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ENDOCRINOLOGY

# Macronutrients: Carbohydrate Structure and Function Introduction

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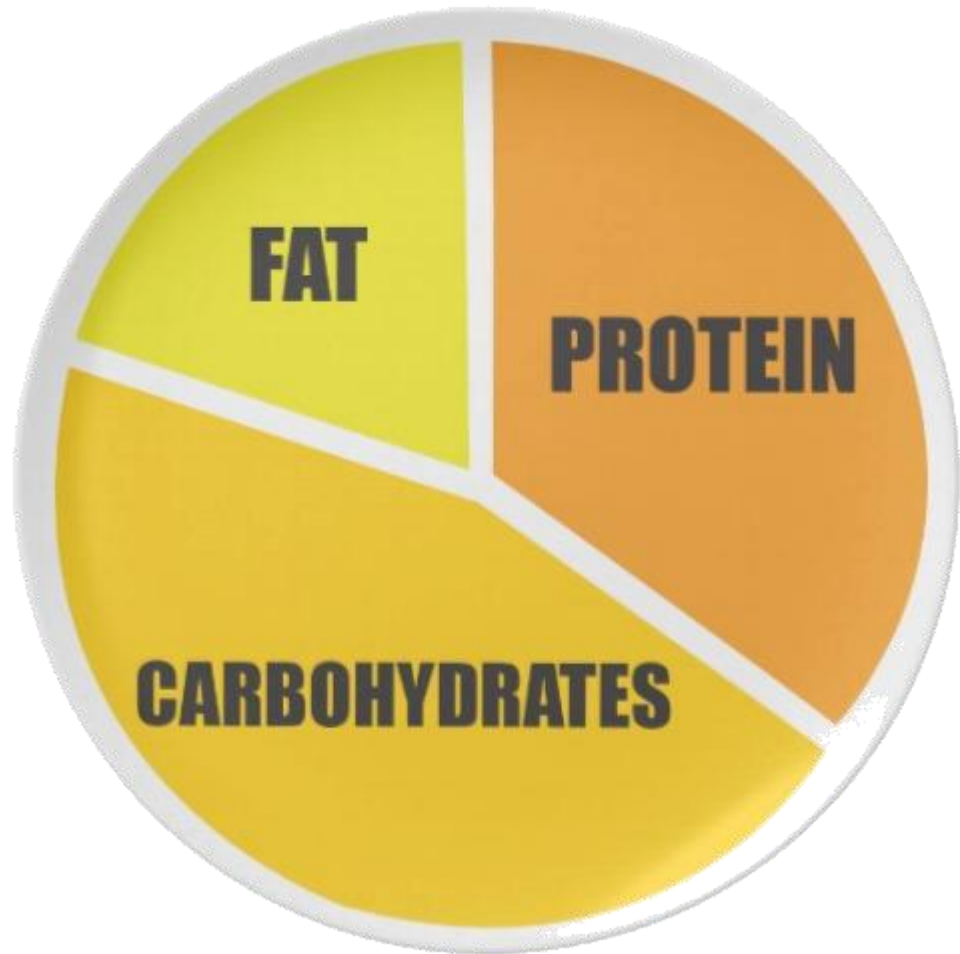


**Medical Disclaimer:** The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional, and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, [drritamarie.com](http://drritamarie.com), and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.



# Primary Macronutrients

- ✓ Water
- ✓ Fat
- ✓ Protein
- ✓ Carbohydrates



# What You'll Learn:

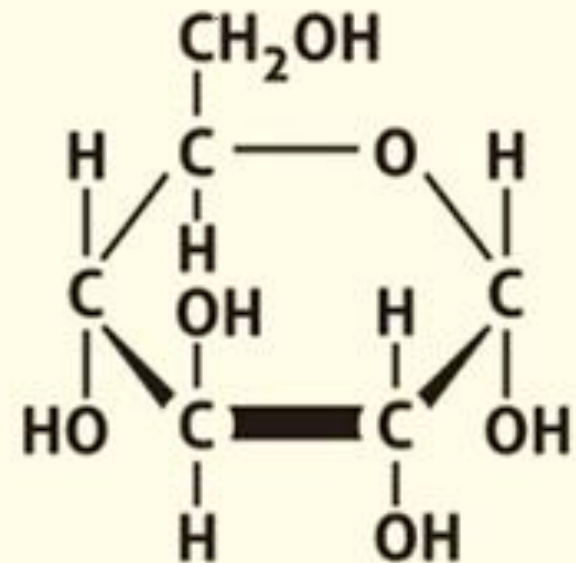
- ✓ What carbohydrates are
- ✓ Introduction to the carb family members
- ✓ Food sources of carbohydrates
- ✓ Refined vs whole carbs
- ✓ How to know which carbs work best
- ✓ Therapeutic diets related to carbs
- ✓ How to determine what's needed for each client – low, medium, or high carbohydrate intake



# What Are Carbohydrates?

- ✓ Large molecules consisting of carbon (C), hydrogen (H), and oxygen (O) atoms, usually with a hydrogen-to-oxygen ratio of 2:1  
 $C_m(H_2O)_n$ , i.e., glucose is  $C_6H_{12}O_6$
- ✓ Hydrates of carbon:  $H \rightarrow C \rightarrow O \rightarrow H$
- ✓ Also known as saccharides:
  - Monosaccharides (1 sugar)
  - Disaccharides (2 sugars)
  - Oligosaccharides (3-9 sugars)
  - Polysaccharides (many sugars)

GLUCOSE MOLECULE



# Function Of Carbohydrates

- ✓ Energy
- ✓ Fiber for intestinal function
- ✓ Spare protein for use as energy
- ✓ Transport of proteins, and other cellular recognition processes





# Carbohydrates in Foods

## Simple Carbs

- ✓ Sugar
- ✓ Candy
- ✓ Drink powders
- ✓ White flour anything –  
crackers, cookies, pizza  
crust, cereal
- ✓ White rice
- ✓ Flour  
products



## Complex Carbs

- ✓ Legumes
- ✓ Whole grains
- ✓ Nuts and seeds
- ✓ Vegetables
- ✓ Fruit
- ✓ Tubers and root  
vegetables

