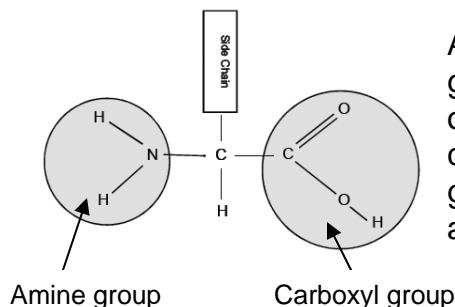


Protein Info

PROTEINS ARE CHAINS OF AMINO ACIDS

The first thing you might be asking is, "What is an amino acid?" There are over twenty, and each one of them is a little different. Amino acids are used in every cell of your body and are used to build the proteins you need to survive. All organisms need some proteins, whether they are used in muscles or as simple structures in the cell membrane. Even though all organisms have differences, they still have one thing in common, the need for basic chemical building blocks.

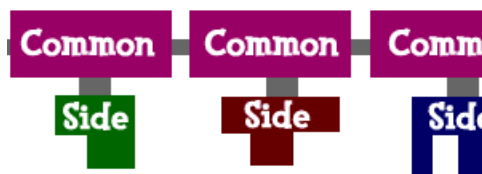


Amino acids have a two-carbon bond. One of the carbons is part of a group called the **carboxyl group**. A carboxyl group is made up of one carbon (C), two oxygens (O), and one hydrogen atom (H). The carboxyl group is acidic. The second carbon is a part of the amino group. Amino means there is an NH₂ group bonded to the carbon atom.

MAKING CHAINS

Even though scientists have discovered over 50 amino acids, only 20 are used to make something called proteins in your body. Of those twenty, eight are defined as essential. The other twelve can be synthesized by an adult body. Thousands of combinations of those twenty are used to make all of the proteins in your body. Amino acids bond together to make long chains and those long chains of amino acids are also called proteins.

Amino Acid Chains



SOMETHING CALLED SIDE GROUPS

The **side groups** are what make each amino acid different from the others. Of the 20 used to make proteins, there are three groups. The three groups are ionic, polar and non-polar. These names refer to the way the side groups (sometimes called "R" groups) interact with the environment. Proteins are made of amino acids. Even though a protein can be very complex, it is basically a long chain of amino acids, all twisted around like a knot. A very special knot! The order of side chains determines the shape of the protein. It is the shape of the protein that allows it to do a particular job – holding cells together, transporting oxygen, allowing cells to communicate, making metabolism possible and a whole host of other activities