

Carbohydrates

Written by Andrew Connolly

Whether it is your favorite guilty sweet or a vegetable you should be eating more of, carbohydrates come in many different forms. But not all carbohydrates are created equal.

So which carbohydrates **should we eat** and **why?**



Whether it is the many low carb food options available to us, the growing popularity of low carb diets like the “keto diet”, or the talk of “good carbs” versus “bad carbs”, carbohydrates continue to be a popular topic of our health. But understanding what all this means and applying it to our everyday lives can be confusing without knowing some background information about carbohydrates.

In this brief article, we will learn about:

- What carbohydrates are made of
- What makes carbohydrates healthy or unhealthy
- Which foods we should eat to enjoy the health benefits of carbohydrates

What are Carbohydrates?



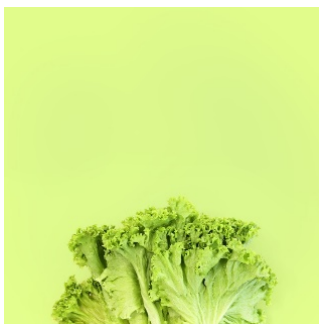
There are three types of macro-nutrients that make up the foods we eat; **proteins**, **fats**, and **carbohydrates**. The word “carbohydrate” is a general term used to describe the different kinds of **sugar molecules** that makeup the carbohydrates in our foods.^{1,2} While their molecular structure may make foods look and taste different, some common sources of different carbohydrates include: sugar, bread, rice, pasta, fruits, grains, legumes, and vegetables.^{3,4}

When we eat foods with carbohydrates, our body breaks them down into their simplest form, called **sugars**. After being digested, these sugars are absorbed into our bloodstream so they can be transported to the cells in the rest of our body for different purposes.¹⁻⁸

One of their most important functions is to **produce energy** for our daily living. Some of these sugars can also be stored in our muscle and liver tissues for future energy use.^{1,2,4}

But when we have more sugars in our bloodstream than we can store in our muscle and liver tissue, and more than we need for our energy demands, the excess sugars are converted into **body fat**.⁶ So what determines if the carbs we eat give us the energy we need or lead to excess sugars in our blood, making us gain body fat? Part of the answer has to do with whether we are eating **complex** or **simple carbohydrates**.

Complex vs. Simple Carbohydrates



Complex or Unrefined Carbohydrates are the “good carbs” because they are made from complex sugar molecules that contain **fiber**. Fiber is important because it cannot be broken down by our body’s digestive enzymes.^{1,7} This helps slow the breakdown of carbohydrates

in our body so we can use these sugars for long-lasting energy, instead of them being converted into excess body fat.^{3,5-9} In addition to fiber, complex carbohydrates such as whole grains also contain useful vitamins, minerals, and phytochemicals that are beneficial for our health.^{1,2,5,7,8,9}

Simple or Refined Carbohydrates are the “bad carbs” because they are made from more simple sugar molecules that contain little or no fiber,



which means they are digested very quickly, leading to rapid increases in our body’s blood sugar levels.^{3,4,5,7,8} If this large influx of sugars in our bloodstream is not used for our energy or stored in our muscle and liver tissue, the excess sugars are converted into fat molecules and are stored as **body fat**.⁶ This excess body fat might have been a useful energy reserve to our ancestors during times of starvation, but for those of us getting our normal daily caloric intake, this results in unnecessary weight gain and other health problems. Weight gain is not the only issue, diets high in unrefined carbohydrates and low in fiber may also contribute to **diabetes, cancer, and heart disease**.^{5,7,8,9}

What Can I do Now?

Now that we know more about what carbohydrates are made of and why some are better for us than others, here are some

simple steps you can take to enjoy the health benefits of carbohydrates.

Eat Fewer foods with simple or refined carbohydrates

such as:

- Bread
- White Rice
- Pasta
- Foods made from white flour
- Desserts
- Candy
- Soda
- Juice

Eat More foods with complex or unrefined carbohydrates such as:

- Whole Vegetables
- Fruits
- Legumes
- Whole Grains
- Nuts and Seeds^{3,5,9}



References

1. Carbohydrates. (2021, March 24). MedlinePlus.
<https://medlineplus.gov/carbohydrates.html>
2. Bridges, M. B., Zieve, D. Z., & Conaway, B. C. (2021, April 2). *Complex carbohydrates*. MedlinePlus.
<https://medlineplus.gov/ency/imagepages/19529.htm#:~:text=Complex%20carbohydrates%20are%20found%20in,and%20are%20used%20as%20energy.>
3. Harvard Health. (2020, January 6). *Glycemic index for 60+ foods*.
<https://www.health.harvard.edu/diseases-and-conditions/glycemic-index-and-glycemic-load-for-100-foods>
4. Clemens RA, Jones JM, Kern M, Lee SY, Mayhew EJ, Slavin JL, Zivanovic S. Functionality of Sugars in Foods and Health. *Compr Rev Food Sci Food Saf*. 2016 May;15(3):433-470. doi: 10.1111/1541-4337.12194. PMID: 33401825.
5. *Carbohydrates and Blood Sugar*. (2016, July 25). The Nutrition Source.
<https://www.hsph.harvard.edu/nutritionsource/carbohydrates/carbohydrates-and-blood-sugar/>
6. Song, Z., Xiaoli, A. M., & Yang, F. (2018). Regulation and Metabolic Significance of *De Novo* Lipogenesis in Adipose Tissues. *Nutrients*, 10(10), 1383.
<https://doi.org/10.3390/nu10101383>
7. Lattimer, J. M., & Haub, M. D. (2010). Effects of dietary fiber and its components on metabolic health. *Nutrients*, 2(12), 1266–1289. <https://doi.org/10.3390/nu2121266>
8. Carbohydrates. (2018, April 16). Wwww.Heart.Org.
<https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/nutrition-basics/carbohydrates>
9. Dietary fiber: Essential for a healthy diet. (2021, January 6). Mayo Clinic.
<https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/fiber/art-20043983?reDate=17052021#:~:text=In%20people%20with%20diabetes%2C%20fiber,of%20developing%20type%20%20diabetes.>

Acknowledgements

A special thanks to those who helped make this article possible (in alphabetical order):

Tanya Frank
Emily Guarino
Wendy Klapp
Nicole Littlewood
Barb Martorana
Barb Swanson