



Protein

+ Protein



- Proteins are essential for life
- We need to eat protein foods because
- Our body uses protein to build, repair and maintain our body tissues.

+ What is protein?



- What is protein?
 - Proteins are:
 - Large molecules made up of amino acids linked together
 - Proteins are made by linking 20 different amino acids into long chains of these amino acids.

+ Protein



- Amino acids are building blocks of protein
- 20 different kinds of amino acids
- All linked together in different sequences
- Proteins contain thousands of amino acids linked together.
- 20 different kinds of amino acids; but each kind used multiple times in the protein chain.

+ Amino Acids



- The 20 amino acids that make up protein can be categorized as either:
 - Essential amino acids
 - We need to get them in the foods we eat
 - There are 9 essential amino acids
 - Nonessential amino acids
 - Our body can make these amino acids
 - There are 11 nonessential amino acids

+ Protein



- Our body is composed of proteins.
- The proteins in our body must be constantly renewed.
- How does our body make the proteins it needs?
- When you eat protein foods, the protein moves through the digestive system and is broken down into the separate amino acids in the small intestine and absorbed into the bloodstream.
- These amino acids are used to create new proteins that our body needs.

+ Protein



- Our body takes amino acids and links them together to build the proteins our body needs.
- This is an ongoing process.
- We eat dietary protein foods that contain amino acids linked together.
- In our digestive tract the protein foods are broken down into the separate amino acids.
- The amino acids are absorbed through the walls of the small intestines into the bloodstream.

+ Protein



- Once in the bloodstream, the amino acids are linked together to make new proteins, whatever our body needs.
- Each new protein will contain all the 20 amino acids.
- Eleven amino of those 20 are made in the body
- Nine of the 20 amino acids come from the protein we eat in our diet.

+ Protein



- Creating new proteins is a continual process in our body.
- Why?
- Proteins are used to grow, repair and maintain our body tissues.

+ Protein



- For growth:
 - Infants, children, teenagers
 - Growth of hair, fingernails, muscles, bone
- To maintain our body's health:
 - Hormones, enzymes, antibodies are all proteins made in our body
 - Hormones: Regulate body processes
 - Enzymes: Digest food
 - Antibodies: Defense against harmful virus and bacteria
- For repair of body:
 - Healing wounds, burns, bones, body tissues

+ Dietary Protein



- If dietary protein intake is too low
- Our body lacks amino acids needed to make new proteins in our body that it needs
- What is the end result?
- Skeletal muscle tissue which contains protein will be broken down in order to get the amino acids our body needs.

+ Quality of protein you eat



- Complete protein foods
 - Foods that contain all 9 essential amino acids
- Incomplete protein foods
 - Foods that contain some but not all 9 essential amino acids

+ Protein Foods



- Complete protein foods are considered “quality protein foods”; they contain all 9 essential amino acids.
 - Chicken
 - Fish
 - Red meat
 - Milk
 - Eggs
 - Soy
 - Quinoa

+ Protein Foods



- Incomplete protein foods are considered lower quality protein foods : they lack one or more of the 9 essential amino acids.
- Nuts and seeds
- Grains
- Lentils and beans

+ Recommendations for dietary protein intake

- For adults with healthy body weight:
- 0.8 grams of protein per kilogram of body weight per day.





Who in the population needs to eat more dietary protein



Amount of protein you need will depend upon:

- Athletes
- Bodybuilders
- Recovering from illness, burns, wounds, surgery, broken bones
- Pregnant
- Breastfeeding
- Infants, children, teens still growing
- Elderly

"Protein" by Janet Yarrow, [Housatonic Community College](#) is
licensed under [CC BY 4.0](#)