

# Protein Powder Summary 2024

By Paul DiScipio

**There are two main categories of protein powder, Concentrates and Isolates** and they can be made from numerous protein sources. The categories, concentrate and isolate are indicators of how much protein has been extracted versus the carbohydrate, fat, and moisture that are included with it in the powder.

The first is **Concentrate powder** which is about 80% protein (the rest is carb, fat and moisture). Some brands are better than others at adhering to the 80% protein rule. Independent testing has found numerous brands will thin out the powder with added fillers like maltodextrin, which is an inexpensive long chain sugar. Good brands will run between 70% protein on the low end and 83% protein on the high end for concentrate.

The second type is **Isolate powder** which is about 90% protein (with less carb, fat and moisture than the concentrate). Again some brands are better than others at the exact percentage of protein versus the other ingredients, but better brands will range from 85% to 93% protein. The Isolate powders are more expensive than the concentrates due to the further extraction of protein required.

**There are two main Sources of Protein for Protein Powders:** These two main categories for the protein sources are animal proteins (which are predominantly dairy protein and egg proteins, but also includes beef protein). Vegetarian proteins are the other main source and are commonly made from legumes (soy, pea, and fava beans, and peanut flour is also available). Some of the vegetarian protein powders will add grain protein as well to complete the amino acid profile. Most of the protein powders, no matter what the source, are flavored with artificial and or sometimes natural sweeteners and flavoring agents. If you are a discerning customer you will find protein powder without any other ingredients, just the protein concentrate or isolate.

## Animal Protein Powders

**Whey Protein Powder** is from cow's milk. Most of the protein in cow's milk is casein (about 70%) and whey protein is about 28% of the total protein in milk. Casein is harder to digest having to coagulate first in the stomach. Whey protein is fairly easy to digest. Whey protein is a more complete protein based on its content of amino acids. Whey protein is the most common type of protein powder on the market and because of this it can be found without any other ingredients. You can get unflavored/unsweetened whey protein without any other additives like thickening agents and emulsifiers.

If you are **lactose intolerant**, lactose is the sugar in milk, it is a disaccharide made from two monosaccharides, glucose and galactose. You may be able to drink a bariatric grade of whey protein isolate (95% protein) that would have less than one gram of lactose per serving, but whey protein concentrate may trigger digestive issues.

The majority of whey protein brands flavor their powders with artificial sweeteners and flavoring agents. Some of these sweeteners are made from glucose or sucrose (glucose + fructose) and are variants of either. Sucralose (Splenda) starts out as sucrose (table sugar) and replaces some of the hydroxyl/alcohol groups (OH) with chlorine molecules. There is also a class of sugar alcohols that vary in caloric load from less than one calorie to about 3 calories per gram of sweetener. Some sweeteners are made from modified amino acids. All of these sweeteners although listed in the ingredients list do not have to be listed in the amounts part of the food label, but they can be included in considerable amounts.

The method of separating the protein out of the milk is safest when it is just micro-filtered.

**Casein Protein Powder** is also from cow's milk. Casein is harder to digest and so can have a reputation for helping users keep a full feeling for a longer time. Some will use it as a final protein meal before bed to help keep protein available to muscle all night long. Consuming too much in one meal can cause stomach ache due to overload of the digestive process. This limit is reached at a lower gram of protein amount than with whey protein that is much easier to digest. As with whey protein, casein protein powder, could contain lactose as well as artificial sweeteners, emulsifying agents, and thickening agents in the product.

**In 1950 and through the 1980s you could buy vanilla flavored *Milk and Egg Protein*, which included casein protein plus egg white protein. Rheo H Blair (Irvin Johnson) was the pioneer in making this early mass marketed protein powder that was quite successful. This was a filling protein powder and great quality, eventually made by a few different brands. By the late 1970s into the early 1980s I was able to buy an unsweetened vanilla flavored *Milk and Egg Protein* at the Nature Food Centers store in the Liberty Tree Mall of Danvers, MA, that was my all-time favorite.**

**Egg Protein Powder** is usually in the form of **egg white protein powder** but you can get whole eggs in powder form from bulk food online retailers. Egg white protein has a high protein efficiency ratio, more so than most other proteins. Egg white protein powder would be zero or near zero in carbs and fat. It can also be purchased in liquid form in the egg aisle of your local supermarket.

**Beef Protein Powder** is another choice of animal protein and it comes in the typical format as the other protein powders where the beef protein is separated from the fat and turned into powder form. There is minimal carbohydrate in beef to remove unlike the milk based powders, but again, like the other powders, you can find beef protein powder unflavored or with any combination of artificial sweeteners, emulsifiers, and thickeners added. Emulsifiers like lecithin help polar and non-polar ingredients mix together. It usually comes from sunflower or soy sources but Lecithin from egg yolk is better. Lecithin is a phospholipid and once in the body, phospholipids are used by the body for numerous purposes along with cell membrane maintenance. **Powdered Beef Liver** can also be purchased in a full fat or defatted form. These liver powders would be high in protein, and it is the best source of heme iron, and B vitamins. Heme iron is a complex form of  $Fe^{2+}$  made in bone marrow and the liver and used by hemoglobin to carry oxygen in the blood and myoglobin to deliver oxygen to the muscles.

## **Vegetarian Protein Powders (legume based)**

**Soy Protein Powder** has been around since 1952. produced by Bob Hoffman in those days and it was sold in powder form and used in his protein bars. This product was inferior to Blair's Milk and Egg protein but still helped weight trainers build muscle. There are plenty of brands selling soy protein isolate and the unflavored version is not difficult to find, as are numerous artificially and naturally flavored versions. Soy is often mixed with other proteins to make a vegetarian blend protein powder. **Soy is the best source of plant protein** as it contains all 9 essential amino acids in good ratios. This is not so crucial today as other powders will blend various protein sources to make a protein powder with a good amino acid profile. **However, Soy has some controversy around it** because it is one of the highest food sources of the phytoestrogen category, isoflavones, containing the isoflavones, genistein and daidzein. Consult your doctor if you have breast cancer or prostate cancer before consuming.

**Pea Protein Powder** is another good vegan protein powder choice, although not quite as good as soy protein powder in its amino acid profile, it does not have a high load of phytoestrogens. Some pea protein powder brands will supplement the powder with methionine its limiting amino acid and other brands will not, selling a pure pea protein isolate. If you eat a balanced diet that includes some whole grains, you will make up any amino acid shortages. You can find unflavored pea protein as well as the flavored varieties.

**Vegetarian Protein Powder Blends** are common to find and can be quite complete in their amino acid profiles because of the blend of legumes, grains, grasses, and greens that they include. Again these powders can be found in a pure unflavored state or with a small or large list of flavoring agents, thickeners and emulsifiers.

**The following pages show labels from an array of protein powders some animal based and some vegan, some are pure and unflavored and some have numerous additives. Each is titled above the label by me with a short description of its ingredients.**

1. This label is from BodyStrong Whey Protein Blend UNFLAVORED (blend in this case means a blend of whey concentrate, whey isolate and added amino acids, not blend as in different protein sources) This is a natural unflavored protein with protein as the only ingredient.

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### Supplement Facts

Serving Size: 35 grams  
Servings Per Container: 130

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Ingredient	Amount	% Daily Value**
Calories	139	
Total Fat	2g	3
-Saturated Fat	1.2g	6
Cholesterol	52.5mg	16
Sodium	57mg	2.5
Total Carbohydrates	3g	<1
-Dietary Fiber	1.8g	6
-Total Sugars	1.4g	2.8
--Includes 0g Added Sugars		0
Protein	26.5g	†
Calcium	155mg	12
Iron	0.45mg	2
Potassium	206mg	4.5
Phosphorus	110mg	8
Magnesium	22mg	5

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\*\* Percent Daily Value is based on a 2000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.  
† Daily Value not established.

Contains Milk.

**Ingredients:** Whey Protein Blend (Whey Protein Concentrate, Whey Protein Isolate, Whey Peptides).

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2. This label is from the same brand, BodyStrong, Whey Protein Blend CHOCOLATE FLAVOR This is still their same natural line of whey product as the unflavored protein above, however notice all of the extra ingredients. (The same blend of whey concentrate, whey isolate and added amino acids), but 2 thickening agents (carrageenan & xanthan gum), Stevia leaf extract as the sweetener, the emulsifier lecithin from a soy source, cocoa and some other natural flavor, salt and the amino acid glutamine in the (L) isomer which is used by the human body versus the D isomer. Glutamine has many functions in the body.

## Supplement Facts

Serving Size: 36 grams

Servings Per Container: 25

Ingredient	Amount	% Daily Value**
Calories	135	
-Calories from Fat	21	
Total Fat	2.3g	3
-Saturated Fat	1g	6
Cholesterol	48mg	15
Total Carbohydrates	3.5g	1
-Sugars	1g	†
-Dietary Fiber	1.8g	6
Sodium	92mg	4
Potassium	189mg	6
Calcium	142mg	13
Iron	0.4mg	2
Phosphorus	100mg	10
Magnesium	21mg	6
Protein	25g	50

### Ingredients:

Whey Protein Blend (Whey Protein Concentrate, Whey Protein Isolate, Whey Peptides), Cocoa Powder, Natural Flavor, Xanthan Gum, Stevia, Carrageenan, Soy Lecithin, Salt, L-Glutamine.

3. This label is from a single ingredient Beef Protein Isolate Powder, no sweeteners or other additives. Brand is BulkSupplements.com



## Beef Protein Isolate

500g (17.6oz)

NUTRITION FACTS	
Serving Size: 30 grams (about 4 tbsp)	
Servings per container: 17	
Amount Per Serving	
<b>Calories 130</b>	
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 40mg	2%
Total Carbohydrate 0g	0%
Dietary Fiber 0g	
Total Sugars 0g	
Includes 0g Added Sugars	0%
<b>Protein 25g</b>	<b>50%</b>
Vit. D 0mcg 0%	Calcium 0mg 0%
Iron 0mg 0%	Potassium 0mg 0%

\*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

**Ingredients:** Beef Protein Isolate

Store in a dry, cool place

**WARNING:**

This product is not intended to diagnose, treat, cure, or prevent any disease. Always consult a physician before taking any dietary supplement. KEEP OUT OF REACH OF CHILDREN.

Lot Number: XXXXXXXX  
Best Before: XXXXXXXXXX

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AMINO ACID PROFILE	
Amount Per 100g	
Alanine	8.7g
Arginine	8.1g
Aspartic Acid	6.0g
Cystine	0.1g
Glutamic Acid	9.7g
Glycine	20.2g
Histidine	1.2g
Isoleucine	1.1g
Leucine	2.5g
Lysine	3.5g
Methionine	0.6g
Phenylalanine	2.2g
Proline	11.0g
Serine	3.6g
Threonine	2.4g
Tryptophan	0.2g
Tyrosine	0.5g
Valine	2.1g

**Free of:** Added Sugar, Soy, Dairy, Yeast, Gluten, Additives

**Suggested Use:** As a dietary supplement, take 30 grams daily (about 4 tbsp), or as directed by a physician.

Use an accurate milligram scale. Contents are sold by weight, not volume. Settling may occur.

**Distributed Exclusively by:**

BulkSupplements.com  
7511 Eastgate Rd  
Henderson, NV 89011, USA



X001G6G1HJ

NEW - BulkSupplements.com Beef Protein Isolate Powder (500 Grams)

4. This is a vegan protein from Bulk Supplements.com. *Pea Protein Isolate*. This is from a single ingredient Pea Protein Isolate Powder, no sweeteners or other additives. This label is from the back of the package and the front of the package lists Pea Protein Isolate as the ingredient.

<b>NUTRITION FACTS</b>	
Serving Size: 30 grams (about 4 tbsp)	
Servings per container: 3	
Amount Per Serving	
<b>Calories</b>	<b>100</b>
% Daily Value*	
<b>Total Fat</b> 2.6g	3%
Saturated Fat 0g	0%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 270mg	12%
<b>Total Carbohydrate</b> 0g	0%
Dietary Fiber <1g	
Total Sugars 0g	
Includes 0g Added Sugars	0%
<b>Protein</b> 21g	42%
Vit. D 0mcg 0%	Calcium 0mg 0%
Iron 0mg 0%	Potassium 0mg 0%

\*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

<b>AMINO ACID PROFILE</b>			
Amount Per 100g			
Alanine	4.6g	Lysine	7.0g
Arginine	8.1g	Methionine	1.3g
Aspartic Acid	11.3g	Phenylalanine	5.0g
Cysteine	1.1g	Proline	6.4g
Glutamic Acid	16.6g	Serine	5.0g
Glycine	3.8g	Threonine	3.8g
Histidine	2.3g	Tryptophan	1.1g
Isoleucine	4.5g	Tyrosine	3.1g
Leucine	8.0g	Valine	5.1g

**30g**  
PER SERVING

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**100g**  
WEIGHT

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**3**  
SERVINGS



Other Ingredients: Organic Pea Protein Isolate

Allergens: None

5. This is next label is from the Orgain brand of a *Vegan Protein Blend*, flavored vanilla and with plenty of additives. This powder is not a protein powder in the stricter sense of the word because it is only about 46% protein. Notice the serving size is 2 scoops which totals to 46 grams of powder but the protein level in that serving is only 21 grams. Additionally, in the powder there is 16 grams of carbohydrate and 5 grams of fat. Most protein powders are about 24 grams of protein in a 30-gram scoop of powder, and 2 - 3 grams or less of fat and carbs.

Let's look at the ingredients: pea, brown rice and chia seed are the main protein sources, so this is a nicely balanced amino acid blend. Then there is a "creamer base" which includes acacia, which is usually acacia gum and it is used as a combo thickener-texturizer. Next is high oleic sunflower oil, in which high oleic means its high in oleic acid (an 18 carbon long, monounsaturated fatty acid, most commonly the cis isomer which has the cis double bond between the 9<sup>th</sup> and 10<sup>th</sup> delta carbons). It's the most common fatty acid in our foods and also was found to high levels in the arterial blockages in numerous studies on atherosclerosis. Next is rice dextrin which is used as a combo thickener-sweetener. Next is sunflower lecithin, an emulsifier. Next is rosemary extract which is used as a preservative/spoilage reducer (sometimes extracted from the leaves with not-so-nice solvents). Next is erythritol, a sugar alcohol with a near zero caloric load, which is used as a sweetener. Next is natural flavors, more acacia, salt, and another sweetener (stevia leaf extract). Last is guar gum and xanthan gum, both thickening agents that do well in lower pH conditions. Guar gum is good in cold temps and xanthan gum is good in higher temps.

Nutrition Facts	
About 10 servings per container	
<b>Serving size</b>	<b>2 Scoops (46g)</b>
<b>Amount per serving</b>	
<b>Calories</b>	<b>150</b>
% Daily Value*	
<b>Total Fat</b> 5g	<b>6%</b>
Saturated Fat 1g	<b>5%</b>
Trans Fat 0g	
<b>Cholesterol</b> 0mg	<b>0%</b>
<b>Sodium</b> 320mg	<b>14%</b>
<b>Total Carbohydrate</b> 16g	<b>6%</b>
Dietary Fiber 6g	<b>21%</b>
Total Sugars less than 1g	
Includes 0g Added Sugars	<b>0%</b>
Erythritol 5g	
<b>Protein</b> 21g	<b>34%</b>
Vitamin D 0mcg	0%
Calcium 90mg	6%
Iron 4.9mg	25%
Potassium 90mg	2%

\*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

**Ingredients:**

**ORGAIN ORGANIC PROTEIN BLEND™** (ORGANIC PEA PROTEIN, ORGANIC BROWN RICE PROTEIN, ORGANIC CHIA SEED), **ORGAIN ORGANIC CREAMER BASE™** (ORGANIC ACACIA, ORGANIC HIGH OLEIC SUNFLOWER OIL, ORGANIC RICE DEXTRIN, ORGANIC SUNFLOWER LECITHIN, ORGANIC ROSEMARY EXTRACT), ORGANIC ERYTHRITOL, ORGANIC NATURAL FLAVORS, ORGANIC ACACIA, SEA SALT, ORGANIC REB A (STEVIA EXTRACT), ORGANIC GUAR GUM, XANTHAN GUM.





6. This one is another *Vegan Blend Protein Powder*. Optimum Nutrition brand, Rich Chocolate Fudge flavor, from their naturally flavored line of products. This one is similar to the last product but has a higher percentage of protein per serving size clocking in at 60% protein.

On to the ingredients: Pea, fava bean (isolate), and brown rice (concentrate) are the protein sources. Next is cocoa powder (processed with alkali). Alkalinizing agents are basic in pH and will lower the acidity of the cocoa and the caffeine is also considerably lower in alkalinized cocoa. Next is the “oil creamer” from coconut oil (high in medium chain saturated fatty acids) and/or sunflower oil (high in long chain unsaturated fatty acids). Rice syrup solids is a sweetener, binding agent and chewiness texturizer. Pea Protein (again), then Sodium Citrate, which can be used as an emulsifier for oils and a pH regulator. Next is Tricalcium Phosphate which is used as an anti-clumping agent in powders. The NIH has agreed with the European Union’s Food Safety Authority in that the chemical is considered a nanomaterial, most likely with the capacity to breach the cell boundaries of the human intestines. Sunflower lecithin is next as an emulsifier. Natural flavor (unspecified). Salt, Gum blend (Xanthan, Guar, Acacia) used as a thickening and texturizing agent that works in low pH and under various temps. Last is the sweetener, stevia leaf extract.

## RICH CHOCOLATE FUDGE

NATURALLY FLAVORED  
WITH OTHER NATURAL FLAVORS

### Nutrition Facts

20 servings per container  
**Serving size 40g (About 1 Scoop)**

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**Amount per serving**  
**Calories 150**

% Daily Value\*

<b>Total Fat</b> 3.5g	<b>4%</b>
Saturated Fat 2g	<b>10%</b>
<b>Sodium</b> 540mg	<b>23%</b>
<b>Total Carbohydrate</b> 6g	<b>2%</b>
Dietary Fiber 2g	<b>7%</b>
Total Sugars 0g	
<b>Protein</b> 24g	<b>39%</b>
Calcium 50mg	4%
Iron 8.4mg	45%
Potassium 150mg	4%

Not a significant source of trans fat, cholesterol, added sugars and vitamin D.

\*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.



**40 GRAMS**  
ABOUT 1 SCOOP  
PLANT PROTEIN  
POWDER



**10-12 FL OZ**  
WATER OR  
ALMOND MILK



**30 SECONDS**  
SHAKE OR BLEND  
UNTIL DISSOLVED

**INGREDIENTS:** Plant Protein Blend (Pea Protein, Fava Bean Protein Isolate, Brown Rice Protein Concentrate), Cocoa Powder (Processed with Alkali), Oil Creamer (Coconut Oil and/or Sunflower Oil, Rice Syrup Solids, Pea Protein, Sodium Citrate, Tricalcium Phosphate, Sunflower Lecithin), Natural Flavor, Salt, Gum Blend (Xanthan Gum, Guar Gum, Gum Acacia), Stevia Leaf Extract (Reb A, Reb M).

24G  
PROTEIN

150  
CALORIES

0G  
SUGAR