NUTRITION:
Nutrition Basics

THIS CLASS WILL DISCUSS:

- Where does energy come from?
- What is protein?
- What is fat?
- What is a carbohydrate?

> **"The food you eat can be either the safest and most powerful form of medicine or the slowest form of poison."**
>
> -Ann Wigmore

WHERE DOES ENERGY COME FROM

A food calorie (kcal) is a measurement of the energy your body is able to use from nutrients found in food. Your body obtains calories from four sources: protein, fat, carbohydrates (CHO) and alcohol. We will be focusing on food calories from **protein, fat and carbohydrates.**

It is important to note that not all calories are "created equal" because your diet is made up of more than just calories. If you have ever tried to lose weight, you may have heard the advice "calories in should be less than calories out." This does not tell the whole story since our body responds to calories from various sources differently. For example, how your pancreas responds (or doesn't respond) to carbohydrates is the reason behind diabetes. Food also contains **vitamins, minerals, antioxidants, fiber and other bioactive compounds** which describe a food's nutrient density.

We should point out that some foods fall exclusively into one nutrient source (carbohydrate, fat or protein), but most foods are a combination. We will group foods into the category from which most calories come or list combination foods in two groups.

1 gram protein = 4 calories
1 gram fat = 9 calories
1 gram CHO = 4 calories
1 gram alcohol = 7 calories

PROTEIN

What protein does: Foods containing protein are mainly used for tissue building and repair although some of the protein you eat will turn into glucose. Research has shown higher protein intake helps support lean bodies by improving satiety, increasing calorie expenditure and supporting lean-body-mass maintenance. Many studies have shown a significant difference in weight loss success when consuming a higher amount of protein in a calorie-restricted diet. Although the reasoning is not fully understood, protein is shown to help control blood glucose when eaten in combination with carbohydrates. Protein tends to reduce the glycemic effect of CHO, which means blood sugar levels rise and fall at a slower rate. Some protein containing foods are naturally protein & carbohydrate combination foods as well.

Where protein comes from:

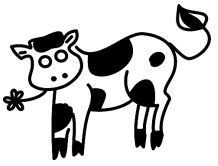
- **Meat** *(beef, pork, chicken, turkey, fish, etc.)*
- **Eggs**
- **Dairy products** (*milk, cheese, yogurt)*
- **Nuts**
- **Beans** (*pinto, garbanzo, navy)*
- **Protein powder** (*whey, rice, chickpea, etc.)*
- **Soy**
- **Dairy alternatives** *(almond milk, cashew milk, oat milk etc.)*

FAT

What fats do: Our bodies need fats to function properly. Fat is important for the normal functioning of cells, the brain and the nervous system. It supports satiety, is necessary for normal hormone production, and is a great, long-lasting source of energy. Fats have minimal affect on blood glucose, but are high in calories as described above. Too many foods high in fats, or foods containing the wrong types of fat, may cause blood lipids to elevate. This increases the risk for heart disease and causes weight gain. Over the past 50 years, there has been much confusion about the role fats play in a healthy diet. Initially, we were told to limit all fat, then we were told to avoid just animal fat, now our focus has diverted to prioritizing healthy fats.

There are three types of fats: (see table)

- **Saturated Fats** – Solid at room temperature, usually found in animal products; linked to heart disease
- **Unsaturated Fats** (poly & mono)- Liquid at room temperature, usually found in plant products; various health benefits
- **Trans fats** – Found in packaged, shelf-stable desserts and hydrogenated oils; linked to heart disease

WHERE FATS COME FROM:	
Saturated Fats	
Animal Sources 	Butter, Lard, Bacon, Sausage Dairy products *(increased with fat %)* Cream, Sour cream, Meat *(increase with " marbling"),* Skin from chicken and turkey
Plant Sources 	Coconut oil, Hydrogenated oils, Palm oils, Palm kernel oil
Trans Fats 	
Processed foods *(boxed cakes, cookies, doughnuts, candy bars, pastries),* Fried foods, Hard margarines, Shortening, Partially hydrogenated oils	
Unsaturated Fats	
Polyunsaturated 	Safflower oil, Sunflower oil, Corn oil, Cotton seed oil, Sesame oil, Soybean oil, Walnuts, Pumpkin seeds, Fish, Fish oil
Monosaturated 	Olives, Olive oil, Peanuts, Peanut oil, Canola oil, Sesame seeds, Almonds, Pecans, Avocado, Avocado oil

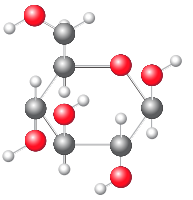
CARBOHYDRATES

What carbohydrates do: In short, carbohydrates break down into sugar to give you energy. There are two types of carbohydrate classifications: simple and complex.

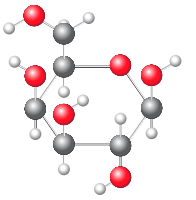
Simple vs. complex carbohydrates:

- **Simple:** Simple carbs are made of only one or two sugar molecules. They are very quickly digested and are the fastest source of energy.
- **Complex:** Complex carbs are composed of longer chains of sugar molecules. These are often higher in fiber and digested more slowly.

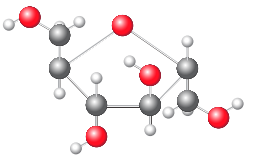
You should limit simple sugar in your diet and increase intake of complex starches and fiber. Most Americans do not eat the recommended amount of daily fiber (20-25 grams for women and 30-35 grams for men). Fiber prevents constipation, helps lower cholesterol, prevents some types of cancer, helps with appetite and weight control and plays an important role in regulating blood sugar when eating certain foods.



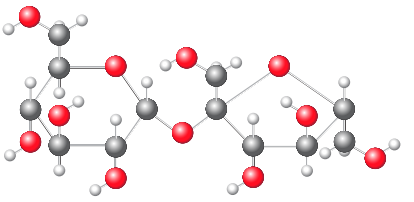
Glucose



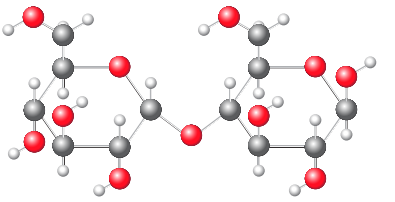
Galactose



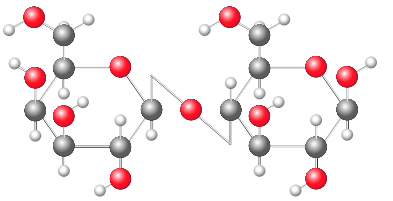
Fructose



Sucrose



Maltose



Lactose

DAILY FIBER

Women: 20-25 grams

Men: 30-35 grams

WHERE CARBOHYDRATES COME FROM:

Sugar	Starch and Fiber
Desserts, Soft drinks, Candy, Milk, Fruit juice, Honey	Whole wheat breads and other grains, Vegetables, Beans, Peas, Corn, Whole fruit

CHECK YOUR UNDERSTANDING:

1. Which nutrients provide calories from food? What is their primary function?

2. What is one food listed above I eat regularly and should limit? What information above explains why I should limit this food item?

ACTION PLAN:

1. Use the table below to help track your food intake and determine how much CHO you are currently eating. In the first meal column list your food choices with portion sizes. In the column beside it, calculate grams of carbohydrates in that meal if possible.

	Breakfast	CHO	Lunch	CHO	Dinner	CHO	Snacks	CHO
Monday								
Tuesday								
Wednesday								
Thursday								
Friday								
Saturday								
Sunday								

NOTES: