industry is well aware of the following gimmicks and relies on them heavily to steal market shares away from the milk industry.

Natural progression: This occurs in all young athletes as their natural testosterone increases and normal developmental changes take place, which can be significant in 14-year olds to 21-year olds. If it occurs while simultaneously using an over-the-counter product, the young athlete will falsely assume the product resulted in the positive changes and not understand that it was his or her normal developmental changes taking place.

Products spiked with steroids or stimulants:

Obviously, when athletes ingest massive doses of caffeine or some other stimulant, they are going to be able to work longer and harder in the gym. The results will likely be a little more effective in the short term. However, the health consequences can be significant, if not deadly.

Products marketed as protein drinks but that are actually carbohydrate drinks:

This is the classic bait-and-switch which most young athletes are vulnerable to because they simply do not read the actual product ingredients closely enough. The sport supplement industry knows the most limiting factor in most athletes’ diets is the lack of carbohydrates, not protein. Most athletes respond favorably to more carbohydrates in their diet. So, when they consume

a product marketed as a protein drink, when in fact most of the calories from that product are actually from the sugars added to it, the athlete will feel and perform better but will attribute it to some “special proprietary blend of amino acids” instead of simply understanding that the added sugar provided the advantage. Milk could provide the same additional added calories.

The placebo effect: This can have a dramatic effect on performance outcomes due to the psychological impact it may have. The individual simply fulfills an expectation obtained from a deceptively marketed product. As an example, a study conducted at the University of Wisconsin, using 32 runners, illustrated that 84 percent – or 27 of the 32 runners – consuming simple tap water, but who had been led to believe there was a special compound in the water which would enhance the delivery of oxygen to their muscle tissue, improved their average 5K run times by 83 seconds.

Why MILK?

Milk is the wisest choice for an after workout recovery beverage because of its water content for rehydration, appropriate protein content, carbohydrate content to replenish the liver and muscle tissue with sugar stores, electrolytes, calcium and established safety and efficacy, as well as its cost. The cost of the same protein content from an over-the-counter milk wanna be can be as high as five times greater per gram.

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David Lightsey spends his evenings working as an adjunct professor at Bakersfield College, where he is dedicated to addressing many of the myths and misconceptions associated with food production processes and traditional agricultural practices. He spends his days working at a physical rehabilitation practice in Bakersfield. On a national level, Lightsey has worked with the National Council Against Health Fraud; as a nutrition science advisor to Quackwatch; served as a National Collegiate Athletic Association health and safety speaker; and has worked with national media on numerous occasions. He is also the author of the book “Muscles Speed and Lies – What the Sport Supplement Industry Does Not Want Athletes or Consumers to Know.”