Muscle Building Proteins

Here's a question for you. Diet or exercise, which is more important? It's a debate that has raged for a long time. Recent research points towards diet as the main influencer of physical conditioning. In fact, as strange as it sounds, **diet is more influential than exercise in achieving fitness goals**. The reality is that exercise is a smaller part of the equation. You can exercise all you like but without the right fuel on the fire, the flame does not burn brightly.

Much of the anecdotal 'evidence' for exercise as more important than diet comes from adolescent and young men. Bodies rich in testosterone that can eat anything and still stay lean and ripped. But this only works for so long. The more nutrients we consume the more our bodies can use them to good effect. But when our systems slow down in our thirties, all that calorie-heavy and low-value protein shows up as fat, not muscle.

Quality Protein Sources

High-quality protein is the most important building block of muscle. No matter how much carbs or fat we ingest, without protein, our bodies are incapable of building new muscle fibers. Protein helps build and repair muscle. This advice is even more important for older athletes who should eat more protein to combat age related muscle loss.

Muscle protein balance improves with resistance training but only if muscle protein synthesis exceeds muscle protein breakdown.

The question also arises whether strength-athletes and bodybuilders require more protein than the rest of the population. According to Journal of Sports Science Medicine, athletic populations require more protein than sedentary populations.

In this article we'll discuss the types of protein that are most effective for building muscle and how much protein your body actually needs.

How Muscle Growth Works

After working out, your muscles go into a state of repair. The damaged and torn muscles fibers fuse to form new bonds. The new bonds are thicker and more numerous than the old ones. This creates larger and stronger muscles.

The most important thing to remember is that **muscle growth does not happen in the gym**. Workouts are a stimulus to muscles, which grow when you're resting. But this growth can only happen with the help of proper nutrition.

Protein synthesis is a sequence of chemical reactions in which chemical bonds form between amino acids in protein molecules. Protein synthesis occurs continually in the body to repair and rebuild muscle. The result is new muscle tissue. The size and strength of this new tissue are determined by the intensity of training.

How to Get Enough Protein

Protein requirements vary depending on age, sex, and activity levels, and other factors. Example: A 250 lb male powerlifter will need a lot more protein than a 150 lb sedentary female.

Many nutrition authorities and health websites recommend multiplying your weight in pounds by 0.36 to find your protein requirements. This protein calculator lets you find out your protein requirements based on sex, age, height, weight, and activity level. Our 150 lb sedentary female would need 54 grams of protein. The average adult female in the US already eats within the Estimated Average Requirements.

The powerlifter athlete needs 90.72 (250 x 0.36) grams if we follow the rule exactly. But strength athletes have different protein

requirements. We consider these recommendations as a baseline. A study by the Journal of Applied Physiology found that the average protein requirements of a strength-training athlete far exceed those of the US recommended daily protein intake requirements.

This study found that the generally accepted value of 2.2g per KG of body weight (1g per 1 lb) used by the non-scientific strength training community is effective. Using this scale our 250 lb male would need 250g of protein to help build muscle.

A safe zone to work in is somewhere in between the two values. Aim for 1.5-2g of protein per kg (2.2lbs) of body weight. From there you can adjust by monitoring your gains and consulting with your doctor.

Vegans and vegetarians should note that plants and fruits alone will not give you the protein required to build muscle with strength training. If meat is out of the question you should include grains, seeds, beans, and nuts. Plants and some fruits contain protein but unless you want to stay skinny you should supplement your protein intake.

Signs that you're not consuming sufficient protein are:

- Slow recovery times
- Brittle Nails
- Fatigue
- Hair loss
- Poor muscle growth

The ideal scenario is a meat (including fish) and whole foods diet. This will give you the full complement of proteins and amino acids your body needs.

A simple way to hit your protein goals is to add a high protein food source to every meal. Yoghurt with cereal, Turkey breast with a sandwich, Beans with Rice.

- Never eat only pasta with sauce. Add beef or soy.

- Greens only salads won't do much to help with muscle growth. Add some chicken or garbanzos.

Be careful with nuts as the phytic acid can cause the malabsorption of minerals from the proteins you consume at the same time. Either eat nuts on their own or soak them overnight to help reduce the phytic acid.

Best Foods for Building Muscle

A muscle-building diet should take the same approach as any healthy diet, with modifications for your specific goals. Protein, carbohydrates, fats, and micronutrients are all needed to build the body you want. **Nobody can live on protein alone** so try to think of meals plans holistically. Protein plus other nutrients are what create optimal health and muscle growth.

The range and variety of foods you eat contribute to the overall health of your body. Traditional protein-rich foods such as Red meat and chicken are useless without the non-protein nutrients essential for fuel and biochemical processes. The point is that eating 12 chicken breasts a day, and nothing else, might work in the short term but will make you weak and sick in the long-term.

Protein Foods for Body Builders and Strength Athletes

The feeling of sore muscles after a hard training session is something we've all experienced. But that's a good thing. The muscle cell damage that occurs during training kicks off biological processes in your body that makes you stronger.

Our bodies are remarkable machines that react to stimulus. When we train our muscles hard, the body figures out ways to make itself more resilient to training. The response is to create more muscle. More muscle means you can train harder and heavier, and so the cycle

continues. **The building blocks for this new muscle growth come from protein**. And not just any protein. Sure, there's protein in a Big Mac, but this is low quality, nutrient-deficient protein. Higher quality proteins have better amino-acid profiles that help the body create stronger muscles in less time.

Eat the following protein-rich foods and get stronger, faster, and bigger:

MEAT

Beef (Lean, Grass-fed)

When it comes to building lean muscle, beef is a champion among protein sources. Just remember to always choose grass-fed beef. Much of the steak in the US comes from cows raised on feedlots. These poor animals eat corn every day. Our advice to avoid corn-fed beef has nothing to do with the taste, but everything to do with the quality of the protein. Excessive consumption of corn changes the fat profile of the meat. Grass-feed meat is higher in healthy omega-3s and Vitamin E.

Nutrition Info

100g contains around 50% of the RDA of Vitamin B12, B3 and B6. This amount of beef also contains high levels of selenium, zinc, and phosphorus. With around 22g of protein in 100g, beef is a powerhouse of nutrition and delivers a high-protein, low carb food source that's also delicious.

100g / 3.53 oz. – All Values are in grams
Protein: 22.0
Carbohydrates: 0
- Starch: 0
- Sugars: 0
- Fiber: 0

Fat (total): 7.12g
- Monounsaturated: 2.46g

Polyunsaturated: 2.2g
Saturated: 2.46g
Calories: 154 calories
Muscle Building Potential 9/10

Many Studies have linked excessive consumption of beef to various diseases such as cancer and diabetes. We'd recommend limiting red meat consumption to two or three times a week as over-indulgence will not help your goals but may have negative effects on your overall health.

Chicken

The protein source that fuels the world, chicken is a popular protein almost everywhere. With moderated levels of fat (remove the skin) and zero carbohydrates, chicken is a high-quality source of protein. If you're looking for the highest protein-to-fat ratio then choose the breast. It's not the tastiest part of the chicken but it is the healthiest.

Chicken meat delivers important quantities of niacin, vitamin B6, Selenium, Iron, and the ever-important Zinc. **Zinc aids in recovery** and plays an important role in maintaining testosterone levels in men.

According to the Journal of Nutrition adding even small amounts of animal protein such as chicken to a plant based meal can significantly increase zinc absorption. Yet another reason to add chicken to your salad or brown rice dish.

Nutrition Info
100g / 3.53 oz.
Protein: 27.0
Carbohydrates: 0
Starch: 0
Sugars: 0
Fiber: 0
Fat (total): 14.0

Monounsaturated: 5.0
Polyunsaturated: 3.0
Saturated: 3.8
Calories: 239 calories
Muscle building potential: 9/10

Try to get **free-range, organic chicken**. Pay special attention when travelling as many countries (especially developing countries) grow chickens in intensive farming environments. Apart from the ethical aspect, the quality of the meat from intensive farm lots is far inferior to free range chickens. Stressed, sick, and force-fattened chickens produce meat that causes inflammation and illness in humans. Chicken is the 'go to' protein for many athletes looking to put on more muscle. But it's the quality of the meat that's important.

FISH

Salmon

Many people can't stand the flavor of fish and that's unfortunate as one of the world's best muscle-building foods comes in fish form. For lovers of food that swims, Salmon is the king of foods. Full of juicy, oily flavor, and easy to prepare, Salmon ticks all the boxes for nutrients, taste, and convenience.

The high fat content of salmon is what enhances its flavor. The **fat in salmon is good fat**, beneficial to the body. It improves testosterone levels and helps the body process nutrients. As we've seen in recent years, fat is not the enemy. Don't shy away from foods with high fat concentrations but make sure that, just like protein, it is of high quality.

Look for wild salmon in the supermarket. In almost all cases, wild caught food (including boar, deer, and seafood) is superior to farmed foods. **The diverseness of the diet of wild animals makes exceptional nutrient-rich protein**. Farmed animals, which are less

active and eat single-food sources, are not recommended. The proteins in the flesh of these animals are less nutrient-dense and have an inferior amino-acid profile than those of wild-caught animals.

Nutrition Info
100g / 3.53 oz.
Protein: 20.0
Carbohydrates: 0
    Starch: 0
    Sugars: 0
    Fiber: 0
Fat (total): 13.0
    Monounsaturated: 3.8
    Polyunsaturated: 3.9
    Saturated: 3.1
Calories: 208 calories
Muscle Building Potential 10/10

DAIRY

Whey

According to a study by the Journal of the International Society of Sports Nutrition, whey is the most effective source of protein for increasing strength.

Whey protein is best consumed after heavy training to maximise gains. Bodybuilders and readers of Muscle & Fitness magazine know the value of whey in building muscle. Your body absorbs whey faster than most other protein sources. Whey is also high in Calcium and Sodium.

Whey products often use sucralose, fructose, and other forms of Sugar as sweeteners. Artificial sweeteners are used as replacements for Sugar in many whey products. It's important to examine the nutritional data of Whey supplements for additional sweetening elements. Sugar

and artificial sweeteners can hamper your training progress and negatively affect your health.

Nutrition Info
100g / 3.53 oz.
Protein: 70.g
Carbohydrates: 17.6
    Starch: 0
    Sugars: 12.3
    Fiber: 3.5
Fat (total): 0.0
    Monounsaturated: 0.0
    Polyunsaturated: 0
    Saturated: 0.0
Calories: 352 calories

GRAINS

Most grains do not contain the **nine essential amino acids** the body uses to build and repair muscle tissue. As a result, grains should be consumed with other foods that complement the amino acid profile of each type of grain. Vegetarians and vegans understand why combining food is important for better nutrition. Ancient cultures that could not count on a plentiful supply of meat learned to combine foods to maximise protein synthesis.

Quinoa

One of the most protein-rich grains is a Peruvian seed grain called Quinoa. Sometimes referred to as a superfood, Quinoa packs not only a large amount of protein but high-quality vitamins and minerals too. It's a great addition to a salad or as a side to a non-meat meal.

Quinoa contains all nine amino acids considered essential for health. In fact, it's one of the few perfect protein sources that don't come from an animal.

Low in simple sugars and high in starch, Quinoa is also a healthy alternative to wheat, rice, and corn. The grain is low in fat and this makes it a good source of carbohydrate if fat intake is a concern.

Nutrition Info
100g / 3.53 oz. (cooked Quinoa)
Protein: 4.40
Carbohydrates: 21.30
    Starch: 17.63
    Sugars: 0.87
    Fiber: 2.8
Fat (total): 1.92
    Monounsaturated: 0.53
    Polyunsaturated: 1.0
    Saturated: 0.23
Calories: 120 calories
Muscle building potential: 6/10

Rice

Rice is one of the main staple foods for a large proportion of the world's population. Many cultures wouldn't dream of eating a meal that did not include rice. But is it nutritious and does it contain protein levels worth caring about?

Rice contains about as much protein per 100g as broccoli or Spinach. But rice is a much higher in calories than the either broccoli or Spinach. 100g grams of rice supplies 130 calories. In contrast, Broccoli has 34 calories in 100g. Rice is not as nutritious as either meat or vegetables but is an effective food for building muscle thanks to its high carbohydrate and moderate levels of protein.

Nutrition Info
100g / 3.53 oz.
Protein: 2.7
Carbohydrates: 28.0
    Starch: 27.5

Sugars: 0.1
Fiber: 0.4
Fat (total): 0.3
Monounsaturated: 0.1
Polyunsaturated: 0.1
Saturated: 0.1
Calories: 130 calories
Muscle building potential: 5/10

VEGETABLES

Spinach

On first impressions, Spinach shouldn't appear on this list. Compared to steak, chicken, or salmon, this leafy green vegetable has a much lower protein content. However, we consider Spinach to be a muscle-building protein source thanks to its combination of moderate protein and superior micronutrient levels.

The high **iron, magnesium, and calcium** content of Spinach make it an excellent vegetable to include in your diet. Low iron can lead to fatigue and weakened immunity. Low iron levels can result in muscle fatigue in bodybuilders and strength training athletes. Exercise, infections of the blood, and some foods (cow's milk, coffee, tea) can deplete the levels of iron in the body. Less iron means less energy to train and poorer performance at the gym, resulting in less muscle growth. Bodybuilders, in particular, can suffer from iron deficiency.

Eating Spinach, which contains **15% of your RDA of Iron** in a 100g portion, boosts levels of this important mineral for muscle growth.

Spinach is also a potent source of Vitamins A and C, two important vitamins for health.

Nutrition Info
100g / 3.53 oz.

Protein: 2.9
Carbohydrates: 3.6
    Starch: 1.0
    Sugars: 0.4
    Fiber: 2.2
Fat (total): 0.4
    Monounsaturated: 0
    Polyunsaturated: 0.2
    Saturated: 0.1
Calories: 23 calories
Muscle building potential: 6/10

Broccoli

Hated by children the world over, broccoli's taste and texture take a bit of getting used to. But it's worth it. A **great source of fiber, vitamin A, B1, B6, C & E, manganese, potassium, calcium, and copper**, broccoli is one of the **most nutritious vegetable**. It's also effective in preventing cancer, contains powerful antioxidant properties, and helps alkalize the body (reduce the negative health effects of an acidic stomach and blood).

Broccoli's protein content is low compared to meats and dairy but it compares favorably with rice and corn. As with other non-meat foods, the amino acid profile of broccoli is considered incomplete.

The proportions of amino acids in broccoli are not optimum for building muscle and must be combined with other food sources. Combine broccoli with brown rice and garbanzos (chickpeas) to get the full complement of amino acids. For meat eaters, combining broccoli with steak gives a high fiber, low carb, nutrient-packed, healthy meal.

Nutrition Info
100g / 3.53 oz.
Protein: 2.8
Carbohydrates: 7

Starch: 2.7
Sugars: 1.7
Fiber: 2.6
Fat (total): 0.4
Monounsaturated: 0
Polyunsaturated: 0
Saturated: 0
Calories: 34 calories
Muscle building potential: 5/10

LEGUMES AND PULSES

Soybeans (Tofu)

Vegetarians the world over use soy as a protein source. At almost 40g of protein per 100g, **soybeans beat even beef on protein content**.

Like many nuts, beans, and seeds, soy contains *phytates* which interfere with the absorption of minerals from foods. The best way to eat soy is to soak overnight before use. An even better way to consume soy is to ferment it. Soy also contains high-levels of phytoestrogens. Phytoestrogens are dietary estrogens, created by plants to alter the fertility of animals that might consume them. What does that mean for humans? There's a potential for hormone disruption and can affect fertility and testosterone levels. Our advice is to use in moderation.

Nutrition Info
100g / 3.53 oz.
Protein: 36.0
Carbohydrates: 30.0
Starch: 14.0
Sugars: 7.0
Fiber: 9.0
Fat (total): 20.0
Monounsaturated: 4.4
Polyunsaturated: 11.0

Saturated: 2.9
Calories: 446 calories
Muscle building potential: 8/10

Garbanzos / Chickpeas

Garbanzos are high in protein and carbohydrate but low in fat. With a whopping (for a non-meat source) 19g of protein per 100g, **garbanzos should be a staple protein source for any athlete**. With 61g of carbs per 100g garbanzos can also fuel your workout without loading your system with sugar.

Garbanzos also contain high levels of folate (a B vitamin important in many enzyme chemical reactions required for protein creation), phosphorous, Iron and manganese.

Eat garbanzos with quinoa or a leafy green salad to complement the amino acid profile of these foods and help the body build protein for growth.

Nutrition Info
100g / 3.53 oz.
Protein: 19.0
Carbohydrates: 61.0
Starch: 43.0
Sugars: 11.0
Fiber: 17.0
Fat (total): 6.0
Monounsaturated: 1.4
Polyunsaturated: 2.7
Saturated: 0.6
Calories: 364 calories
Muscle building potential: 8/10

NUTS & SEEDS

The nutrient value of seeds surpasses almost every other type of food. They are densely packed powerhouses of macro and micronutrients. That doesn't mean we should consume them in large quantities. Moderation is the key with seeds. The high fat content and, sometimes high quantities of certain minerals can play havoc with your body.

The key to consuming nuts and seeds is to restrict the quantities to regular small amounts daily. Eating apart from regular meals will prevent the phytates from affecting the nutrient values of your other foods.

Chia Seeds

The popularity of chia seeds has shot up in popularity in the last few years. The nutrient quality varies across producers but even small amounts of chia pack a high-protein punch. Chia seeds are high in magnesium, which is involved in energy production, and manganese, which helps control blood-sugar levels.

Chia is a good source of **Omega-3 fatty acids**, which can improve blood flow, reduce joint stiffness, and help speed up recovery from training in athletes. With almost 17g of protein per 100g they make excellent snack foods or additions to salads for a quick protein boost.

Nutrition Info
100g / 3.53 oz.
Protein: 16.67
Carbohydrates: 43.30
- Starch: 10.00
- Sugars: 0.0
- Fiber: 33.3

Fat (total): 30.0
- Monounsaturated: 2.3
- Polyunsaturated: 24.0
- Saturated: 3.33

Calories: 486 calories

Muscle building potential: 6/10

Sunflower Seeds

Sunflower seeds contain around 50% fat so don't overdo the portions. The ratio of 'good' fats to 'bad' fats is beneficial, however, so adding sunflower seeds to your diet is recommended regardless of your activity levels.

High in potassium, Vitamin B6, and Iron Sunflower seeds contain large amounts of micronutrients that aid muscle building. Together with the **high protein content** (21g per 100g) eating sunflower seeds as a snack throughout the day is one of the healthiest ways of adding protein and easing hunger pangs.

The magnesium level of these seeds is also high: 81% of the RDA per 100g. Magnesium in the diet has dropped considerably over the last century thanks to farming methods and the average American diet. The body uses the mineral in muscular contraction and relaxation and for both aerobic and anaerobic energy production.

Nutrition Info
100g / 3.53 oz.
Protein: 21
Carbohydrates: 20
- Starch: 8.4
- Sugars: 2.6
- Fiber: 9

Fat (total): 51
- Monounsaturated: 19
- Polyunsaturated: 23
- Saturated: 4.5

Calories: 584 calories
Muscle building potential: 7/10

Walnuts

My favorite nut, especially when combined with (antioxidant-

rich) dark chocolate, is the brain-shaped walnut. Walnuts nuts are high in fat and protein and contain high levels of important minerals. With one of the **highest levels of protein (per 100g) among nuts**, walnuts make an excellent addition to salads, or as snacks to help boost your protein and healthy fat intake.

Nutrition Info
100g / 3.53 oz.
Protein: 15.0
Carbohydrates: 14.0
Starch: 4.4
Sugars: 2.6
Fiber: 7.0
Fat (total): 65.0
Monounsaturated: 9.0
Polyunsaturated: 47.0
Saturated: 6.0
Calories: 654 calories
Muscle building potential: 8/10

Foods to Avoid

The worst thing you can do after all your hard work in the gym is to spoil your diet with foods that hinder muscle-building. The best protein in the world won't help you if your diet is heavy in alcohol, refined carbohydrates, sugar, and hydrogenated oils.

Eating these foods is like putting dirt in the gas of a racecar and adding bricks to the chassis. They will prevent gains, make you fat, and kill your performance. Eliminate these foods from your diet and supplement with high-quality proteins. Train hard and reap the benefits that muscle-building proteins provide.