

Carbohydrates

Carbohydrate foods we eat

- Carbohydrates are:
 - Plant foods you eat
 - Fruits
 - Vegetables
 - Grains
 - Nuts & seeds
 - Beans
 - Herbs and spices
 - Coffee and tea and chocolate
 - Dairy
 - Milk and milk products

What are carbohydrates?

- Carbohydrates are foods that are made up of sugars linked together.

Carbohydrates that contain 2 sugars linked together is called a disaccharide

Carbohydrates that contain 3 – 10 sugars linked together is called an oligosaccharide

Carbohydrates that contain more than 10 sugars linked together is called a polysaccharide.

Carbohydrates

- Glucose, Fructose, Galactose
- are the types of sugars that link together to form carbohydrates.

Carbohydrates

- Glucose
 - Found in all carbohydrates
 - Glucose is also found in our blood
- Fructose
 - Found in sweet carbohydrates like fruit and table sugar
- Galactose
 - Found in dairy products

Carbohydrates

- Glucose + fructose = sweet carbohydrates
- Glucose + glucose = starchy carbohydrates
- Glucose + galactose = dairy carbohydrates

Carbohydrates

- Carbohydrates are a source of energy for our body.
- Carbohydrate foods can be healthy or not healthy.
- Healthy carbohydrates:
 - Fresh from nature
- Unhealthy carbohydrates:
 - Processed in a laboratory

Carbohydrates we eat can be

Fresh from nature

- Fruits
- Vegetables
- Grains like rice
- Beans
- Nuts & Seeds
- Herbs

Processed in a laboratory

- Donuts
- Cookies
- Cereals
- Candy
- Ice cream
- Cake

Carbohydrates

Fresh from nature carbohydrates

- Are healthy food source
- Naturally contains small amounts of sugar
- Naturally contains fiber
- Naturally contains vitamins and minerals

Unhealthy Carbohydrates

- Not a healthy food source
- Artificial added sugar and other sweeteners
- Fiber removed
- May have additional artificial ingredients added

Which is healthy carbohydrate?

Apple

- Is fresh from nature
- Contains natural sugar
NOT artificial added sugar
- Contains fiber
- Naturally contains vitamins and minerals

Apple Pie

- Processed:
- Apples have skin removed
reducing fiber
- Additional sugar added to
apple filling
- Additional sugar in pastry
- Vitamins and minerals
reduced

Carbohydrates

- Processed carbohydrates are easy to overeat because:
 - Added sugar and flavor enhancers makes food addicting
 - Fiber removed so less chewing and less satiety.

Carbohydrate Foods

- Carbohydrate foods from nature are healthy
 - Contain vitamins and minerals
 - Natural sugars
 - Contain fiber
 - Are source of energy
- Carbohydrate foods that are processed, with added sugar and reduced fiber are unhealthy
 - Eating excessive amounts of sugar in diet can lead to weight gain and dental cavities and is linked with increase of heart disease, fatty liver, pre-diabetes, and high blood pressure.

Function of carbohydrate foods?

- Carbohydrate foods provide energy
 - For our body to function
 - Heart to beat
 - Brain to think
 - Muscles to move
 - Organs to function
 - Digestion to occur

Carbohydrate Digestion

- Digestion of carbohydrate foods:
- Mouth:
 - foods get broken down into smaller pieces by enzymes, moistened into a food ball called bolus
- Food bolus moves down esophagus
- Into stomach:
 - where carbohydrate gets mixed and churned into liquid called chyme
- Moves onto small intestines where enzymes break the links between the bonds between fructose, glucose and galactose

Carbohydrate Digestion

- Glucose, fructose and galactose are now separate sugars
- Small enough to move through the walls of the small intestine into the bloodstream
- Let's follow what happens to glucose and fructose as it moves through walls of small intestines into the bloodstream.

Carbohydrate Digestion

- Glucose enters bloodstream
 - Amount of glucose already in bloodstream rises
 - The pancreas is alerted to release the hormone insulin to remove excess glucose in blood and bring it to body cells to use as energy
 - Glucose is the energy source for our body

Carbohydrate Digestion

- Fructose enters bloodstream
 - Travels to the liver to be converted into glucose
 - This glucose will be stored in the liver for energy to be used between meals.

Carbohydrates from natural foods are healthiest

- Carbohydrate foods from nature
 - Contain fiber
 - Contain vitamins and minerals
 - Contain phytochemicals

Carbohydrates from processed foods

- Easy to overeat because:
- May have fiber removed
- May have added sugars and other sweeteners
- May have artificial flavors, colors
- May have flavor enhancers

Sweeteners used in processed carbohydrates

- Sugar
- High fructose corn syrup
- Honey
- Brown sugar
- Corn syrup
- Dextrose
- Molasses

Health Problems with processed carbohydrates

- Diet high in processed carbohydrates may lead to:
- Weight gain
- Dental cavities
- Heart Disease
- Fatty Liver
- Pre-diabetes
- High Blood Pressure

Fiber rich carbohydrate foods

- Health benefits of fiber in foods:
 - Helps maintain regular bowel movements
 - Reduces risk of hemorrhoids
 - Decrease risk of diabetes
 - Decrease risk of colon cancer
 - Decrease risk of heart disease
 - Increase satiety

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