



MILK

The Forgotten Bodybuilding Food

 Xavier Fox

Go up to most people in the gym and start asking them about high quality sources of protein, and you will most likely hear about whey, beef, fish, chicken and eggs over and over again. Not many people will tell you that they drink a lot of milk. Now, although whey is manufactured from milk, it is technically not milk.

So, why is one of nature's most perfect foods not something that bodybuilders consume on a consistent basis? After all... milk is the best choice when choosing a food that will enable a child to develop during their most sensitive years. So it's time to take a look at how milk can help bodybuilders develop into larger and stronger human beings as well.

When it comes to protein, milk has the edge on just about every food out there. If you have been bodybuilding for more than a day, then it is certain that you have heard of whey and casein. They are the number one choices for mass monsters worldwide. Every major protein supplement on the market is derived from these two protein sources. Find me a bodybuilder that has not used whey or casein protein in their diet, and I will show you a bodybuilder that has not done very well in competition. Well... guess what? Milk just happens to contain both of them.

When whey is derived from milk and refined, it has the highest biological value of any other form of protein there is. This means that you body absorbs it faster and utilizes a higher

percentage of what you consume. Depending on which form of whey it is (isolate, concentrate, hydrolyzed), it can score anywhere from 104 to more than 150 on the biological value scale. Casein, when used by itself, will score around 80. Milk, which is a combination of the two, will score just above 90, which puts it only behind pure whey and eggs.

Whey is actually a by-product created when milk is used to make cheese. Then, whey is further processed, and it ends up containing about 80% protein by dry weight. It will contain all of the amino acids, especially the essential amino acids that must be consumed because the body cannot process them from other amino acids. In fact, there is no better source of branched-chained amino acids out there. Whey even contains large amounts of the amino acid

Many bodybuilders rely on milk when looking for off-season bulk.

Jason Mathias

differs from human milk. Humans are not born with the high amounts of the enzyme lactase that is used to break down the sugar lactose that is found in cow's milk. This is where the term "lactose intolerance" comes from. Some people end up getting an upset stomach and puffy looking skin from milk.

Luckily, bodybuilders can benefit from science where the lactose is broken down into two simpler sugars that are easier to digest. Lactose-free milk is becoming more and more popular, and it can be found in supermarkets everywhere. Although lactose is a sugar, consuming it will not be all bad. Lactose scores a low 46 on the glycemic index, so it will digest slowly and will not raise blood sugar levels to the point where insulin is raised to unhealthy levels.

There are three very important vitamins found

in milk as well. When milk is processed, it will have vitamin D added to it. Without vitamin D, the body would not absorb the calcium that milk is so rich in. Vitamin D is crucial for calcium utilization. It is also important for inhibiting proliferation and stimulating differentiation in cells. Cellular differentiation is how cells know their specific function in the body, and proliferation helps cells stimulate growth in the body. However, if proliferation happens at too high a scale, it can lead to cellular mutations, such as the kind that turn into cancer. Vitamin D helps to stop this from happening.

Vitamin D also has many other valuable functions. It helps the immune system stay strong, which keeps you out of bed-rest and in the gym. Studies have shown insufficient levels of vitamin D in the body can have an undesirable result on insulin secretion and glucose tolerance in type-2 diabetes. Vitamin D has shown to reduce high blood pressure, it enables the body to absorb calcium to fight osteoporosis, and recent studies have suggested that it may help prevent cancer.

Vitamin A is a fat-soluble vitamin that comes in the two forms retinol and provitamin A. It plays its most active role in eyesight, but it is also an important part of the systems that treat skin

glutamine, which has an entire array of benefits all on its own. The process that is used to make the cheese and whey will play an important role on how the protein in the whey is protected. However, the whey in milk will always be usable.

For some reason, casein does not receive the same amount of press that whey does, but it is a very good source of protein. We have all heard the old nursery rhyme about Little Miss Muffet. Well... the curds portion of her "curds and whey" is casein. Maybe Little Miss Muffet didn't want to be little any more? Casein is close to 80% of the protein that is in milk and, like whey, is used in the manufacturing of many of the protein powder supplements that are out on the market. The main difference between casein and whey is that casein has a slightly different amino acid profile that makes it digest slower than whey. This makes casein ideal for consuming later in the evening before bedtime. The slow release helps to provide a steady influx of protein that can provide amino acids to help the body recuperate and build new muscle all night long.

Casein is higher in glutamine than whey, eggs and soya proteins. It also has a lot of the other glucogenic aminos (threonine and arginine). The glucogenic aminos play a critical role in glucose production for energy during exercise, and they inhibit muscle catabolism. Casein also has a lot of tyrosine, which is an amino acid that has a powerful stimulating effect on the neurotransmitters in the brain. This enables tyrosine to give you a heightened alertness and sense of well-being.

One of the bad raps that milk receives is that many people have trouble digesting it, and the lactose in it makes the digestive system intolerant to it. This happens because the milk used in the marketplace is cow's milk, which



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Skimmed milk retains much of the original nutrients without the fat.

Bodybuilders commonly mix shakes for mass gain with milk for the extra calories.



Ivlin Gelb

fat breakdown. Calcium can also bind to small amounts of dietary fat in the digestive tract and prevent its absorption, which will cause the fat to be secreted as waste. The calcium in milk will help you reduce fat storage.

One thing that is nice about milk is that it comes in several varieties, so bodybuilders can have several options depending on their personal goals. If you are looking to add bulk and power, or if you want to build lean muscle, you can enjoy the benefits that milk has to offer in all situations. One cup (236 millilitres) of whole milk has 150 calories, 8 grams of protein, 8 grams of fat (5 are saturated), and 12 grams of carbohydrates (lactose). Semi-skimmed milk would have 130 calories, 8 grams of protein, 5 grams of fat (3 are saturated), and 12 grams of carbohydrates (lactose). Fat-free skimmed milk would have 90 calories, 8 grams of protein, 0 grams of fat, and 12 grams of carbohydrates (lactose). No matter what part of your training season that you are in, there is a type of milk to suit your needs. Milk is very close to the 50% carbohydrate, 35% protein, 15% fat profile that is so popular in bodybuilding.



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problems, grow bones (including teeth), and maintain healthy nails and hair. Vitamin A keeps the outer membranes and protective linings of the intestines healthy, which enable you to properly digest nutrients found in the food you consume. For a bodybuilder, vitamin A's ability to act as a powerful antioxidant make it critical for keeping the body healthy and fighting the adverse effects of free radicals that form during the many reactions that happen due to intense exercise.

As you get older, your bones decrease in mass. This could lead to many health problems as you age. In addition, just like muscles, your bones can become more massive. As a matter-of-fact, as you gain more muscle and become stronger, you will need more bone mass to support the increased stresses that heavy lifting creates. It is a good thing for bodybuilders that milk contains quite a bit of calcium. One cup contains 30% of the daily requirement. Drinking milk will keep those bones powerful as you become a freak of nature.

Did you know that calcium is the principal

mineral involved in muscular contraction? Do some reading on the "sliding filament theory of muscular contraction" to understand how crucial calcium is in muscle activity. If calcium is deficient, then you will not be able to contract or relax your muscles effectively. The muscles will also be at a larger risk of cramping and tearing. A lack of calcium will lead to some pretty crappy workouts, which will lead to a pretty crappy physique. When you want someone to assess your physique... the last word you want to hear is "crappy".

Getting big is not the only thing that makes a great bodybuilder. Being lean so that you can show off all that hard work is also important. There have been many studies that have linked higher calcium intakes to higher rates of fat loss. Ingesting sufficient amounts of calcium can inhibit the production of parathyroid hormone, which increases

Water is an important nutrient for bodybuilders. Staying hydrated keeps the muscles flexible and reduces their chance of injury. Water also helps transport nutrients (especially those taken as supplements) throughout the body as well as get waste out. If you want to retain less water so that your skin looks thin and tight, then you will need to consume more water. Lastly, if you do not consume enough water, your kidneys will not function properly and your liver will have to aid in the responsibilities of digestion. As you know, the liver metabolizes stored fat for energy, but if it is forced to take on some of the kidney's duties, then it cannot burn fat as efficiently. Less water leads to more fat... it just so happens that milk is more than 85% water.

Speaking of water, almost everyone who uses whey protein supplements will mix their powder with water. Well... with milk containing mostly water as well as a lot of whey protein, casein protein, vitamins, minerals, and carbohydrates, milk is the perfect liquid to mix your whey protein powder with. Not only are the nutrients you need there, but you will not need to use as much powder, which will save your pocketbook some punishment too. Of course, then at times when you are trying to watch calories, you can switch back to using water.

Do your body some good and add milk to your list of valuable protein sources. With whey, casein, glutamine, vitamins A and D, water, and calcium, it contains some of a bodybuilder's favourite things. It packs a lot of nutrition in a natural and inexpensive package, and it will keep

When buying milk pick one that is low in fat and lactose.



you from having to spend so much on protein supplement powders. Milk is Mother Nature's way of saying, "I want you to be huge!"

Be a good boy and drink your milk... so that next time your parents are watching you on stage they will be proud of how their baby used milk to grow, and grow, and grow...

BF



Both slow proteins, like micellar casein, and fast proteins, like whey, share their origin in milk.