



THE *Complete* GUIDE TO
PROTEIN

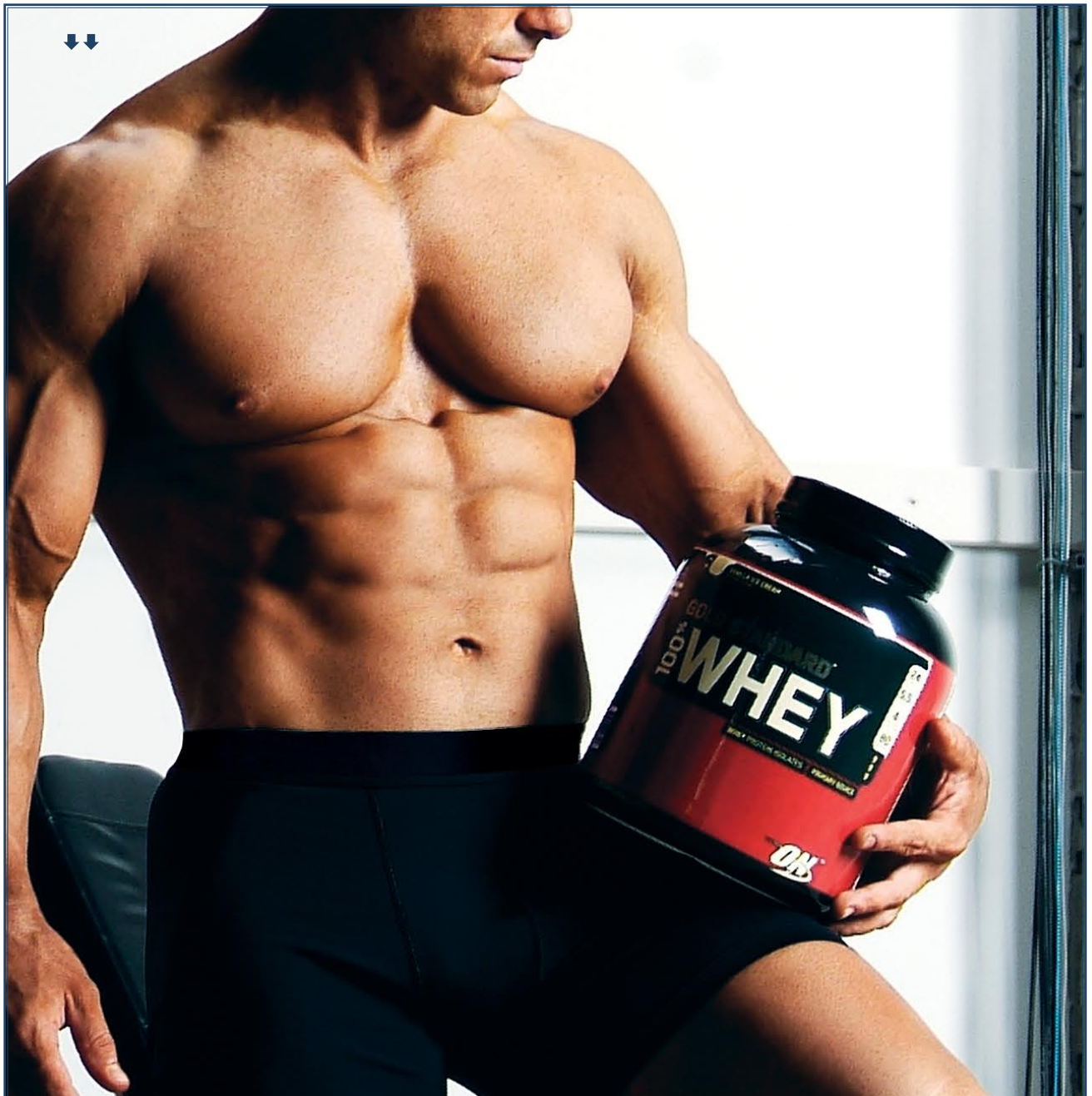


INSIDE:

- ➔ CHOOSING THE PERFECT PROTEIN
- ➔ CALCULATING HOW MUCH PROTEIN YOU NEED
- ➔ THE BEST TIMES TO USE PROTEIN

BASICS

There Was A Time when getting a little extra protein involved tossing back raw eggs a la Rocky Balboa. Even if you could stomach the texture, there was always the very real threat of food poisoning. Thankfully, those days are long gone. In the past two decades, proteins have become much safer and convenient. They're quite a bit tastier too. High protein foods and supplements have infiltrated the Internet, store shelves, and the daily regimens 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 all are yet. As the scientific story unfolds, it's becoming increasingly clear that different proteins have different benefits, so try to work in as many different types as you can.



A QUICK LOOK

AT THE *Different Types*

WHEY PROTEINS

Currently the undisputed king of proteins. Here's why: whey proteins are quickly and easily digested (hence their "fast-acting" reputation), 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 additional benefits. Whey is one of two major dairy proteins and accounts for about 20% of the protein in milk. Whey proteins are available in three common forms: **concentrates** (lower protein level, more economical), **isolates** (higher protein level, more expensive), and **hydrolysates** (partially broken down for faster digestion & absorption).

CASEIN PROTEINS

The remaining 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.

MILK PROTEINS

Milk proteins are dried milk with most of the fat and carbohydrate removed. Like liquid moo juice, powdered milk proteins are about 20% whey protein and 80% casein, so utilization is intermediate.

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.



BLENDED PROTEINS

If you can only afford one type of protein, consider going with a blend. Combining faster-, intermediate-, and slower-protein sources, blended proteins give you more sustained protein digestion than single-source proteins like whey, casein, or egg.

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.

{ MAKING YOUR *Selection* }



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 gram of protein per pound of body weight per day is a good target. Those who are looking to add size may need as much as 1.5 g protein/lb. body weight/day. You should also plan on eating some extra protein (1.25-1.5 g/lb/day) 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. What's more, 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 moderately-digested egg protein in between meals, and an all-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 at least 60 days. After a couple of 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.



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

A: 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.

TIMING

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.

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 time frame 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.



Q: Do I still need to take my protein powder right after workouts if I'm also using a recovery shake?

A: No. If you are taking a post-workout recovery formula like 2:1:1 Recovery™, you can skip your regular post-workout shake. Likewise, servings of high-calorie lean gainers and high-protein meal replacement powders can be used interchangeably with protein powders. Just make sure that you're getting enough total protein (1-1.5 g/lb bodyweight/day) and that you spread the amount over 4-6 smaller servings throughout the day.

{ 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.

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

➔ **THE PURE PROTEIN PERCENTAGE IS MOST ACCURATE FOR STRAIGHT PROTEIN POWDERS.** Meal replacement powders, post-workout recovery formulas, weight-gainers, and highly enhanced protein systems contain vitamins, minerals, amino acids, and other ingredients that dilute the value of this equation.

DETAILS



Q: *What is the difference between concentrates, isolates, and hydrolysates?*

A: 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, 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.

{ READ YOUR LABELS *Carefully* }



1 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.

2 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; proteineous avian nucleus extract is egg yolks; all quality whey protein concentrates are ultrafiltered and contain microfractions like alpha lactalbumin, beta lactoglobulin, lactoferrin, and glycomacropetides.

3 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.

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.



{ 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	ADVANCED	PROFESSIONAL/COMPETITION
NITROCORE 24™ → Morning → Between Meals → Before & After Workouts → Before Bed	100% WHEY GOLD STANDARD™ → Morning → Before & After Workouts	PRO COMPLEX® → Morning → Before Workouts 2:1:1 RECOVERY™ → After Workouts
	GOLD STANDARD™ 100% CASEIN → Before Bed	GOLD STANDARD™ 100% CASEIN → Before Bed

{ SUMMARY }

- **MAKE SURE** that you're eating about 1-1.5 grams 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 carb-conscious 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.



	PRO COMPLEX	100% WHEY GOLD STANDARD	100% ANY WHEY	CLASSIC WHEY	GOLD STANDARD 100% EGG	NITROCORE 24	GOLD STANDARD 100% CASEIN	2:1:1 RECOVERY
SIZES →	2.3 & 4.6 lb	1, 2, 5, & 10 lb + Variety Pack Box	1.35 & 2.7 lb	2 & 5 lb	2 lb	3 & 6 lb	2 & 4 lb	3.73 lb
SERVING SIZE (G)*	72	29.4	20.5	28.4	30.5	48	32	113
DIFFERENT FLAVORS	5	17	-	4	2	6	3	4
CALORIES*	260	120	70	110	110	200	110	430
PROTEIN (G/SERVING)	60	24	17	21	24	24	24	35
CARBOHYDRATES (G/SERVING)*	4	3	1	3	2	14	3	70
SUGARS (G/SERVING)*	1	1	0	1	0	2	0	36
DIETARY FIBER (G/SERVING)*	1	-	-	-	-	5	1	-
FAT (G/SERVING)*	0.5	1	0	1.5	0.5	5	0.5	0.5
SATURATED FAT (G/SERVING)*	0	0.5	0	1	0	1.5	0	0
TRANS FAT (G/SERVING)	0	0	0	0	0	0	0	0
ADDED VITAMINS & MINERALS	15	-	-	-	-	-	-	-
ENZYME BLEND (MG/SERVING)	250	25	-	-	24	35	24	-
OTHER INGREDIENTS	Added BCAAs & Glutamine					Added Omega 3, 6, 9 and MCT Fats		Added BCAAs

PROTEIN TIMING (● = GOOD, ●●● = BETTER, ●●●●● = BEST)

FIRST THING IN THE MORNING	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●	●	●●
PRE-WORKOUT	●●●●●	●●●●	●●●	●●●	●●●●	●●	●	●●●
POST-WORKOUT	●●●●	●●●	●●●	●●●	●●●	●●●	●●	●●●●●
BETWEEN MEALS	●●●●	●●●	●●●	●●●	●●●	●●●●●	●●●	●●
BEFORE BED	●●●	●	●	●	●●	●●●●	●●●●●	●

ESSENTIAL AMINO ACIDS (MG/SERVING)

TRYPTOPHAN	1005	405	275	357	342	383	292	434
VALINE	3614	1422	1010	1216	1731	1306	1609	3095
THREONINE	4219	1654	1184	1350	1026	1684	1039	1746
ISOLEUCINE	4073	1573	1138	1300	1420	1423	1312	3051
LEUCINE	6448	2531	1744	2283	2021	2482	2129	5128
LYSINE	4653	2233	1579	1900	1420	2156	1822	2467
PHENYLALANINE	1697	748	523	715	1451	788	1144	1201
METHIONINE	1185	492	340	442	901	546	644	776

* Mixed with water. Vanilla flavor shown. Other flavors vary slightly.

