

## Your Guide to the Best Supplements for Muscle Growth

Several supplements can help support muscle growth when paired with resistance training and a well-rounded diet. This includes creatine and protein supplements, among others.

If you exercise regularly, you likely want to be sure you're getting the most out of it. One important benefit of exercise is gaining muscle and strength. Having a healthy amount of muscle allows you to perform your best during exercise and daily life.

Three main criteria must be met for maximal muscle gain:

1. eating more calories than you burn
2. consuming more protein than you can break down
3. following an exercise program that is challenging to your muscles

While it's possible to meet all these criteria without taking dietary supplements, certain supplements may help you meet your goals.

### Creatine

Creatine is a molecule naturally produced in your body. It provides energy for your muscles and other tissues.

Taking it as a dietary supplement can increase muscle creatine content by up to 40% beyond its normal levels. Creatine affects muscle cells and exercise performance, promoting muscle gain. In fact, a large amount of research shows that creatine improves muscle strength. This is good news if you're trying to gain muscle. Greater strength allows you to perform better during exercise, leading to larger increases in muscle mass over time. Creatine can also increase water content in your muscle cells. This may cause your muscle cells to swell slightly and produce signals for muscle growth. Furthermore, this supplement may increase levels of the hormones involved in muscle growth, such as IGF-1. Moreover, some research shows that creatine could decrease the breakdown of proteins in your muscles. Overall, many researchers have studied creatine supplements and exercise, and one thing is clear: Creatine can help increase muscle mass. Creatine also has a positive safety profile.

**Creatine supplementation in females** The characteristics of creatine differ between males and females. According to a 2021 review, females have 70% to 80% lower stores of creatine than males. Researchers also note that females metabolize creatine differently. Creatine stores may drop during hormone-related changes, such as menstruation, pregnancy, and menopause. For this reason, creatine supplementation may be especially important before, during, and after these estrogen-related events. Researchers note creatine supplementation can improve strength, exercise performance, and muscle size in females. When used alongside resistance training, creatine may also have favorable effects on bone density. In addition, creatine

supplementation may also have a positive effect on mood, cognition, and sleep. Researchers believe that females can practice the same dosing strategies recommended for males.

However, it's always a good idea to talk with a doctor before starting any supplementation program. They will consider your health history to determine the correct dosing and make sure there are no negative interactions with medications you may be taking.

Creatine is probably the single best supplement for muscle gain for both males and females. Many studies confirm it can help increase muscle mass.

### Protein supplements

Getting enough protein is critical for gaining muscle. Specifically, to gain muscle, you need to consume more protein than your body breaks down through natural processes. While it's possible to get all the protein you need from protein-rich foods, some people may struggle to do so. If this sounds like you, you may want to consider taking a protein supplement.

There are many protein supplements available, but some of the most popular are whey, casein, and soy protein. Other supplements contain protein isolated from eggs, split peas, rice, and hemp seeds. Research shows that adding extra protein via supplements causes slightly more muscle gain in people who exercise than adding extra carbs. However, the effects are probably the largest for people who aren't getting enough protein in their diet. A 2018 study including adult men and women suggests that total protein intake (including animal, fish, and egg protein) is important for building and preserving muscle mass. However, in women, the association between total protein intake and muscle mass depended on physical activity. Many people wonder how much protein to eat daily. If you're an active individual trying to gain muscle, 0.6 to 0.9 grams (g) of protein per pound (lb) of body weight, or 1.4 to 2.0 g per kilogram (kg) of body weight, may be best.

Consuming enough protein is absolutely essential for optimal muscle gain. However, if you're getting enough protein in your diet, taking a protein supplement is unnecessary.

### Weight gainers

Weight gainers are supplements designed to conveniently help you get more calories and protein. They're typically used by people who have difficulty gaining muscle, even when consuming large amounts of calories and lifting weights. Although the calorie contents of weight gainer supplements vary, it's not uncommon for some to contain more than 1,000 calories per serving. Many people think these calories come from protein since it's so important for muscle building. However, most of the calories actually come from carbs. There are often 75 to 300 g of carbs, 20 to 60 g of protein, and 0 to 15 g of fat per serving in these high calorie supplements. While these products can help you consume more calories, there's nothing magical about weight gainer supplements.

A small 2012 study involving physically inactive male and female adults found that drastically increasing calories can increase lean mass like muscle, as long as you eat enough protein. However, a 2016 study involving males who practiced resistance training suggests consuming a weight gainer supplement may not be effective for increasing lean mass. Overall, weight gainers are only recommended if you have difficulty eating enough food and find it easier to drink a weight gainer shake than eat more food.

Weight gainers are high calorie products designed to help you consume more calories and protein. However, they are only recommended if you have difficulty getting enough calories from food.

### Beta-alanine

Beta-alanine is an amino acid that reduces fatigue and may improve exercise performance. Beta-alanine may also help increase muscle mass if you are following an exercise program. In one 2011 study, researchers found taking 4 g of beta-alanine per day for 8 weeks increased lean body mass more than a placebo in male college wrestlers and football players. A 2009 study reports that adding a beta-alanine supplement to a 6-week, high-intensity interval training program increased lean body mass by about 1 lb (0.45 kg) more than a placebo in male participants. However, a 2022 review of 20 studies concludes that beta-alanine supplementation is unlikely to improve body composition, regardless of the dosage used or whether it's combined with resistance training. Therefore, more research is needed to understand the potential benefits of beta-alanine supplementation.

Beta-alanine is an amino acid that can improve exercise performance. Some evidence suggests it may also help increase muscle mass in response to exercise, but more research is needed.

### Branched-chain amino acids

Branched-chain amino acids (BCAAs) consist of three amino acids: leucine, isoleucine, and valine. They are found in most protein sources, particularly those of animal origin like meat, poultry, eggs, dairy, and fish. BCAAs are critically important for muscle growth and make up around 35% of the amino acids in your muscles. Just about everyone consumes BCAAs from food every day, but it's also very popular to take BCAAs as a supplement. A small 2016 study with resistance trained male participants suggests BCAAs may improve muscle gain or reduce muscle loss compared with a placebo. However, a larger 2021 study with male and female participants found that BCAAs may not preserve lean body mass in people following a weight loss program. It's likely that BCAA supplements may only benefit you if you're not eating enough high quality protein in your diet. Although they may be beneficial if your diet is inadequate, more information is needed before BCAAs are recommended as a go-to supplement for muscle gain.

### Branched-chain amino acids (BCAAs) in females

A small 2020 study with postmenopausal women found that 8 weeks of resistance training improved muscle mass and strength. However, adding BCAA supplements did not achieve any significant gains.

Branched-chain amino acids (BCAAs) are important for muscle growth. They are found in many foods. It's unclear whether taking them as a supplement is helpful when you already consume enough protein.

#### Beta-hydroxy beta-methylbutyrate

Beta-hydroxy beta-methylbutyrate (HMB) is a molecule that's produced when your body processes the amino acid leucine. HMB is responsible for some of the beneficial effects of protein and leucine in the diet. It may be especially important for reducing the breakdown of muscle proteins.

While HMB is naturally produced by your body, taking it as a supplement allows for higher levels and may benefit your muscles. According to a 2017 review of studies, research involving previously untrained adults found that taking 3 to 6 g of HMB per day can improve the gains in lean body mass from weight training. However, a 2018 review shows that similar doses of HMB are probably not effective at increasing muscle mass in athletes or adults with weight training experience. This may mean that HMB is most effective for people who are getting started with exercise or increasing the intensity of their workouts.

HMB may help increase muscle mass in people who are beginning a weight training program, but it appears to be less effective for those with training experience.

#### Other supplements

Conjugated linoleic acid (CLA): CLA refers to a group of omega-6 fatty acids that exert several effects on the body. A 2015 review of studies on CLA for muscle gain found mixed results, and it's not clear whether it's beneficial.

Testosterone boosters: Testosterone-boosting supplements include D aspartic acid, Tribulus terrestris, fenugreek, DHEA, and ashwagandha. It's likely these compounds only benefit people with low testosterone.

Glutamine and carnitine: These are probably not effective at increasing muscle mass in young or middle-aged active individuals. However, a small 2020 study suggests that carnitine may have some benefits for muscle growth in older adults.

Many types of supplements claim to increase muscle mass, but there's little evidence that they are effective for healthy, active individuals.