

**THE
COMPLETE
GUIDE TO
BUILDING
VEGAN MUSCLE**

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This guide covers all of the basic information you need to gain muscle on a vegan diet. To dive deeper, visit our site, www.TheVeganGym.com, and check out our “Nutrition” and “Fitness” pages.

Please feel free to email me with any specific questions (leif@thevegangym.com)!

And I wish you HUGE congratulations on taking the first step in building a stronger, more muscular body!

CAN YOU REALLY BUILD VEGAN MUSCLE?

“You don’t need meat to grow strong and healthy.”
– Arnold Schwarzenegger

Most people think that you can’t build a strong, muscular body without meat, dairy, and eggs.

Well, they are wrong. You absolutely can. Vegans can build muscle and strength just like meat-eaters.

BUT, vegan bodybuilding nutrition is easier to mess up than the traditional animal protein approach, so omnivores tend to more easily gain muscle than vegans.¹

As a vegan, you must be more purposeful in structuring your eating plans to achieve the same muscle gains as meat eaters. With smart nutrition planning and dedication to a weightlifting regime, vegans can achieve the same muscle and strength gains as omnivores.

WHY VEGAN MUSCLE?

Nothing has benefited me more physically, mentally, and spiritually than adopting a vegan diet. It is the best decision I have ever made.

After a cancer scare in 2013 that gave me frightening insight into the world of disease and conventional medicine, I searched everywhere for a natural method of disease prevention.

¹ <https://www.ncbi.nlm.nih.gov/pubmed/19678968>

What I discovered was ***shocking***...

The daily whey protein shakes, egg breakfasts, chicken lunches, and beef dinners – all foods I thought were “clean” and “healthy” – had taken a toll on my body.

Hundreds of hours of research led me to experiment with a vegetarian diet and to later adopt a vegan diet in May 2014.

Before adopting a vegan diet, I had gotten serious about lifting, but at the time of my cancer scare I was no longer maintaining a strict lifting regime. As I transitioned to a vegan diet, I wanted to get back into a strict lifting regime, but I thought my muscle growing efforts would be wasted without meat, dairy, and eggs.

At the time, I believed the popular myths surrounding vegan bodybuilding.

Myth 1: You become weak when you stop eating animal products.

Myth 2: Plants don't have enough protein to gain muscle.

But the more I researched about plant-based nutrition, the more incredible vegan athletes I stumbled across such as Rich Roll, Nimai Delgado, Frank Medrano, Jon Venus, Scott Jurek, Robert Cheeke, Brendan Brazier, Patrik Baboumian, Torre Washington, Tia Blanco, Derek Tresize, and Ryan Nelson just to name a few!

I soon realized that it was possible to follow a super healthy vegan diet **AND** get big and strong!

So, if you can get all the muscle and strength gains that your meat-eating friends get, but on a vegan diet, that leaves room to consider other factors relating to your dietary choices. Let's check out the top 3:

Consider long-term health and wellness: A whole food vegan diet greatly reduces your risk of diseases that kill millions of people every year. In a recent statement from the Academy of Nutrition and Dietetics, researchers found that “people who adopt a vegan diet reduce the risk of diabetes by 62 percent, the risk of prostate cancer by 35 percent, the chance of being hospitalized for a heart attack by 33 percent, the risk of heart disease by 29 percent and the risk of all forms of cancer by 18 percent.”²

Consider the environment: Removing animal products from your diet also reverses proliferating environmental desecration to air, water, and soil.

According to the Food and Agriculture Organization of the United Nations (FAO), animal agriculture is responsible for around 18 percent of greenhouse gas emissions, more than the combined exhaust from *all transportation*.³

Click [here](#) to learn more facts about the impact of animal agriculture on our environment.

Consider the ethics: Removing animal products from our diets ends cruelty imposed on tens of **billions** of animals

² <http://in.reuters.com/article/us-health-nutrition-vegetarian-vegan-idINKBN13Q5R4>

³ <http://www.fao.org/docrep/010/a0701e/a0701e00.HTM>

raised and netted for slaughter. Intuitively, we know **all** animals deserve our love and respect just like dogs and cats.

But society has conditioned us to think nothing of the cow who was slaughtered for our burger, while at the same time pouring adoration over our beloved pets.

If you grew up in India, you probably would be disgusted at the idea of eating cows because they are sacred creatures in Hinduism. If you grew up in China, you would probably consider dog meat to be a delicious delicacy.



Simply put, the world is a better place with less death.

"I have from an early age abjured from the use of meat, and time will come when men such as I, will look on the murder of animals as they now look on the murder of men."

– Leonardo da Vinci

MAKE A COMMITMENT

If you are already vegan, then great! Since you decided to take the time to read this guide, I'm sure you have ambitious health and fitness goals. I want you to commit to read this entire guide, then develop a custom meal plan and workout routine to reach your goals. If you need any help or have any questions, do not hesitate to email me at leif@thevegangym.com.

If you are not a vegan, that's okay! I **highly respect** your decision to check out this guide. I'm going to teach you how to achieve all your ambitious fitness goals with lots of hard work and a vegan nutrition plan. **Plus, I have a challenge for all you omnivores, so please stick around until the end!**

THE 5 LAWS OF VEGAN BODYBUILDING

When I started lifting at the age of 17, I made a lot of mistakes. I ate way more food and protein (mostly from animal products) than necessary and did a lot of long (2+ hour) high-rep workouts consisting mainly of isolation exercises. These workouts were *incredibly boring* and I *never looked forward* to going to the gym.

My results were decent, but they were mostly “beginner gains.”⁴ Knowing what I now know, I should have achieved ***way more*** from the hundreds of hours I spent at the gym.

⁴ “Beginner gains” refers to the fact that it is easier to build muscle when you are first starting out with weight lifting.

From 8 years of weightlifting experience – the last 2.5+ of which have been on a vegan diet – I have developed the **5 Laws of Vegan Bodybuilding** that you absolutely **MUST** follow to gain muscle mass and strength:

1. You **MUST** progressively overload your muscles⁵
2. You **MUST** focus on compound exercises
3. You **MUST** avoid caloric deficits
4. You **MUST** eat plenty of protein
5. You **MUST** not overtrain

Okay, let's break these down into 3 simple steps...

THE 3 STEPS TO GAINING VEGAN MUSCLE AND STRENGTH

1. **Train with HEAVY weights.** The foundation of your weight training must be heavy, compound lifts. You must maintain proper form through these lifts. **NEVER** compromise your form in an attempt to lift more weight.
2. **Eat enough for energy and protein.** You need to eat enough food, especially protein, to maximize muscle growth. I center my nutrition plan on whole plant foods that are minimally processed and high in protein like quinoa, almonds, and pea protein. My nutrition plan allows me to gain muscle without gaining fat, being hungry all the time, or compromising my long-term health.
3. **Get plenty of rest.** With strenuous workouts, you'll need a properly structured workout schedule that ensures you don't overtax any muscle group. You'll also

⁵ Progressive overload simply means lifting heavier and heavier weights over time.

need plenty of sleep. Overtraining or sleep deprivation will **kill** your muscle and strength gains.

So, that's it! Three simple steps!

And two of the steps simply require eating and sleeping a lot. Sounds pretty easy, right?

I'm kidding of course. It will take **A LOT** of **HARD** work, but if you follow these three simple steps, you will see an ***explosion*** in your energy levels, muscle gains, and strength.

So I've given you an overview of my plan, but we are just getting started. It's time to break down each step in detail so you know *exactly* what to do to accomplish your fitness goals.

STEP 1: TRAIN WITH HEAVY WEIGHTS

What is hypertrophy?

Hypertrophy is the technical term for *muscle growth*.

There are three keys to growing muscle: 1) progressive overload, 2) muscle protein synthesis (MPS), and 3) cellular repair.

You build muscle by damaging your muscles. Seems counterintuitive, I know, but allow me to explain. Skeletal muscle is made up of long fibrous chains containing proteins. Bundles of thousands of fibers make up the muscle itself.

When you engage in a heavy workout, muscles are damaged, causing microtears in the muscle fibers. ***Muscle protein synthesis*** is the process of rebuilding your muscle tissue after damage.

Through the process of muscle protein synthesis, your body strings together amino acids into new proteins to repair the microtears. The damage also activates satellite cells, which are similar to stem cells. The satellite cells flood the damaged area where they multiply, and fuse onto the muscle fibers to repair them, making them bigger and stronger than before. The body naturally repairs microtear damage by mending the torn fibers using amino acids, the components of protein your body synthesizes on its own and from food.

It takes about 48 hours for your muscles to repair themselves after a hard workout. This recovery process is known as ***cellular repair***. The result is a muscle that is *larger* and *stronger* than before.

To cause microtear damage to your larger, stronger muscles, you must gradually increase the exercise-induced stress your muscles experience (i.e. lifting heavier and heavier weights over time). This gradual weight increase over time is called ***progressive overload***.

With each additional workout, your muscles add bulk, strength, and explosiveness.

What exercises are best for gaining muscle?

You MUST emphasize *heavy compound weightlifting* in your workouts to gain muscle and strength as a natural

weightlifter.⁶

What exactly *is* a compound exercise?

A compound exercise is an exercise that involves multiple joints and muscle groups. The best compound exercises are the squat, deadlift, bench press, dip, row, and overhead “military” press.

While these may be intimidating exercises to some, heavy compound exercises should not be feared and are not harmful to your body if you maintain proper form.

Furthermore, these exercises are highly “functional,” meaning that the strength you develop from them is far more applicable to daily life than targeted isolation exercises like bicep curls.

For example, lifting a heavy 100-pound box will be fairly easy if you are repping out 300-pound deadlifts in the gym with proper form.

No matter who you are and what your fitness goals are, compound exercises deserve far more attention than isolation exercises.

For athletes: If you want to improve your athletic performance (run faster, jump higher, etc.), compound

⁶ *Enhanced bodybuilders, who use steroids or other performance enhancing substances, tend to focus on lifting low weight for high reps to build muscle. Steroids affect the body by enhancing the natural process of muscle building. For this reason, I specify “natural weightlifters.”*

exercises will deliver far better results than isolation exercises.

For powerlifters, strongmen, and other strength competitors: If your goal is to improve whole-body strength, you probably don't need to do any isolation exercises at all and can focus 100 percent of your lifting on heavy compound exercises.

For the guy who just wants to build muscle and look good: If your goal is to develop a physique that rivals your favorite fitness model, you'll get there most quickly by focusing on compound exercises and supplementing with a few isolation exercises. Personally, I'm not a competitive athlete or strength competitor, I work out to be strong and look like a Spartan warrior.

What makes compound exercises so effective?

As mentioned before, compound exercises require multiple muscle groups.

Because compound exercises employ multiple muscle groups, they allow you to lift heavier weights through a large range of motion. Therefore, compound exercises better progressively overload your muscles.

And remember the First Law of Vegan Bodybuilding?
The more you can progressively overload your muscles (with proper rest), the faster they will grow.

Although compound exercises are most effective at building muscle, isolation exercises are important too. Without

isolation exercises to fill in the gaps, compound exercises can create imbalances in the mass and strength gains of your muscles.

To avoid imbalances, I use isolation exercises to target muscle groups like biceps and calves that are difficult to hit in heavy, compound movements.

For example, if the only leg exercise you focused on was back squats, which emphasize your quads over your hamstrings, it would be easy to develop a muscle imbalance. Over time, this imbalance could result in serious hamstring injury or knee problems. You should supplement your leg workouts with a hamstring isolation exercise like Romanian deadlifts (known as “RDLs” or “straight leg deadlifts”) or hamstring curls.

A well-designed weightlifting routine for strength and aesthetics includes **both** compound and isolation exercises.

Compound movements comprise about 75 percent of the exercises I do in the gym. The other 25 percent are isolation exercises.

How do you warm up for heavy compound lifting?

Warming up before your heavy working sets is vital to increase your strength on every lift while also reducing the risk of injury. Unfortunately, most guys do one of two completely ineffective warm-up routines:

Ineffective warm-up routine #1: Lift super lightweights for a few minutes and do some static stretching. The problem

here is that static stretching is completely ineffective and doing too little weight for your warm-up can lead to muscle strains, joint impingements, or worse.

Ineffective warm-up routine #2: Do 12 reps with 135 pounds, rest a few minutes and then hit 185 pounds for 10 reps. After another short rest, you hit 205 pounds for 8 reps followed a few minutes later with 225 pounds for 6 reps. You take a longer rest and then hit 2 reps with 275 pounds. The problem here is that by the time you finally get to the heavy, muscle-building working sets, you're so fatigued from what you've already done that you can't handle your heavy working sets nearly as well as you should be able to.

So what's the proper way to warm-up?

I follow Michael Matthews' Bigger Leaner Stronger warm-up routine. If you haven't heard of Michael Matthews, you must check him out at www.MuscleForLife.com. Here's his exact warm-up routine from his [Bigger Leaner Stronger](#) program:

First Warm-Up Set:

In your first warm-up set, you want to do 12 reps with about 50 percent of your heavy, 4- to 6-rep set weight and then rest for 1 minute. This set should feel very light and easy.

For instance, if you did 3 sets of 5 reps with 225 pounds on the bench last week, you would start your warm-up with about 110 pounds and do 12 reps, followed by 1 minute of rest.

Second Warm-Up Set:

In your second warm-up set, you use the same weight as the first and do 10 reps, this time at a little faster pace. Then rest for 1 minute.

Third Warm-Up Set:

Your third warm-up set is 4 reps with about 70 percent of your heavy weight, and it should be done at a moderate pace.

This set and the following one are done to acclimate your muscles to the heavy weights that are about to come. Once again, you follow this set with a 1-minute rest.

With a working set weight of 225, this would be about 155 to 160 pounds.

Fourth Warm-Up Set:

The fourth warm-up set is the final one, and it's simple: 1 rep with about 90 percent of your heavy weight. Rest 2 to 3 minutes after this final warm-up set.

This would be about 200 pounds if your heavy weight were 225 pounds.

Fifth, Sixth, and Seventh Sets:

These are your working sets performed in the 4- to 6-rep range with 80 to 85 percent of your 1RM.

Moving on to the Next Exercise:

Generally speaking, you don't need to perform more warm-up sets in a workout beyond the four laid out above. For instance, if you start your workout with the flat bench press and then move to the incline press, you don't have to do a new round of warm-up sets.

How often should you lift?

I lift five, sometimes six, days a week. Each workout takes around 50 to 75 minutes. But the amount of time you spend in the gym isn't a great metric to follow because it doesn't really correlate with results.

For example, you could spend 60 minutes in the gym on the flat bench press hitting 5 lightweight sets with 10-minute rest periods between sets spent scrolling Instagram. Obviously, your results would suck.

Instead, **VOLUME** is the important metric. Volume, or the total amount of total reps performed, is the main determining factor in your muscle and strength gains.

If your volume per week is too low, you will struggle to gain muscle and strength.

If your volume per week is too high, you'll face problems related to overtraining (more on this later).

Get the volume right and you'll make gains faster than ever.

Optimal volume appears to be in the range of 60 to 180 reps per major muscle group per week. The heavier the training, the fewer reps you should do every week.

I focus on heavy compound lifts in the 80 to 85 percent of 1RM⁷ range, so I'm at the lower range of the 60 to 180-rep spectrum. I usually lift around 60 to 80 total reps per major muscle group per week.

If you are working with a low-weight, high-volume type of program, you should be around 180 reps per week for each major muscle group.

When should you lift?

I lift in the morning because it works best with my schedule, and I enjoy hitting the gym first thing every day. As an added bonus, your testosterone level is at its highest when you first wake up. Towards the evening, it drops by as much as 35%!⁸

What really matters though is ***sticking with a routine***. Most people won't ever see strength and mass gains because they don't stick with their lifting and nutrition plans over a long period of time. You won't notice much of a difference in your physique within the first month or two of starting a new lifting or nutrition regime, but don't be discouraged. Just find a lifting schedule that works best for you and stick with it.

⁷ 1RM stands for "1 Rep Max" and specifies the maximum amount of weight you can lift for a particular exercise. If you can bench 250 pounds and not a pound more, then your 1RM on bench press is 250 pounds. Working sets on bench press given a 250-pound 1RM would be 200 to 212.5 pounds (80 to 85 percent of 1RM).

⁸ <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2681273/>

The “time under tension” myth

As a quick aside, it is very important to note that the “time under tension” myth is just that...a myth. Performing reps very slowly to increase the amount of time under tension is not the best approach for increasing muscular size and strength. I tried this style of lifting for a few months and all it did was lower my weekly lifting volume and even slightly diminish my strength. Not good.

When you reduce the number of heavy weight reps you perform, you reduce the total work performed by your muscles.⁹ When you reduce the amount of total work performed by your muscles, you compromise the muscle- and strength-building potential of the exercise.

If you want to build a strong, muscular physique, your #1 goal is to add weight to all your lifts over time. A very slow rep with proper form is much more difficult than a fast, explosive rep with proper form.

Remember, the goal is to progressively overload your muscles with heavy compound exercises. And the more explosive your reps are, the more weight you’ll be able to do.

Many studies confirm the fact that total volume (weight multiplied by number of reps), **not** time under tension

⁹ I don’t want to get too “science-y” on you, but in physics, “mechanical work” is defined as the applied force to an object multiplied by the displacement of the object. For example, the amount of work or “effort” applied in bench-pressing 225 pounds would be the applied force (the total weight lifted) multiplied by the distance the bar travels (the bar’s displacement).

optimizes strength, muscle gains, and athletic performance.¹⁰

Is weightlifting good for women?

Ladies – you deserve to feel strong and sexy without starving yourselves and spending your evenings chained to a piece of cardio equipment. You’ve been completely misled in your quest to reach your fitness goals and it’s not your fault.

Popular magazines and ridiculous social standards suggest you should starve yourself and spend hours on the elliptical every day to look good.

This is ***complete garbage***.

The key to reaching your firm, toned, and strong fitness goals is to lift heavy weights. You’re probably thinking, “But aren’t heavy weights for guys?!”

Nope, not at all.

Be honest...have you ever seen a competitive marathon runner with an impressive body? Probably not.

Most people who focus on endurance exercise like running or cycling are thin, but don’t necessarily have the strong, toned body of their favorite fitness model. If you don’t venture beyond “cardio corner” at your gym, you will at best kill your curves and have little to show for your efforts.

¹⁰ <https://www.ncbi.nlm.nih.gov/pubmed/17194227> and <https://www.ncbi.nlm.nih.gov/pubmed/16177617>

I know you don't want to get bulky. But you must understand that it takes years of intense training, eating, and usually lots of supplements and drugs to build a big, bulky body.

You simply do not have the right cocktail of hormones that enables men to get bulky. **Men have about 10 to 15 times as much testosterone as women and even we have trouble getting big and bulky.**

So forget cardio corner and the color-coded lightweight dumbbells. Don't give a damn about what other people think about you. Lift heavy weights and don't worry about making ugly faces when you grind out the last few reps of each set.

And unlike cardio, the benefits of weightlifting extend far beyond the gym because muscle burns fat! Adding skeletal muscle mass to your frame increases your basal metabolic rate (BMR), the amount of energy you metabolize by simply being alive. Increased BMR burns a lot of energy, which translates to enduring fat loss.

If your goal is to get fit and toned,¹¹ lifting heavy weights and eating a whole food, plant-based diet with adequate protein will allow you to reach your goal without spending hours on the treadmill or starving yourself.

What would you prefer, hours on a treadmill for meager results or an hour lifting weights for life-changing results? Give it a try. I promise you will not be disappointed.

¹¹ If you want to develop that lean, defined, athletic look, you're going to need to maintain a body fat percentage between 15 and 20 percent.

STEP 2: EAT ENOUGH FOR ENERGY & PROTEIN

After coaching dozens of guys with different starting points and goals, I know that your nutrition plan is just as important, *if not more important*, than your workout plan in gaining muscle and strength.

To build vegan muscle, you'll need to eat plenty of food, with a focus on whole foods that are high protein such as quinoa, legumes, and nuts. Beyond whole foods, I consume a few servings of pea and rice protein powders daily.

I also consume plenty of healthy whole food fats from avocados, nuts, and seeds – these will allow you to easily increase your daily calories, which in turn will promote muscle growth.¹² Essential fats play a key role in promoting muscle growth by improving energy levels, performance, and recovery.

How much food should you eat when working to build muscle?

Quite simply, in order to gain muscle mass, you must be eating enough calories. Whole plant foods tend to have lower caloric densities than animal product foods (meat, dairy, and eggs), so you will likely have to consume greater volumes of food than your omnivorous bodybuilding friends.

If you're the type of vegan who gets full on things like brown rice, quinoa, potatoes, legumes, beans and lentils, nuts, seeds, nut butters, and avocados, you've given yourself a

¹² Do not consume empty calorie fat sources like oil. It's okay to cook with a little oil, but do your best to avoid it.

good chance to build muscle. On the other hand, if you're a vegan who feasts mostly on salad, stir-fry, fresh fruit, and other vegetable-based dishes, you're likely falling short on your macro (especially protein) needs for optimal muscle building.

When working to gain muscle, you should limit yourself to a **caloric surplus of 10 percent beyond your BMR plus activity burn** (the amount of additional energy you burn from movement and exercise). In other words, you don't want to eat more than 110 percent of the calories you burn each day.

Similarly, you want to make sure you are meeting your protein needs, but you don't have to go crazy.

The goal when building muscle is to do a clean bulk, *NOT* a dirty bulk.¹³

How does your body use protein?

Muscle growth requires a variety of amino acids, the building blocks of protein that your body uses to repair and strengthen muscle fibers.

Your body requires twenty-one amino acids. Your body can produce twelve of these, but must get the remaining nine from the food you eat. These nine amino acids that must be

¹³ If you aren't familiar with the term "dirty bulk," I'm referring to the overindulgent, undisciplined muscle building dietary approach in which people eat as much as they can to gain as much mass as they can. While you can build muscle using this approach, you'll gain a significant amount of fat as well. The "clean bulk" approach with a minimum (~10 percent) daily caloric surplus and a lifting routine structured around heavy compound exercises ensure you'll gain muscle without bulking fat onto your frame.

obtained from food are known as “essential” amino acids and they are: phenylalanine, valine, threonine, tryptophan, methionine, leucine, isoleucine, lysine, and histidine.

Leucine is an especially important amino acid for muscle growth because it is considered the “switch” that stimulates protein synthesis.

Furthermore, leucine, isoleucine, and valine, are the branched-chain amino acids (BCAAs) that are popular supplements in the bodybuilding community because they make up about one-third of muscle protein. These are important amino acids that are easy to consume in a vegan diet with proper nutrition planning.

Bottom line: If you don’t eat enough essential amino acids (EAAs) for your activity level, your body will have trouble building and repairing muscle, and thus, muscle growth becomes impaired.

Is plant protein better than animal protein?

Plant protein and animal protein have many similarities, but also many differences. In comparing the two, we must analyze three distinguishing variables that set them apart:

1. Different forms of protein digest at different speeds.
2. The body better utilizes some forms of protein than others.
3. Different forms of protein have different amounts of the EAAs our bodies need.

Overall, animal protein is more easily absorbed and assimilated into your body. Animal proteins contain more EAAs per gram and are more easily digested and absorbed.

This does not mean that plant protein is in any way inadequate or even puts vegan weightlifters and athletes at a disadvantage to their omnivorous counterparts. But as vegans, we do need to plan our protein consumption a bit more carefully.

And while they don't have to worry about protein, the vast majority of omnivores need to plan their fiber, micronutrient, and phytonutrient consumption a little more carefully, but I'll save that for another book.

From a wholesome health and wellness perspective, plant protein is preferable because food is a package deal. Plant foods offer a copious array of health-promoting vitamins, minerals, antioxidants, and phytochemicals that animal foods do not. Furthermore, plant protein causes less aging enzyme activation, has less sulphur containing amino acids such as methionine, possesses lower acid-forming capacity in the kidneys, promotes less putrefaction in the colon, has no inflammatory response, and offers no adverse effect on the cancer promoting growth hormone IGF-1.

Here's my take on the plant protein vs. animal protein debate: In the short-term, animal protein may help to more easily build muscle mass if you take a relaxed approach to your nutrition plan, but in the long term you'll likely pay a price with your health. With careful planning, plant protein can build muscle just as easily as animal protein without jeopardizing long-term health.

But isn't plant protein incomplete?

Contrary to popular belief, plant proteins are not “incomplete” (meaning they are missing essential amino acids). The “incomplete protein” myth and the faulty research that spawned it was thoroughly debunked by MIT years ago.¹⁴ All protein found in grains, legumes, vegetables, and fruits is “complete.”

What is true, however, is that some forms of plant proteins are lower in certain amino acids than others, making certain sources better than others. For example, the protein found in peas and rice is superior to the protein found in hemp. Rice protein is a great choice. It has a high biological value – around 80 percent similar to beef – and tastes great in my opinion.

I like rice and pea protein sources because they're similar to animal protein in terms of amino acid profile and protein digestibility.

How much protein does your body need?

Although detrimental to muscle and strength gains, low-protein dieting is popular among vegans and might be single-handedly responsible for the misconception that vegans can't build muscle like omnivores can.¹⁵ **But if you eat an**

¹⁴ <http://ajcn.nutrition.org/content/59/5/1203S.abstract>

¹⁵ There is good reason that many health-conscious vegans eat a low protein, high carbohydrate diet. Protein, especially animal protein, taxes the kidneys and liver, encourages free radical production, and changes the microflora in your intestines – all negative effects that increase all-cause mortality. Check out this study: <https://www.ncbi.nlm.nih.gov/pubmed/23372809>

adequate amount of plant protein, you can build muscle just as easily as omnivores.

Once again, muscle growth only occurs when you have enough amino acids to repair all the microtear damage caused by heavy, compound lifting.

Without enough amino acids, your muscles won't heal, you won't bulk up, and you'll be more prone to injuries and muscle loss. That being said, you don't need to eat crazy amounts of protein to build muscle.

The American Dietetic Association's RDA (recommended daily allowance) for protein is 0.36 grams per pound of body weight. This means that as a bare minimum, a 180-pound male only needs 65 grams of protein per day. Similarly, a 130-pound female only needs 47 grams of protein per day.¹⁶

However, athletes need to eat a higher protein diet to repair damaged muscle fibers and grow them larger.

According to research conducted by sports nutrition experts from McMaster University, protein intake of 1.3 to 1.8 grams per kilogram of body weight per day (0.6 to 0.8 grams per pound of body weight per day) is adequate for stimulating maximal protein synthesis.¹⁷ However, these recommendations are dependent on training status, with athletes training with high frequency and intensity requiring more protein. Additionally, elevated protein consumption as

¹⁶ Female protein requirements per pound of body weight are slightly lower than a male's protein requirements because women tend to have higher body fat percentages. Our daily protein requirement is most correlated with lean muscle mass.

¹⁷ <http://www.ncbi.nlm.nih.gov/pubmed/22150425>

high as 1.8 to 2 grams per kilogram of body weight per day (0.82 to 0.91 grams per pound of body weight per day) is advantageous in preventing lean muscle mass losses during periods of calorie restriction (i.e. periods of cutting).

Another widely cited study analyzing protein needs of active individuals concluded the same: average daily protein requirements for athletes falls in the range of 1.6 to 1.8 grams per kilogram of body weight per day (0.73 to 0.82 grams per pound of body weight per day).

However, the researchers acknowledge that this range is much less than the reported daily protein consumption of most athletes and more protein may be required to “optimize athletic performance” depending on “numerous interacting factors including energy intake, carbohydrate availability, exercise intensity, duration and type, dietary protein quality, training history, gender, age, and timing of nutrient intake.”¹⁸

Furthermore, as we learned from the McMaster University study, the leaner you get, the more high protein intake matters. If it drops too low – below 1.1 grams per pound of body weight per day – strength and muscle loss is accelerated.

My standard advice for protein intake when bulking is 0.9 grams of protein per pound of body weight per day. When cutting, you should consume around 1.1 grams of protein per pound of body weight per day.

¹⁸ <https://www.ncbi.nlm.nih.gov/pubmed/11023001>

These numbers are slightly higher than the recommended values in the cited studies because the digestibility of plant protein is about 10 to 30 percent lower than animal protein, depending on the food. To my knowledge, there are no studies analyzing the daily protein needs of athletes on a plant-based diet. I'll dive into more information on protein digestibility in the following section.

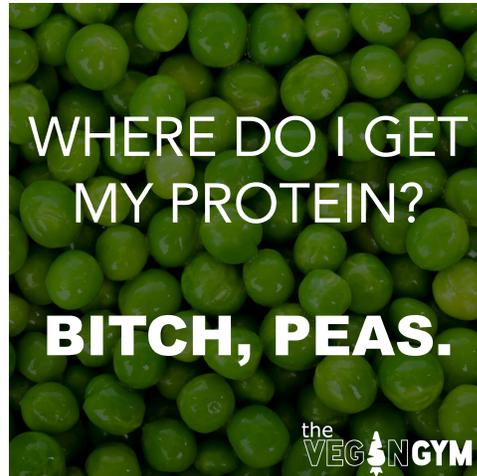
Protein digestibility of plant protein vs. animal protein

As briefly mentioned in the last section, protein digestibility is an important consideration. Obviously, the more easily your body can digest a protein source, the better that protein source is for building muscle. Most plant protein sources have true digestibility values around 10 to 30 percent lower than those of animal protein sources, depending on the food.

For example, most meat and fish clock in around 95 percent protein digestibility, so if you eat 40 grams of protein from these food sources, your body ultimately absorbs 38 grams. From plant sources, oats and whole wheat bread are closer to 85 percent, and rice comes in at 75 percent (34 grams and 30 grams, respectively). However, there are many plant foods with higher protein digestibility like spirulina, seitan (wheat protein), tempeh (soy protein), and rice and pea protein powders. Pea protein powder, one of my favorite sources of protein, has a biological value about as good as rice's and has a high amount of leucine, an amino acid that lacks prominence in a whole food vegan diet.

Plant protein powders

For muscle and strength building, I recommend supplementing with vegan protein powders, such as [Naked Nutrition's Less Naked Chocolate Pea Protein](#).¹⁹



And remember, protein powder is rarely packed with nutrients like vitamins, fiber, and minerals, so you should really focus on whole food as much as possible.

What about soy protein?

I recommend soy be eaten sparingly. To maintain the low IGF-1 levels associated with a plant-based diet, one should probably eat no more than 3-5 servings of soy foods a day. Furthermore, soy is often genetically modified to produce greater crop yields. Some research also suggests that soy has a negative effect on hormone levels for men.

When should you eat protein? Does timing matter?

The frequency of protein intake does not matter as long as you hit your daily numbers.

¹⁹ It is important to note that while there are only 3 ingredients, there is a special process plant protein manufacturers use to isolate the protein from peas, rice, and other grains/legumes. You cannot make this protein powder yourself. I only say this because I've tried to do it.

You aren't going to "go catabolic" if you don't eat protein every hour and eating protein more frequently won't help you build more muscle. I prefer to eat many smaller meals throughout the day and some people prefer to eat 3 larger meals. It doesn't matter; just make sure you hit your daily numbers.

Having protein before and after working out probably does matter, however – it can help you build more muscle.

Although there is much conflicting research, most weightlifters and bodybuilders (including myself) believe it's probably best to eat within 30 minutes before and after a workout. This immediate supply helps your muscles heal and become stronger. Extra protein around your workout is important to boost protein synthesis and halt muscle breakdown.

Personally, I eat a little protein before working out (about 10 to 15 grams and eat some carbs, usually a banana), as well as after (about 30 grams of protein with my breakfast).

Eating protein before bed is a good idea as well. Eating protein before falling asleep aids in muscle repair.²⁰

Will cutting carbs help my muscles grow faster?

Short answer: no. As effective as high-protein diets are for losing weight, you still need carbs and fat for maximum muscle growth. Your body uses carbs for energy during exercise. If your cache of carbs is low, your body will use

²⁰ <https://www.ncbi.nlm.nih.gov/pubmed/22330017>

protein as an alternate fuel source, and your muscles won't grow as much as they would if you were feeding them a cocktail of protein and carbs. As for the fat, it's vital for the production of muscle-building testosterone. Studies show that guys who eat higher-fat diets also have higher testosterone levels.

The fact that you shouldn't cut carbs is great news! Low carb, high protein diets make you **sick**. High protein diets have been shown to increase the extent and severity of coronary artery disease (CAD).²¹ A meta-analysis of studies analyzing over 270 thousand people found low-carbohydrate diets are associated with a significantly higher risk of all-cause mortality.²²

STEP 3: GET PLENTY OF REST

Push yourself hard in your training but don't overtrain

One of the most common problems with weightlifting programs is excessive training. While many guys undertrain in the gym because they're too busy checking themselves out in the mirror and scrolling through Facebook, there are also many guys who overtrain.

Your muscles can only take so much of a beating every week before your body falls behind in its ability to repair the damage caused by training.

Training frequency alone doesn't determine much in the way of gains. In weightlifting, I've found that doing less of the right

²¹ <https://www.ncbi.nlm.nih.gov/pubmed/11108325>

²² <https://www.ncbi.nlm.nih.gov/pubmed/23372809>

exercises actually improves results. Quality over quantity.

Remember, total weekly volume (number of reps performed) and intensity (load in terms of percentage of 1RM) are more important. Get these right and you'll be in the money.

Sleep is King

When it comes to increasing your gains, sleeping is pretty darn important.

When you don't sleep enough, it negatively affects your performance in the gym. If you ever go to the gym feeling tired and sleepy, chances are you won't be doing half as much work as you normally would.

Beyond lifting performance, sleep plays a crucial role in balancing your hormones.

When we sleep, your body releases high amounts of anabolic hormones such as testosterone and IGF-1. When you have short or interrupted periods of sleep, the release of these crucial hormones takes much longer, which disrupts the body's ability to repair and build muscle during sleep.

Sleep also diminishes the level of catabolic hormones, namely, cortisol. Levels of cortisol – the stress hormone – remain elevated whenever you don't get a good night of sleep. This is bad news for your gains.

How long should you rest during your workout?

You should rest 1 minute between your warm-up sets, 2-3 minutes between your 4-6 rep sets of heavy compound lifts and 1-2 minutes between your 8-10 rep isolation movements.

This timing is important. If you rest too long in between sets, you'll waste valuable gym time and fail to get in enough volume for serious muscle and strength growth. Resting too long between sets is especially bad for heavy, compound lifts. You never want to give your muscles enough time to "cool down" as this will kill your strength from set to set and leave you prone to injury.

If your rest periods are too short, then you will also kill your strength from set to set. Your muscles need a short recovery to maintain enough strength to get through a strenuous workout.

During my rest periods for a heavy compound lift, I will often throw in an isolation movement that doesn't require any muscles from the muscle group I'm targeting in my compound lift.

For example, I love hitting calf raises in between my flat bench press sets because it helps me increase my weekly volume without much of an increase in time spent at the gym.

Why train each muscle group only once (or possibly twice) per week?

Your muscles do not grow in the gym. They may swell and get hard, but they do not actually grow in there. They grow while resting. In the gym you are tearing your muscles down, injuring them to the point where your body feels the need to rebuild them larger to survive.

If you do not give your body enough time to repair torn muscles, you won't make serious gains and you'll risk serious injury. Muscles should rest between 36 to 48 hours before you hit them again.

Still, I don't generally train any muscle group every two days. This is because most muscles get hit again indirectly while working out other body parts. For example, the biceps help in your back workouts, your triceps help with your chest workouts, etc. I usually let my muscle groups rest at least 3 days before hitting them hard again.

A CHALLENGE FOR OMNIVORES

Hey, meat eaters. You still with us here? Good. Because we have a challenge for you. Ready for your challenge?

Pick one meal per week and make it all plant-based. We recommend trying one of our high protein recipes at www.TheVeganGym.com/Recipes.

Why should you accept our challenge? Well, it'll force you to get out of your comfort zone, try some new foods, learn a

new recipe, and realize there's never only one right way to accomplish a goal.

All good stuff!

THAT'S A WRAP!

Thank you for reading our guide to building muscle on a vegan diet. If you like what you've read, be sure to check out our other material at www.TheVeganGym.com.

Thanks for your time!

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