HOW TO CHOOSE THE MOST BENEFICIAL PROTEIN

Do you know where to find the best sources of protein?

We all love protein, but research shows that many of us don't understand protein sources and which foods contain it.[1]

Your body needs 20 amino acids to be strong from the inside. 9 amino acids are classified as "essential" because they can't be made by the human body. Essential amino acids must come from your diet.

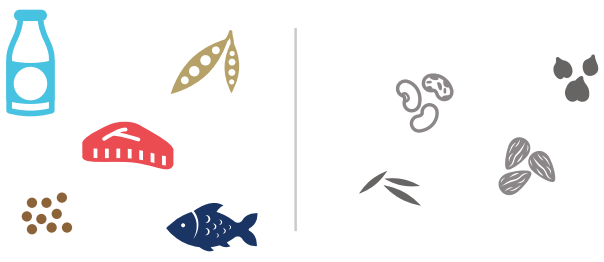
Protein is made up of building blocks called **amino acids.**

Complete proteins	VS	**Incomplete proteins**
A natural source of all 9 essential amino acids		Lack one or more of the essential amino acids

Proteins from milk deliver all the essential amino acids your body requires.[2,3]

Getting enough protein is essential, but it's also crucial to get the right type

Complete Sources VS Incomplete Sources



MILK • MEAT • FISH • SOY • QUINOA

GRAINS • LEGUMES • NUTS & SEEDS

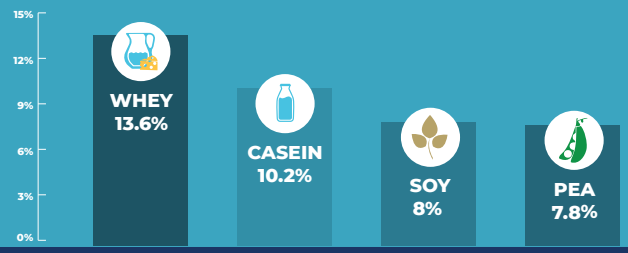
Sources include: milk protein, whey protein, casein protein

Proteins from milk are a good choice because they have been shown to:

- Keep you strong and feeling full [4,5,6,7]
- Aid in weight loss[8,9]
- Improve muscle tone and composition[10,11,12,13]
- Enhance your workout and recovery[14,15,16]

Leucine:
the amino acid that supports muscle growth[17]

% of leucine in protein sources:[18]



If you're trying to lose weight, you may require more protein than the recommended amount of 25 to 35g per meal.[19]

Compared to plant proteins, proteins from milk are:

BASED ON DIAAS =
Digestible **I**ndispensable **A**mino **A**cid **S**core –

An evaluation method of food's protein absorption and utilization in the human body.[20]

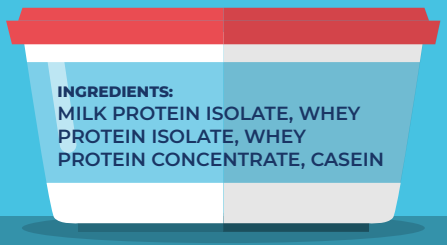
More complete

Higher quality[21]

Less processed[22]

How to find proteins from milk

LOOK FOR:
Whey, casein or milk protein concentrates and isolates in ingredient lists



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1. Nielsen Survey Data. Protein: Consumers Want it, But Don't Understand it. Available at: https://www.nielsen.com/us/en/insights/article/2018/protein-consumers-want-it-but-dont-understand-it/. Accessed Nov. 24, 2019.
2. Berrazaga, I. et al. The Role of the Anabolic Properties of Plant- Versus Animal-Based Protein Sources in Supporting Muscle Mass Maintenance: A Critical Review. Nutrients, 2019, Aug. 11(8):1825.
3. Rutherfurd, S.M. et al. Protein Digestibility-Corrected Amino Acid Scores and Digestible Indispensable Amino Acid Scores Differentially Describe Protein Quality in Growing Male Rats. Journal of Nutrition, 2015, Feb. 145(2):372-9.
4. Hanach, N. et al. The Impact of Dairy Protein Intake on Muscle Mass, Muscle Strength, and Physical Performance in Middle-Aged to Older Adults with or without Existing Sarcopenia: A Systematic Review and Meta-Analysis. Advances in Nutrition. Advances in Nutrition, 2019, Jan. 1 10(1):59-69.
5. Mollahosseini, M. Effect of Whey Protein Supplementation on Long and Short-Term Appetite: A Meta-Analysis of Randomized Controlled Trials. Clinical Nutrition ESPEN, 2017, Aug. 20:34-40.
6. Onvani, S. Dairy Products, Satiety and Food Intake: A Meta-Analysis of Clinical Trials. Clinical Nutrition, 2017, Apr. 36(2):389-398.
7. Pal, S. et al. Comparative Effects of Whey and Casein Proteins on Satiety in Overweight and Obese Individuals: A Randomized Controlled Trial. European Journal of Clinical Nutrition, 2014, Sep. 68(9):980-6
8. Coker, R.H. et al. Whey protein and Essential Amino-Acid Promote the Reduction of Adipose Tissue and Increased Muscle Protein Synthesis During Caloric Restriction-Induced Weight Loss in Elderly, Obese Individuals. Nutrition Journal, 2012, 11(1):105.
9. Wirunsawanya, K. Whey Protein Supplementation Improves Body Composition and Cardiovascular Risk Factors in Overweight and Obese Patients: A Systematic Review and Meta-Analysis. Journal of the American College of Nutrition, 2018, Jan. 37(1):60-70.
10. Bergia, R.E. et al. Effect of Whey Protein Supplementation on Body Composition Changes in Women: A Systematic Review and Meta-Analysis. Nutrition Reviews, 2018, 0(0):1-13.
11. Cribb, P.J. et al. The Effect of Whey Isolate and Resistance Training on Strength, Body Composition, and Plasma Glutamine. International Journal of Sports Nutrition Exercise and Metabolism, 2006, 16:494:509.
12. Naclerio, R.W. et al. Effect of Whey Protein Alone or as Part of a Multi-Ingredient Formulation on Strength, Fat-free Mass or Lean Body Mass. Sports Medicine, 2016, 46:125-137.
13. Morton, R.W. et al. A Systematic Review, Meta-Analysis and Meta-Regression of the Effect of Protein Supplementation on Resistance Training-Induced Gains in Muscle Mass and Strength in Healthy Adults. British Journal of Sports Medicine, 2018, 52:376-384.
14. Davies, R.W. et al. The Effect of Whey Protein Supplementation on the Temporal Recovery of Muscle Function Following Resistance Training: A Systematic Review and Meta-Analysis. Nutrients, 2018, Feb. 16 10(2):221.
15. Saunders, M.J. et al. Protein Supplementation During or Following a Marathon Run Influences Post-Exercise Recovery. Nutrients, 2018, Mar. 10(3):333.
16. Pasiakos, S.M. The Effects of Protein Supplements on Muscle Mass, Strength, and Aerobic and Anaerobic Power in Healthy Adults: A Systematic Review. Sports Medicine, 2015, Jan. 45(1):111-31.
17. Norton, L.E. et al. Leucine Regulates Translation Initiation of Protein Synthesis in Skeletal Muscle After Exercise. The Journal of Nutrition, 2006, Feb. 1;136(2):533S-7S.
18. Van Vliet, S. et al. The Skeletal Muscle Anabolic Response to Plant- Versus Animal-Based Protein Consumption. The Journal of Nutrition, 2015, Jul. 29;145(9):1981-91.
19. Arentson-Lantz, E. et al. Protein: A Nutrient in Focus. Applied Physiology, Nutrition, and Metabolism, 2015, Jul. 22 40(8):755-61.
20. Ciuris, C. et al. A Comparison of Dietary Protein Digestibility, Based on DIAAS Scoring, in Vegetarian and Non-Vegetarian Athletes. Nutrients, 2019, Dec. 11(12):3016.
21. Mathai, J.K. et al. Values for Digestible Indispensable Amino Acid Scores (DIAAS) for Some Dairy and Plant Proteins May Better Describe Protein Quality Than Values Calculated Using the Concept for Protein Digestibility-Corrected. British Journal of Nutrition, 2017, Feb. 117(4):490-9.
22. Huffman, L.M. Maximizing the Value of Milk Through Separation Technologies. Journal of Dairy Science, 1999, Oct. 82(10):2238-44.