

COMPLETE GUIDE TO PROTEIN POWDER SELECTION & TIMING







THERE WAS A,TIME....

WHEN GETTING A LITTLE EXTRA PROTEIN involved tossing back raw eigs a la Rocky Balboa. Even if you could stomach the texture, there was always the ver real threat of food poisoning. Thankfully, those days are long gone. In the past two decades, proteins have become much safer and more convenient. They're quite a bit tastier too. High prot in foods and supplements have infiltrated the Internet, store shelves, and the daily reginens of athletes – all for good reason. Research shows that eating protein helps build muscle and, in some cases, burns fat too. There are almost certainly other yet-to-be-proven benefits. We just don't know what they are yet. As the scientific story unfolds, it's becoming increasingly clear that different proteins offer different benefits, so try to work in as many different types as you can.

A QUICK LOOK AT THE DIFFERENT TYPES OF PROTEIN

1) WHEY PROTEINS

The undisputed king of proteins. Here's why: whey proteins are quickly and easily digested (hence the "fast-acting" description that they're often given), they are loaded with Essential Amino Acids (EAAs)-including the three Branched Chain Amino Acids (BCAAs), and they contain subcomponents (microfractions) that appear to provide benefits above and beyond amino acids and elemental nitrogen. Whey proteins are available in several forms. The most basic is whey concentrate. Whey protein isolates have much of the fat, lactose and other undesirable elements 'isolated' out. Whey peptides have been hydrolyzed, or broken down, for even faster digestion. So the purest and fastest digesting whey proteins you can buy are hydrolyzed whey protein isolates.

2 CASEIN PROTEINS

About 80% of the protein in milk is casein. Often referred to as a "slower-acting" or "time-released" protein because it is digested and absorbed much more slowly than other proteins, casein proteins are especially useful when taken at bedtime and during other prolonged periods without eating.

3 EGG PROTEINS

Ask any dietitian, "What's the best source of protein?" and eggs will probably top the list. Most nutrition textbooks refer to eggs as the "gold standard" for protein quality. With loads of EAAs and some of the highest scores of protein quality, we're not going to argue. Naturally dairy-free, eggs are a great alternative to whey, casein, and whole milk proteins for those with milk allergies or severe lactose intolerance.

④ ELITE PROTEINS

While 24 to 30 grams of whey protein might be adequate for many if not most active adults, professional and pro-aspiring athletes might benefit from more - particularly if the goal is to build muscle mass without packing on a lot of body fat. Adding micronutrients in the form of vitamins and minerals can help your body better utilize all that protein.

S RECOVERY PROTEINS

There are moderate calorie, fast-acting protein and carbohydrate combinations specifically designed to be consumed immediately after workouts when nutrient needs are great and glycogen and muscle protein resynthesis are at their peak. Many also contain whey protein hydrolysates and supplemental ingredients like creatine, BCAAs, and glutamine to further aid the recovery and rebuilding process. This may also include complementary ingredients like betaine and micronized amino acids to assist with your muscle building goals.



SELECTION Process

: What is the difference between faster, intermediate, and slower acting proteins?

: In this case, "faster," "intermediate," and "slower" are all referring to the relative speed with which a given protein is broken down in the digestive tract and absorbed into the bloodstream for delivery to the liver and muscle tissues. Generally speaking, whey proteins are the fastest, egg and whole milk proteins are in the middle, and casein proteins are at the slower end of the spectrum. By strategically taking distinct types or blends of proteins at different times of the day, you can achieve greater results than by using the same single source protein or by arbitrarily choosing what type you use for every occasion.



BUYING A PROTEIN ISN'T ROCKET SCIENCE,

but don't underestimate the process either. Choose the wrong type and you'll buy more than you need. Worse yet, spend less than you should and you may not get satisfactory results – or any results at all. The type (or types) of protein you select, the amount of protein per serving, and the absence or presence of carbs, fats, vitamins, minerals, amino acids, are other areas where you can wander astray. Avoid these and other pitfalls by following these simple rules.

FIGURE OUT HOW MUCH YOU NEED

For most individuals, 1/2 to 1 gram of protein per pound of body weight per day is a good target. Those who are looking to add size may need slightly more. You should also plan on eating some extra protein if you're trying to lose weight on higher-protein, lower carbohydrate diets, as some of the amino acids will be burned for fuel. These amounts include all of the protein consumed through foods, beverages, and supplements. For best results, your daily protein allotment should be spread out over 4-6 smaller meals to enhance absorption and utilization. If you're a big meat, fish, poultry, egg, and dairy food eater, you can probably get by with a smaller "hit" of protein from your powdered mix. Vegetarians and others who eat lots of starchy foods will benefit more from a higher-protein formula

DETERMINE WHAT YOUR BUDGET & SCHEDULE ALLOW

Single-source proteins offer more precise benefits. Ideally, you might use a fast-acting whey protein first thing in the morning and 30 minutes before workouts, a recovery product containing protein plus carbohydrates immediately after workouts, a moderatelydigested egg protein in between meals, and an all-micellar casein protein at bedtime for sustained amino acid delivery throughout the night while you sleep. Now, here's where you need to be realistic and honest with yourself. Even if you can afford multiple products, are you the type of person who's disciplined enough to follow such a regimen? If you answered "no," consider a protein blend. While not as fast as the fastest or as slow as the slowest single-source proteins, blends offer many of the desirable qualities of a variety of different proteins.

MAKE YOUR SELECTION AND STICK WITH IT – AT LEAST FOR A WHILE

To do something positive for your physique, you need to take your protein(s) continually and consistently for at least 60 days. After a couple months, evaluate and, if necessary, modify your program to add in other proteins, to increase or decrease the amounts used, or to change to a different type of protein altogether.

TIMING O O O WHEN IT COMES TO PROTEIN, it's not just what you take; it's when you

take it. Although the human body processes protein every time that you consume it, there are certain instances when your system is more receptive to protein. More specifically, there are times when you should consume different kinds of proteins. Don't miss out on these five important occasions.

WHEN SHOULD I TAKE MY PROTEIN?

FIRST THING IN THE MORNING: The period between when you go to bed and wake up in the morning is the longest that your body goes without food. "Break the fast" with protein. In addition to providing much needed amino acids for muscle maintenance and rebuilding, proteins provide more stable, sustained energy than that donut or bagel that you're currently chowing on. Opt for a faster-acting protein like whey first thing in the morning.

PRE-WORKOUT: By drinking a protein shake about an hour before your workout, you'll "prime" your body for growth with BCAAs and other essential amino acids. Whey and egg proteins are a good choice, because they are easy to drink and quickly digested.

POST-WORKOUT: The 30-60 minute timeframe following exercise is the single most important time of the day to get protein. Enzymes and hormones are actively repairing and rebuilding exercise-induced damage as well as replenishing glycogen stores, so your muscles are especially receptive to nutrients. By supplying a post-workout recovery protein containing whey, casein, egg, and simple carbohydrates during this "window" of opportunity, you'll help ensure that you're recharged and ready for your next training session. BETWEEN MEALS: Consuming a protein shake in between meals not only helps keep muscle synthesis maximized, it also helps keep body fat and body weight in check. Proteins help stimulate the release of gut hormones that trigger a feeling of fullness or satiety. Dairy proteins (whey, casein, and milk) are considered to be better appetite blunters than other protein sources – especially when combined with dietary fiber – so choose a product with one or more of these proteins if weight control is part of your goals.

BEFORE BED: Prepare your body for the long fast ahead with a casein protein shake a half an hour before bed. Unlike whey which is rapidly broken down in the gut, casein is digested at a much slower rate releasing its amino acid constituents over several hours throughout the night while you sleep. For this reason, casein is commonly referred to as a time-released protein. Casein is also considered anti-catabolic because it's rich in glutamine and other amino acids that help protect against muscle breakdown.

TECHNICAL TALK



PURE PROTEIN PERCENTAGE is another way to compare proteins. While the Nutrition Facts panel tells you how much protein is in each serving, the protein percentage tells you how pure your protein is. To calculate, **DIVIDE THE GRAMS OF PROTEIN IN A SINGLE SERVING BY THE SERVING SIZE AND MULTIPLY BY 100**. Here's an example using two different proteins. The first contains 24 grams of protein and has a serving size of 29.4 grams; the second contains 26 grams of protein in a 35 gram serving size. At first glance, the second choice appears to provide more protein. However, using the pure protein calculation, you realize that the first protein is actually a better value because it has a higher purity level. This calculation works best on single-source proteins. Meal replacements, blends and gainers can include vitamins, minerals and other ingredients that alter the end result.

PROTEIN #1

24 g protein / 29.4 g serving size x 100 = 81.6% pure protein

PROTEIN #2

26 g protein / 35 g serving size x 100 = 74.3% pure protein

DETAILS A

Matter

CHECK YOUR LABELS CAREFULLY

• What is the difference between concentrates, isolates, and hydrolysates?

: These are terms that indicate the type and extent of processing that has been done to a particular protein. Concentrates have much of the water. carbohydrates, lactose, minerals, and fat removed so the protein content is much more concentrated than it was before processing. Protein concentrates range from 34%-85% protein, but most reputable manufacturers use at least 80%. Isolates are further stripped of non-protein materials to yield purity levels of 90% or higher. Because of the extra steps, energy, and processing losses, protein isolates are more expensive than protein concentrates. Hydrolyzed proteins or protein hydrolysates are proteins that have been partially broken down (also called pre-digested) into smaller pieces, known as peptides so they get into your system quicker. Hydrolysates are generally more expensive than isolates and concentrates because extra processing steps are required. In the end, all of these protein types are highly nutritious and basically provide similar benefits, but isolates and hydrolysates offer purity and performance advantages over concentrates.

ISOLATES= PURITY PEPTIDES= SPEED

1 NUMBER OF SERVINGS PER CONTAINER.

Pay attention to this number. Some brands cut costs with cheap "filler" ingredients. So, while you may be getting 2, 5, or 10 lbs of something, you're getting significantly fewer servings than you would with a more reputable product. Better yet, figure out how much **total protein** you're getting by multiplying the grams of protein per serving by the number of servings per container. Example 24 grams of protein/serving x 80 servings/container = 1,920 grams of protein/container. Like the pure protein percentage equation, this formula works best for straight protein powders.

2 AMOUNT OF PROTEIN PER SERVING.

The number of grams of protein per serving is probably the most important aspect of protein powders. Seems obvious, but many people overlook this step assuming that either all proteins are about the same or that the most expensive powders contain more protein. Don't make this mistake; check the Nutrition Facts panel to make sure you're paying for protein, not just fancy marketing.

3 ORDER OF INGREDIENTS.

By law, ingredients in a food or supplement product should be listed from most to least abundant, or in technical speak: descending order of predominance. The importance of this becomes clear once you start shopping around. If, for example, two products are similarly priced, but one contains a greater amount of a less-expensive protein (you know this since the cheaper protein is listed ahead of the more-expensive protein source in the ingredients) you know that product is a lesser value. Also, don't get fooled by the hyped-up adjectives that some companies use to describe common ingredients. Sodium chloride is just salt; proteinaceous avian nucleus extract is egg yolks; all quality whey protein concentrates are ultrafiltered and contain microfractions like alpha lactalbumin, beta lactoglobulin, lactoferrin, and glycomacropeptides.

4 MANUFACTURED BY OR FOR?

Contrary to what you might think, many companies don't develop, manufacture, or even distribute any of their own products; they either put their labels on common formulas or have unique formulas created by an external factory. This typically adds considerable costs, which are ultimately passed along to their customers. Phrases like "manufactured for," "distributed by," or "packed for," let you know that someone other than the company that you're buying from made the product. True manufacturers have made the investment in the processing equipment and quality control procedures required to consistently offer the best products. So, choose "manufactured by" products whenever possible.

| 0 | Serving Size 1 Rounded Scoop (30.49) Servings Per Container 74 |
|-------|--|
| | Calories 120 Calories from Fat 10 |
| | % Daily Value* |
| | Total Fat 1g 2% |
| | Saturated Fat 0.5g 3% |
| | Trans Fat Og |
| | Cholesterol 30mg 10% |
| | Sodium 130mg 5% |
| | Total Carbohydrate 3g 1% |
| | Sugars 1g |
| 2 | Protein 24g 48% |
| - III | |
| | Vitamin A 0% • Vitamin C 0% |
| | Calcium 8% Iron 2% |
| | your calorie needs: <u>Calories: 2,000 2,500</u> Total Fat Less than 650 800 |
| | Sat. Fat Less than 20g 25g |
| | Cholesterol Less than 300mg 300mg |
| | Total Carbohydrate 300a 2,400mg |
| | Dietary Fiber 25g 30g |
| | Protein 50g 65g |
| | Fat 9 Carbohydrate 4 Protein 4 |
| 3 | NGREDIENTS: Protein Blend (Whey Protein Isolate Whey Protein Concentrate, Whey Peptides), Cocoa (Processed with Alkail), Lecithin, Natural and Artificial Flavors, Acesulfame Potassium, Aninogen', Lactase. ALERGEN INFORMATION: CONTAINS MILK AND SOY (LECITHIN) INGREDIENTS. MANUFACTURED BY OPTIMUM NUTRITION 2975 Meridian Lake Dr. Aurora, IL 60504 |

DIRECTIONS:

SPOON STIRRED: Gold Standard 100% Whey™ is instantize That means if you forgot your shaker cup or don't have tim the blender, just add one rounded scoop of Gold Standard to a glass filled with 6-8 oz of water or your favorite bever mix it up with a spoon. Stir for about 30 seconds or until p completely dissolved. TIP: Adjust the taste of your Gold St Whey™ by varying the amount of liquid that you use to pre bolder flavor with slightly more body and sweetness, mix with 4-6 oz of water, milk, or your favorite beverage. For tasting, less sweet shake, use 8-10 oz of liquid per scoop

SHAKER CUP: Bringing a shaker cup with you to the gym is way to get a dose of protein immediately after your works in 6-8 oz of your preferred beverage and then add one ro of Gold Standard 100% Whey™ to your shaker cup. Cover for 25-30 seconds. Don't have a shaker cup? Visit your lo food store, gym, or optimumnutrition.com to order a custom ON shaker.

BLENDER: Add one rounded scoop of Gold Standard 100% blender filled with 6-8 oz of water or your favorite bevera 20-30 seconds. Then add 1 or 2 ice cubes and blend for a 30 seconds. SHAKE UP YOUR SHAKE: By adding fresh or f peanut butter, flaxseed oil, coconut and other ingredients make an even more delicious shake. STACK YOUR SHAKE: make Gold Standard 100% Whey^m an even better post wo product by adding supplements like creatine, glutamine, for concentrated carbohydrate powders.

THINK OUTSIDE THE GLASS: Gold Standard 100% Whey™ for more than just protein shakes. Try mixing a scoop intr yogurt, or the milk that you pour over your morning break Better yet, increase the protein content of muffins, cooki etc. by adding a scoop or two to your baked goods recipe

SUGGESTED USE: Consume enough protein to meet your requirements through a combination of high protein food supplements. For the best results, consume your daily pr allotment over several small meals spread evenly through

NOTICE: USE THIS PRODUCT AS A FOOD SUPPLEMENT ON USE FOR WEIGHT REDUCTION.

INTENDED FOR HEALTHY ADULTS OVER THE AGE OF 18. STORE IN A COOL, DRY PLACE. CONTENTS SOLD BY WEIGHT NOT VOLUME.

Iminogen[®] is a registered trademark of Triarco Industries, Inc.

PUTTING IT ALL TOGETHER

LIKE A NEW TRAINING PROGRAM, scheduling-in protein can be a little awkward and overwhelming in the beginning. But, stay with it and you'll be an expert before you know it. You'll start to notice some serious performance, recovery, and appearance improvements in just a few short weeks too. Here's a personalized schedule to get you started; progress through the ranks at your own pace.

BEGINNER/ INTERMEDIATE

GOLD STANDARD 100% WHEY™

- Morning
- Between Meals
- Before & After Workouts

ADVANCED

- PLATINUM HYDROWHEY®
 Morning
- Before & After Workouts

GOLD STANDARD 100% CASEIN™ • Between Meals

Before Bed

PROFESSIONAL/ COMPETITION

- PLATINUM HYDROWHEY®
 Morning
- Before Workouts

PLATINUM HYDROBUILDER™ •Post Workout

PLATINUM TRI-CELLE CASEIN™ •Between Meals •Before Bed SUMMARY

- MAKE SURE that you're eating about 1/2 to 1 gram of protein per pound of body weight per day from a combination of high protein foods and supplements. If you're very active, trying to add significant lean mass, or following a carbconscious meal plan aim towards the higher end of this guideline.
- SPREAD YOUR TOTAL daily protein goal out over 4-6 smaller meals & snacks. Doing so helps ensure better absorption and consistent amino delivery day and night.
- **TRY TO USE** a faster-acting protein in the morning and before workouts, a recovery formula after workouts, and a slower-digesting protein between meals and before bed.
- READ YOUR LABELS carefully and stick with a reputable brand, so you're confident that you're getting what you're paying for.
- PROTEIN PROVIDES the building blocks, but even the best sources won't build new muscle without the proper stimulus and sufficient recuperation. So, make sure that you're eating a sensible diet, training regularly and intensely, staying well hydrated, and getting at least 7 hours of sleep every night.

| | Carterson Procession | | | | | | | | |
|----------------------------|--------------------------|--|----------------------|----------------------------|----------------------------|---------------------------|------------------------------|-------------------------------|---------------------|
| | PLATINUM HYDROBUILDER | CASEIN PLATINUM TRI-CELLE CASEIN | PLATINUM PLATINUM | aw PRO COMPLEX | GOLD STANDARD 100% WHEY | GOLD STANDARD 100% EGG | GOLD STANDARD 100% CASEIN | REGOVERY 221-1 RECOVERY | MATURAL 1 00% |
| SIZES | 4.95 & 2.29 LB | 2.26 LB | 1, 1.75, £ 3.5 LB | 2.3 £ 4.6 LB | 1, 2, 3, 5, 6 10 LB | 2 LB | 2 6 4 LB | 3.75 LB | 3 LB |
| SERVING SIZE (G)* | 38 | 41 | 38 | 72 | 29.4 | 30.5 | 32 | 113 | 52 |
| DIFFERENT FLAVORS | 2 | m | 4 | ы | 18 | 2 | 80 | 4 | 2 |
| CALORIES* | 180 | 150 | 1 40 | 260 | 120 | 011 | 011 | 430 | 200 |
| PROTEIN (G/SERVING) | 30 | 30 | 30 | 60 | 24 | 24 | 24 | 35 | 24 |
| CARBOHYDRATES (G/SERVING)* | 7 | 4 | 2 | 4 | m | 2 | e | 70 | 22 |
| SUGARS (G/SERVING)* | 5 | <2 | 0 | - | - | 0 | 0 | 36 | ω |
| DIETARY FIBER (G/SERVING)* | - | 0 | • | - | | • | - | | 4 |
| FAT (G/SERVING)* | 5 | 1.5 | - | 0.5 | - | 0.5 | 0.5 | 0.5 | 1.5 |
| SATURATED FAT (G/SERVING)* | 1.5 | 0.5 | 0.5 | 0 | 0.5 | 0 | 0 | 0 | - |
| TRANS FAT (G/SERVING) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ADDED VITAMINS & MINERALS | | • | • | 15 | | • | | | |
| OTHER INGREDIENTS | CREATINE S BETAINE | L-THEANINE S LACTIUM® | MICRONIZED BCAAs | ADDED BCAAs & GLUTAMINE | | | | ADDED BCAAs | WHOLE GRAIN 0ATS |
| NATURAL VERSION AVAILABLE | ON | ON | ON | YES | | | | ON | YES |
| | | | | | | | | | |

TRUE STRENGTH _ ≥

