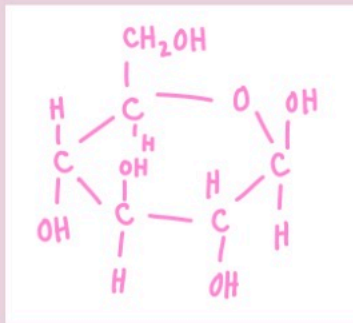


Building Blocks of Life: Carbohydrates

What are carbohydrates?

Carbohydrates are one of the four main macromolecules. Fibre, starches and sugars are essential carbohydrates in our diet for nutrients. They are composed of carbons, hydrogens and oxygens in a 1:2:1 ratio. There are three subcategories of carbohydrates: monosaccharides, disaccharides and polysaccharides. Monosaccharides are simple sugars the most common example is glucose which is essential source of energy that helps make adenosine triphosphate (ATP) the energy currency of the cell. Disaccharides are two monosaccharides bonded together, lactose is an example it is a glucose and a galactose bonded together. Polysaccharides are a long chain of monosaccharides and example is glycogen the form that glucose is stored in humans. Our bodies need carbs as they are a source of fuel and give us energy to function.



Why this matters!

This matters because so many people are missing out on the nutrients obtained from carbs because they don't want to gain weight, so this being a food group that many avoid that can lead to malnutrition and disordered eating. If we understood the benefits and support that carbs give us in our everyday lives and the proper way to fuel our bodies for success I feel like that would have less of a negative outlook from society

Nature of science:

Society has put a negative connotation on the word "carbs", and has classified them as "good" or "bad". Science can help society make informed decisions but the scientific knowledge must be communicated carefully. Simple carbs are not bad they do not provide the nourishment to your body that complex carbs do. We have been told in order to lose weight we need to do a "low carb" diet insinuating that carbs are the reason why you gain weight this is true to an extent, but if we knew more about the difference between simple and complex carbohydrates and how our body digests them, It could help break the negative stigma around carbs. Complex carbs take longer for your body to break down and contain vitamins, minerals and fibre that your body requires. Simple carbs digest quickly and tend to spike blood sugar, many simple carbs can contribute to weight gain but not every carb is a simple carb. Our diet needs to have a balance of the two.

Use in learning:

Create an activity looking at the different structures of carbs and determine which ones are simple and complex. Separate the two into distinct columns. Find examples of complex and simple carbs in our everyday diets like starches, fibre and sugars and place them into the column that they belong in. Discuss the role they play energy levels, are they easy to break down or more complex, do they provide nutrients or are they a quick blood sugar spike

References:

Cleveland Clinic. (2024, March 8). *Carbohydrates: What they are, function & types*. Cleveland Clinic. <https://my.clevelandclinic.org/health/articles/15416-carbohydrates>
Ramroop Singh, N. (2023). 4.1 Carbohydrates. In *Introduction to biology*. Thompson Rivers University Pressbooks. <https://openintrobiology.pressbooks.tru.ca/chapter/unit2-1/>