Carbohydrates

I

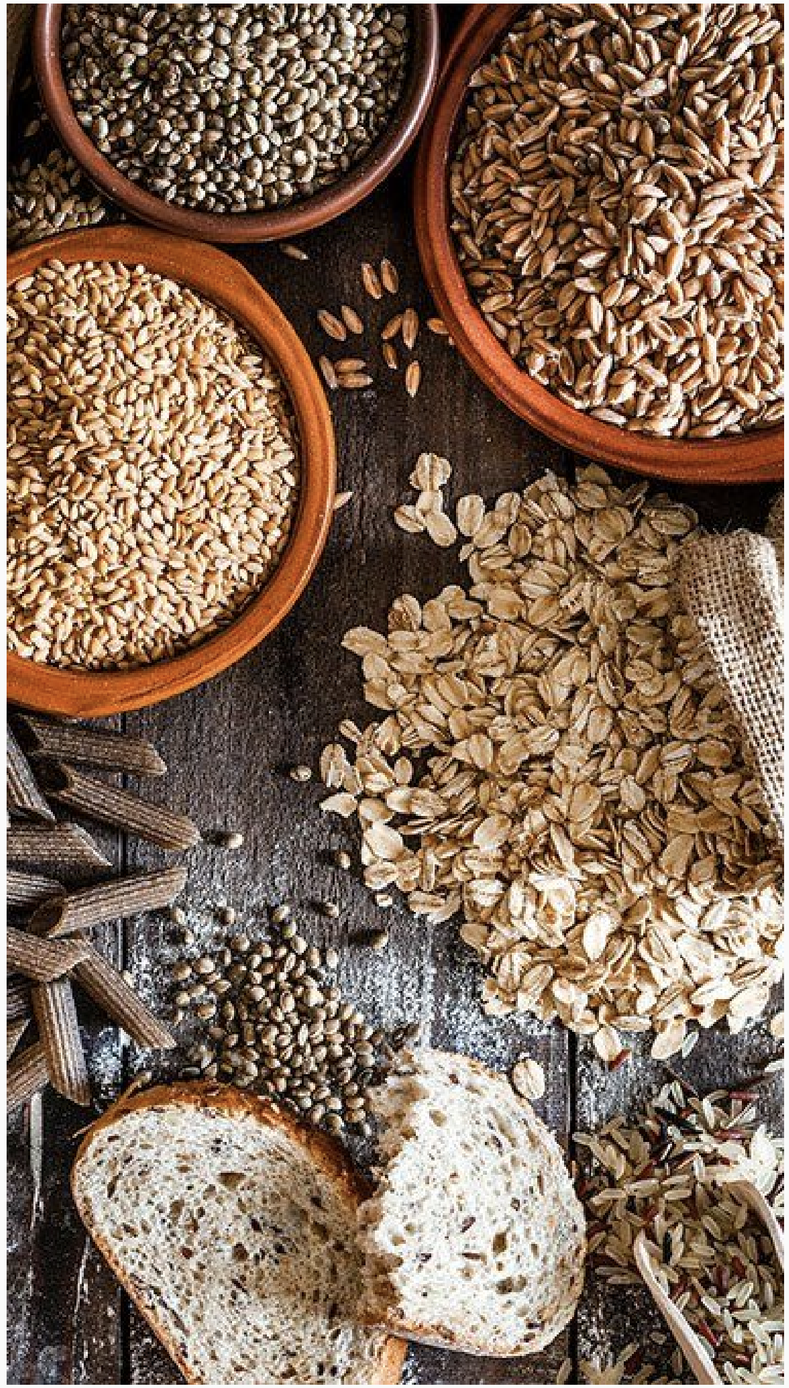
SoulFIRE Health
Healthy living. Healthy behaviors.

II

Basic Facts

- The Carbohydrate family includes sugar, starch, fiber.
- The primary fuel source for cells.
- Provide 4 kcal/g.
- Plants are the main source of carbohydrates: plants produce glucose during photosynthesis.
- Plants store glucose in the form of polysaccharides as starches.

- NOTE: The best sources of dietary starches are in plant-based foods (grains, legumes, and tubers)



What is Starch?

Complex carbohydrates:

- Made of multiple molecules of glucose attached together.
- Exist in a form that the body can digest.

What is Fiber?

Complex carbohydrates:

- Found in plant-based foods.
- Made up of polysaccharide.
- Cannot be broken down in the digestive process.

IV

Understanding Carbohydrates in Foods

- Many starchy foods also contain significant amounts of dietary fiber.
- Much of the fiber in whole grains is found in the outer layers. These layers are removed when processed, which reduces the fiber content.
- Glucose is the most abundant monosaccharide. Most of the glucose we eat is linked together with additional sugars to form disaccharides or polysaccharides.
- Fructose can be found in fruits, vegetables, honey, and high fructose corn syrup.
- Galactose, most commonly consumed in combination with glucose to form lactose. Found in milk and dairy products.
- There are 2 broad categories of sweeteners that can be used and occur naturally in foods:
- Nutritive sweeteners can be metabolized and provide energy.
- Non-nutritive sweeteners provide no food energy.

V

Consuming Carbohydrates

- Recommendations:
  - On average, an adult requires a minimum of ~130g/day for energy needs
  - Carbohydrates provide necessary glucose as fuel for the brain and central nervous system.
  - Carbohydrates should largely be consumed in the form of fiber rich fruits, vegetables, and whole grains.
  - It is recommended to limit the amount of added sugars and caloric sweeteners.

  - NOTE: The Dietary Guidelines for Americans 2020-2025 recommends limiting added sugar to no more than 10% of daily calorie intake.

- Function of Carbohydrates:
  - Digestible carbohydrates are broken down into glucose.
  - The main function of glucose? Fuel the body's cells, red blood cells and central nervous system.
  - Inadequate carbohydrate consumption forces the body to break down amino acids (muscle tissue) and organs to make glucose.
  - Fiber contributes to maintaining the integrity of the GI tract and overall health.
  - Fiber helps to prevent constipation and diverticular disease.

Did you know?

- Research says…There may be a connection between fiber intake and decreased risks for colon cancer.
- Foods containing high fiber also are rich in vitamins, minerals and phytochemicals.
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- Known Fiber Benefits:
- Promotes weight management.
- Reduces the risk of obesity.
- High fiber foods add bulk to a diet while yielding a low amount of energy.
- Absorption of water expands in the GI tract, aiding in the sense of fullness and satiety.
- Soluble fiber slows glucose absorption from the small intestine for blood glucose regulation.

- What is Glycemic Index?
  - Glycemic index is a tool used by researchers.
  - It classifies the glucose response to various foods.
  - It is defined as the blood glucose response of a given food compared with a standard, typically glucose itself.

- What is Glycemic Load?
  - Glycemic load better reflects a food's effect on blood glucose than the glycemic index alone.
  - Glycemic Load takes g of CHO in a serving of food multiplied by the glycemic index then divided by 100.
  - Some foods may have a high glycemic index, but the Glycemic Load Calculation indicates the impact on blood sugar is not always equally high.

Final Takeaways...

- Carbohydrates serve as the body's main source of energy
- Adults require at least 130g/day of CHO to supply adequate glucose for the brain and central nervous system
- A diet rich in grains, legumes, and starchy vegetables can contribute significant amounts of dietary fiber
- Dietary fiber contributes to a variety of health benefits, and preventing chronic disease
- A high intake of sugar can displace other nutrients in the diet and contribute to other health risks