



Alton Sustainable Eating

Healthy Food, Healthy Planet



Are plant proteins complete proteins?

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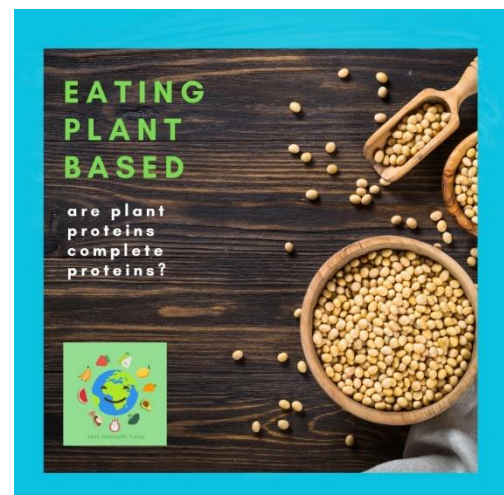
All amino acids (the building blocks of protein) are present in every whole plant food, and eating a variety of healthful plant based foods every day usually provides all the amino acids we need.

✨ **What is worth everyone knowing is this; different foods and food groups contain different amounts of amino acids. Most legumes and seeds provide abundant lysine (an amino acid) but low in methionine (another amino acid), whereas grains tend to be good sources methionine but low on lysine.**

Amino acids, often referred to as the building blocks of proteins, are compounds that play many critical roles in our bodies. We need them for vital processes such as building proteins, hormones, and neurotransmitters.

There are 2 classes of amino acids:

- 🍌 1. Essential amino acids (EAA) - cannot be produced by our bodies, so we must obtain them in the food we eat. There are 9 of them!
- 🍌 2. Non-essential amino acids (NAA- are those our bodies can manufacture on their own and we do not require them in our diet. There are 11 of them.



😊 If we supply our body with sufficient EAAs, they will work together with the NEAAs to manufacture ALL of the protein molecules we require.

People think that plant foods are missing certain EAAs, but that's not true - all plants contain all 9 EAAs.

The term "incomplete" sometimes linked with plant proteins only means that the quantity of one or more of the EAAs in a particular plant food is lower than what is considered optimal. The problem with this narrow view of protein consumption is that, instead of looking at the overall dietary pattern, it judges single foods in isolation. The only way this could ever be a problem is if we ate a single source of protein, such as rice, or only nuts as our sole sources of calories. Eating a mixed diet that includes legumes, seeds, grains and vegetables within a 24 hour period easily provides adequate amounts of every amino acid that we require. We can see how this happens across the globe. Here are some examples:

1. Indian curries include chana masala (chickpea curry in a tomato sauce) with whole grain brown rice.
 2. Chinese: Mapo Tofu is a spicy and flavourful Sichuan dish made with tofu, mushrooms, and a spicy bean sauce.
 4. Italian: Lentil Bolognese with Whole Wheat Pasta: Lentil Bolognese is a plant-based twist on the classic Italian dish. Cooked lentils are simmered in a tomato-based sauce with onions, carrots, celery, and herbs. Serve it over whole wheat pasta for a nutritious meal.
- Scotland: Traditional soup made with peas and oatcakes.
Many folks here in the UK, will be familiar with Shepherd's pie- and this can be made with various types of lentils or soy mince.

These are just a few examples of plant-based protein mixed with grains from different countries, showcasing the diversity of flavours and ingredients found in global cuisines. To conclude, if we are eating a diverse range of plant foods, giving our bodies a constant pool of all the different types of amino acids our body requires (i.e., amino acids are the building blocks of proteins), then we will be in a great position to give our bodies all the essential amino acids we need.

Tip 1: Prepare to be surprised - even foods not commonly associated with protein, such as brussels sprouts, sweet potato, broccoli, mushrooms and corn, contain appreciable amounts of essential amino acids that add up over the day.

Tip 2: Check out the video in reference no. 6

REFERENCES:

1. National Trust for Scotland: <https://www.nts.org.uk/.../edinburghs-pantry-porridge-and...>
2. Maximizing the intersection of human health and the health of the environment with regard to the amount and type of protein produced and consumed in the United States: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6394758/>
3. Dietary Protein and Amino Acids in Vegetarian Diets—A Review : <https://www.mdpi.com/2072-6643/11/11/2661>
4. Where do you get your protein: <https://nutritionstudies.org/get-protein-where/>
5. British Nutrition Foundation: <https://www.nutrition.org.uk/.../plant-based-diets/...>
6. Animal Protein Vs Plant Protein: <https://www.youtube.com/watch?v=GoEpGwAJZNA>