

# Carbohydrates: Fuel Your Workout



## What are carbs?

Carbs are the primary source of fuel for the brain and body and are stored in our muscles as glycogen so we can quickly use them when we need energy. When glycogen stores are low, energy levels, strength, and decision-making may suffer.

## Fueling before and during exercise: is it important?

- Tops off glycogen stores and delays fatigue
- Provides fuel when carb/glycogen stores are low/depleted
- Decreases perceived exertion (how hard the exercise feels)

## Carb Sources



Juice  
Granola Bar  
Beans/lentils  
Tortilla  
Bagel



Quinoa  
Bread  
Crackers  
Potatoes  
Starchy Vegetables  
Sports Drinks



Fruit  
Milk  
Yogurt  
Rice  
Oatmeal



## How Much?

Athletes should consume 3-12 g of carbs per kg of body weight daily.  
How do I convert pounds to kilograms? Easy! Divide pounds by 2.2.

*Example: 150 lb / 2.2 = 68 kg*

$$68 \times 3 = 204$$

$$69 \times 12 = 816$$

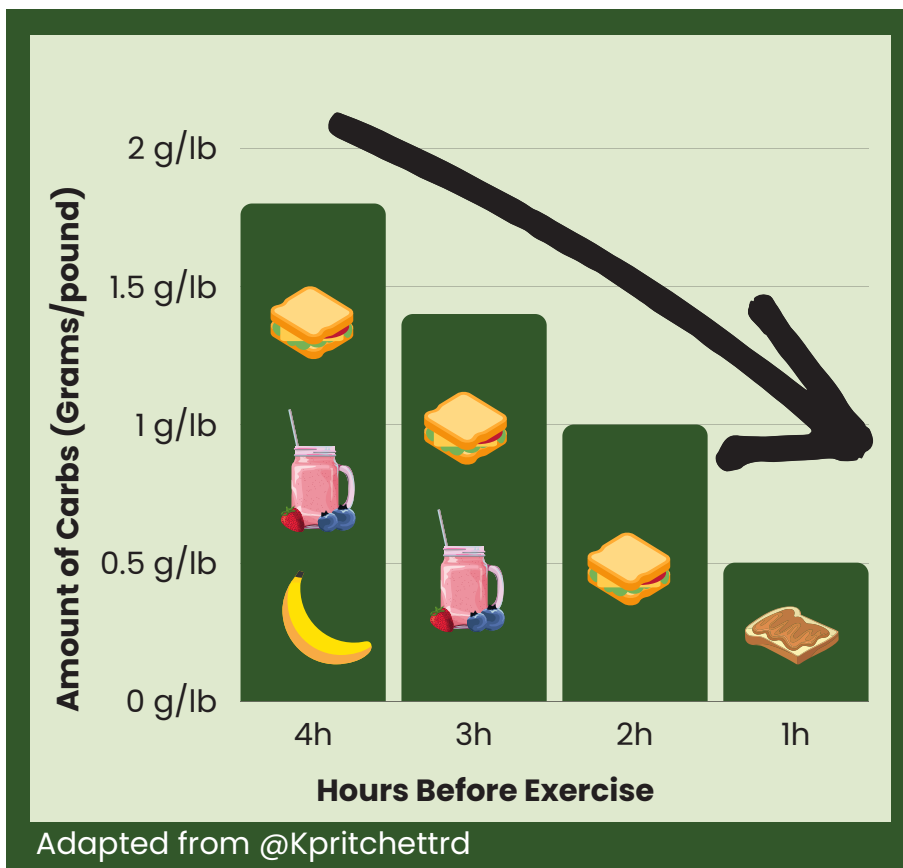
*150lb athlete would need ~200-800 g of carbs a day.*

# Carb Timing

## Before an Event



Pre-exercise meals or snacks should be primarily carbs with some protein. Limit fat and fiber as these slow digestion.



## Early Morning Workout?

Focus on a high-carb dinner the night before and have a small carbohydrate snack ~ 45-60 minutes before exercise.



# Protein: Building Blocks

## Role in the Body

- Builds muscle
- Provides structure
- Acts as enzymes, hormones, transport proteins, and acid-base buffers
- Maintains electrolyte balance
- Coordinates muscle contraction
- Supports immune function

## Recommendations

1.2 – 2 grams of protein per kg per day. Example: 150 lb athlete, would need ~ 82 – 137 grams of protein per day.



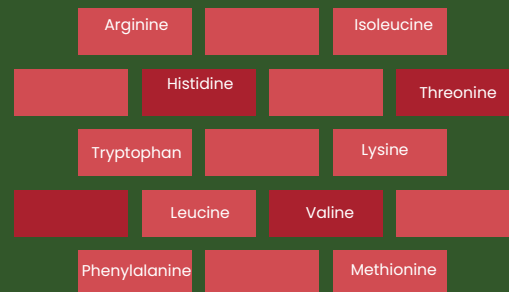
## Protein Timing

Our bodies can only effectively use a given amount of protein at a time. Therefore, it is important to evenly spread protein consumption throughout the day (0.3–0.4 grams of protein per kg per hour) to maximize muscle protein synthesis. This usually looks like 15–25 grams of protein per meal or snack



# Complete vs. Incomplete Protein: What is it?

If protein is a brick wall, then amino acids are the individual bricks. There are 20 different amino acids, but 9 are essential to get from food. These are known as “essential amino acids”.



Complete proteins: Foods containing all 9 amino acids  
Sources: meat, eggs, dairy products, tofu, tempeh, and edamame.

Foods that do not contain all 9 amino acids are known as “incomplete proteins”. Therefore, it is important to eat a variety of protein sources to ensure you are getting all 9 essential amino acids!



Plant-based protein sources tend to be incomplete proteins, so if you limit meat consumption, try combining different sources of protein to make sure you get all amino acids!

# Dietary Fat: Saturated and Unsaturated

## Functions in the body

- Provides structure to cells
- Maintain body temperature
- Cushions organs
- Needed for absorption of fat-soluble vitamins
- Improves taste and texture of food
- Increases energy density of food and diet

**Saturated fats** – solid at room temperature. Increased consumption is associated with adverse health effects, such as elevated cholesterol, increased risk for heart disease/stroke, and inflammation



**Sources:** fried food, full-fat dairy products, fatty cuts of meat, chicken skin, coconut oil, and commercially produced baked products.



**Unsaturated fats** – liquid at room temperature and lower the risk of heart disease, stroke, and inflammation.



***These are the fats you should try to get in your diet!***

Sources include nuts, seeds, fatty fish, oils (olive, canola, peanut), avocados, and eggs.



Athletes should consume 1-2g of fat per kg body weight.

Example: a 150lb athlete, should aim for consuming ~70-140 grams of fat per day

