

Amino Acids and Your Diet

The Essential Amino Acids

Of the twenty amino acids used to make proteins in the human body, twelve can be made out of sugars and fats. However, that leaves eight that can't be made from any source. These eight must be eaten every day, and are called the Essential amino acids. What if you fail to eat some during the day? In that case, your body will digest some of your muscle tissue to obtain the needed amino acids.

What about diets? When you diet, you try to remove fat, not flesh or muscle tissue. If you eat nothing, or fail to eat the Essential Amino Acids, your body will digest some of its stored fats, plus enough of your muscle tissue to provide the required amino acids. Loss of fat is fine, loss of muscle tissue will make you weak and unhealthy.

Essential Amino Acid content in some common food groups.

EAA	Meat Fish Milk Eggs Cheese	Corn	Beans	Wheat & Rice Whole Grain	Nuts & Soybeans	Sun- flower Seeds	Yeast
<u>Methionine</u>	G	H	L	H	L	H	H
<u>Isoleucine</u>	H	G	G	G	G	G	G
<u>Leucine</u>	H	G	G	G	G	G	G
<u>Lysine</u>	H	L	H	H	H	L	G
<u>Phenylalanine</u>	G	G	G	G	G	G	L
<u>Threonine</u>	H	L	H	L	H	L	H
<u>Tryptophane</u>	G	G	L	G	G	G	G
<u>Valine</u>	H	G	G	G	G	H	G

Key

- H = High amount of the Amino Acid
- G = Good amount of the Amino Acid
- L = Little of the Amino Acid or none

Questions: Answer in complete sentences on another sheet of paper.

The main diet of the “Native Mexican” is made up of corn tortillas and beans. Let’s analyze this diet.

1. What two amino acids are missing if you eat only beans?
2. What two amino acids are missing if you eat only corn?
3. If you mixed corn and beans together would the diet include an adequate amount of all eight essential amino acids?

Cattle in America are fed corn. However cows can't live on a diet of just corn because it is missing two essential amino acids as noted. The corn can be mixed with either wheat or soybeans, both of which are abundant in this country.

4. If the cows were fed corn and wheat, could they survive? If not, which amino acid(s) would be missing?
5. If the cows were fed corn and soybeans, could they survive? Explain your answer.

Assume that you heard of a new diet of rice and sunflower seeds.

6. Does this diet supply all of the essential amino acids?
7. Name three other vegetarian foods you could mix with the diet of rice and sunflowers, anyone of which would add the missing amino acid.

Note that the meat and dairy group is very rich in amino acids.

8. How many "highs" does this diet provide?
9. How many "lows" does this diet provide?
10. Are there any vegetarian food groups that give as many "highs" as the meat and dairy diet?
11. What amino acids are missing from a diet of beans and nuts?
12. If you put yeast on your sunflower seeds would you get adequate amounts of all eight amino acids? What amino acid would you have extra high amounts of?
13. Is it possible to obtain the 8 essential amino acids by eating just meat?
14. Is it possible to obtain the 8 essential amino acids by eating just one vegetarian group?
15. Is it possible to obtain the 8 essential amino acids by eating from a wide variety of vegetarian groups?
16. How many amino acids exist in living organisms?
17. How many of these amino acids can you make from the foods you eat?