

# Energy Recharge Coaching: Carbohydrates

With  
**Dr. Ritamarie Loscalzo**

LIVING YOUR UNLIMITED POTENTIAL:  
ONE STEP, ONE THOUGHT, ONE BITE AT A TIME

ENERGY RECHARGE COACHING



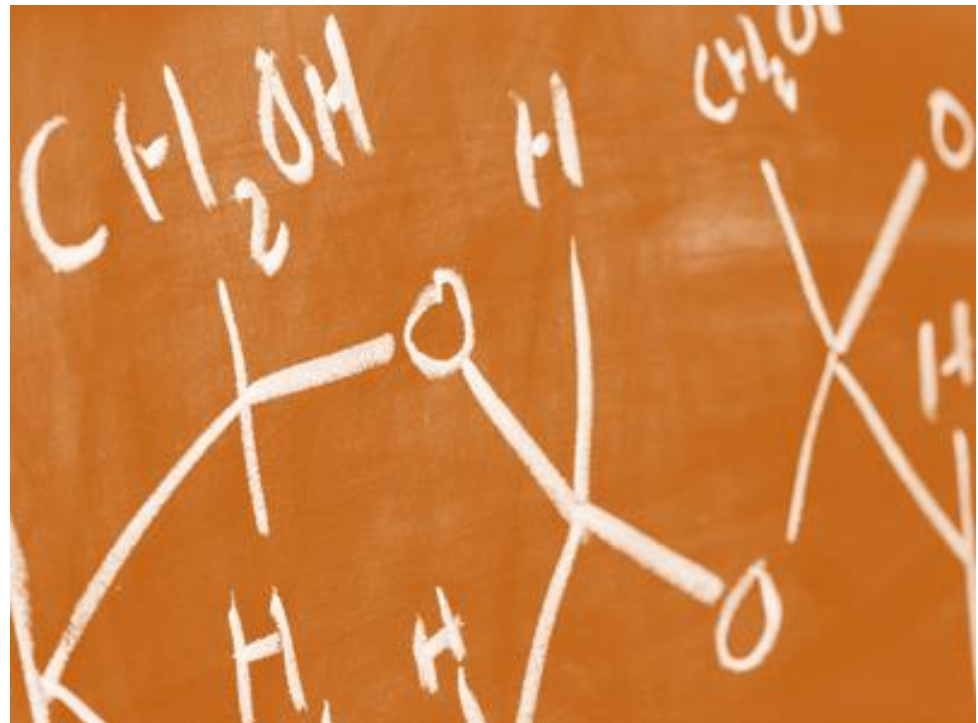
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MS, DC, CCN, DACBN



**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.

# What You'll Learn:

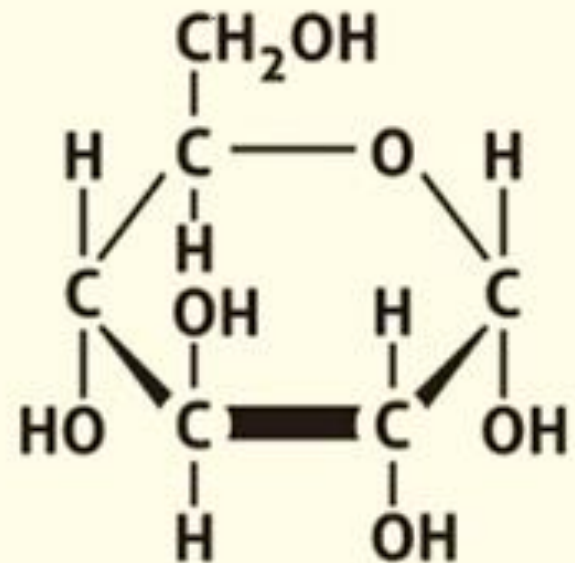
- ★ What carbohydrates are
- ★ Introduction to the carb family members
- ★ Food sources of carbohydrates
- ★ Refined vs whole carbs
- ★ How to know which carbs work best for you
- ★ Therapeutic diets related to carbs
- ★ What's best for you – low, medium, or high carb intake



# What Are Carbohydrates?

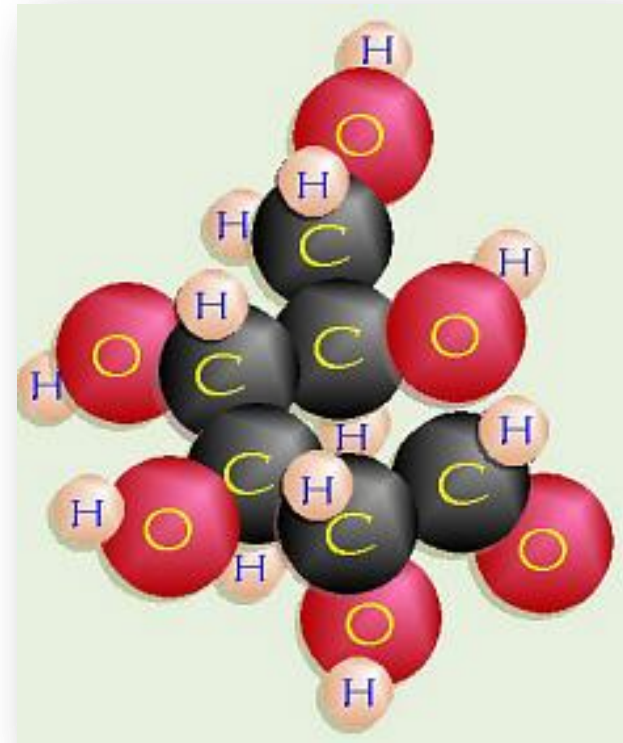
- ★ Large molecules consisting of carbon (C), hydrogen (H), and oxygen (O) atoms, usually with a hydrogen to oxygen ratio of 2:1  
 $C_m(H_2O)_n$  , i.e., glucose is  $C_6H_{12}O_6$
- ★ Hydrates of carbon- $H_2O$  plus C
- ★ Also known as saccharides:
  - ✓ Monosaccharides (1 sugar)
  - ✓ Disaccharides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





# Carbohydrates in Foods

## Simple Carbs

- ★ Sugar
- ★ Candy
- ★ White flour anything –  
crackers, cookies, pizza crust
- ★ White rice
- ★ Flour products

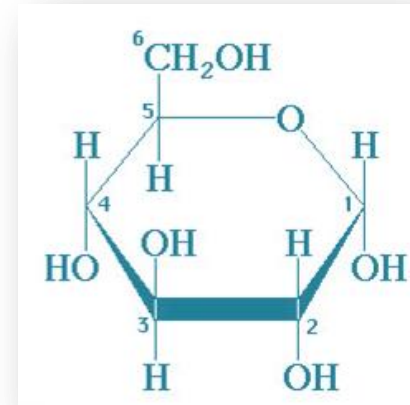
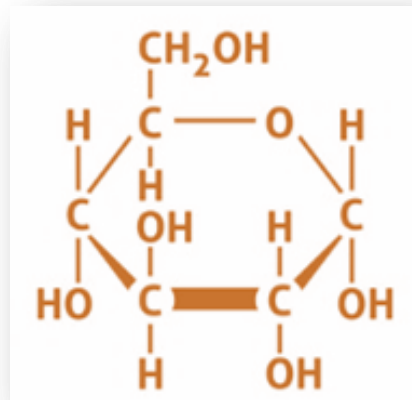
## Complex carbs

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

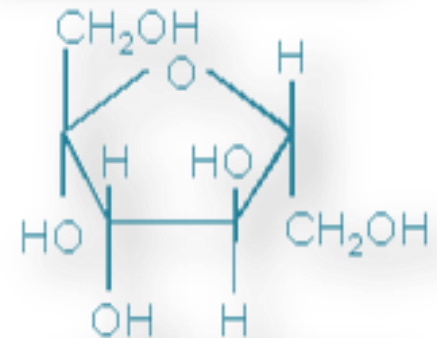
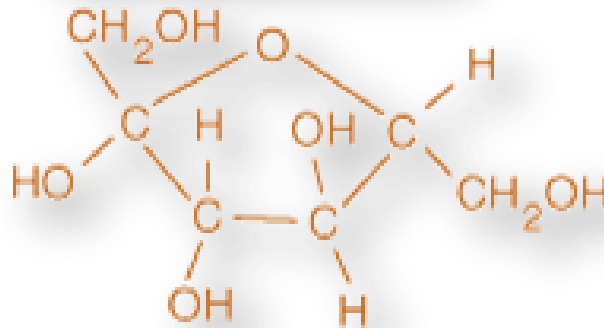


# Monosaccharides

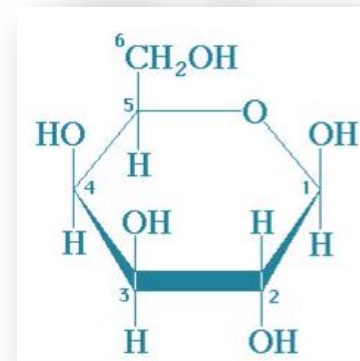
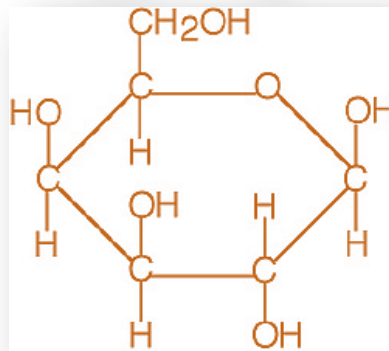
## Glucose



## Fructose

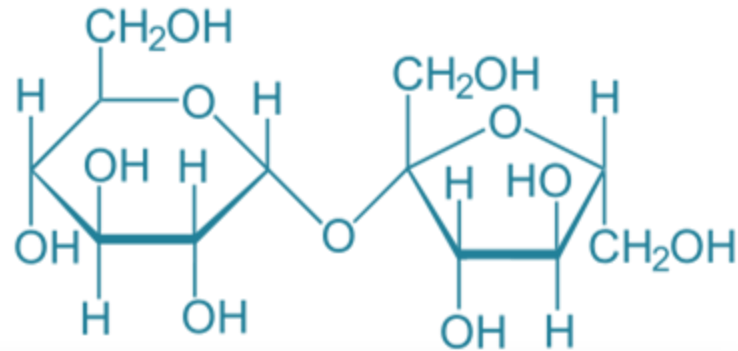


## Galactose

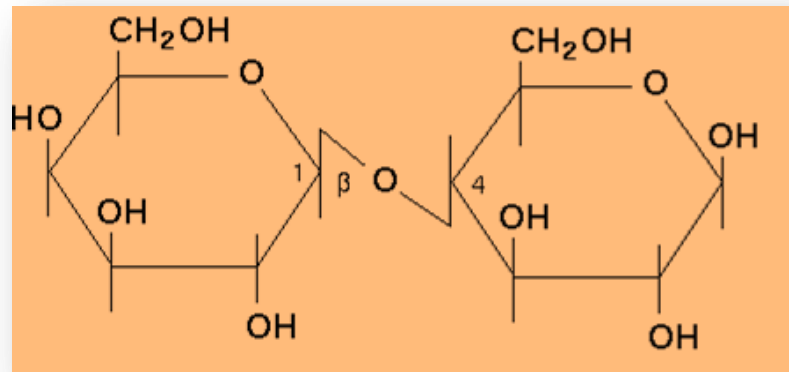


# Disaccharides

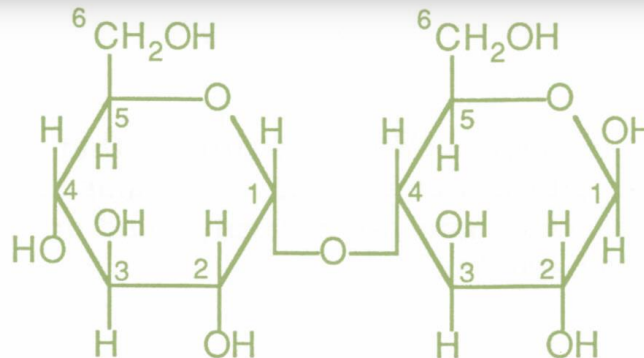
Sucrose



Lactose



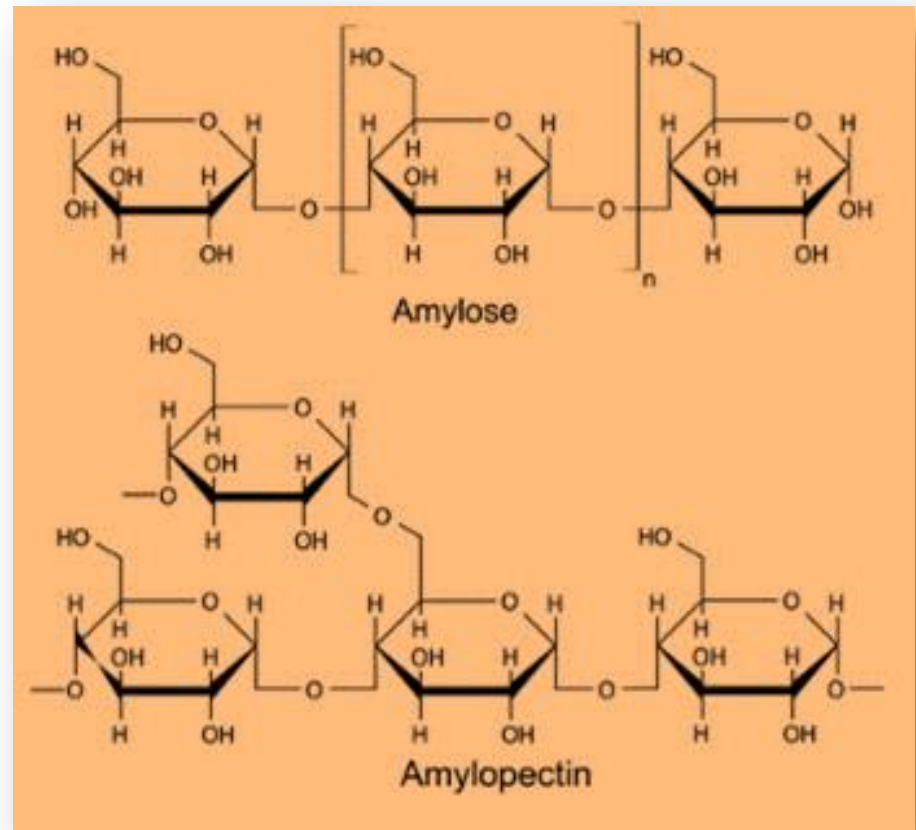
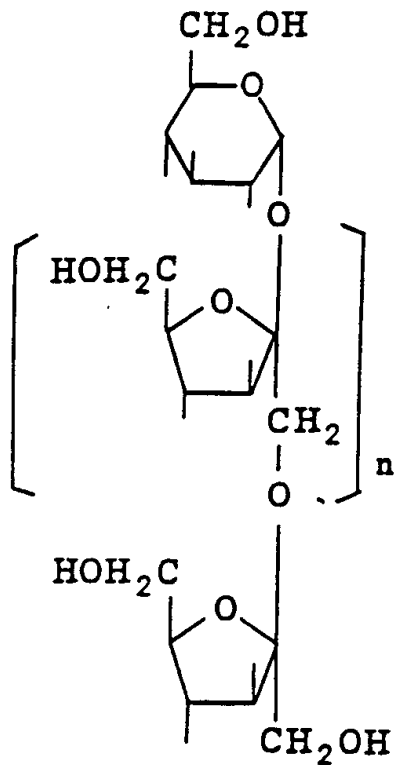
Maltose





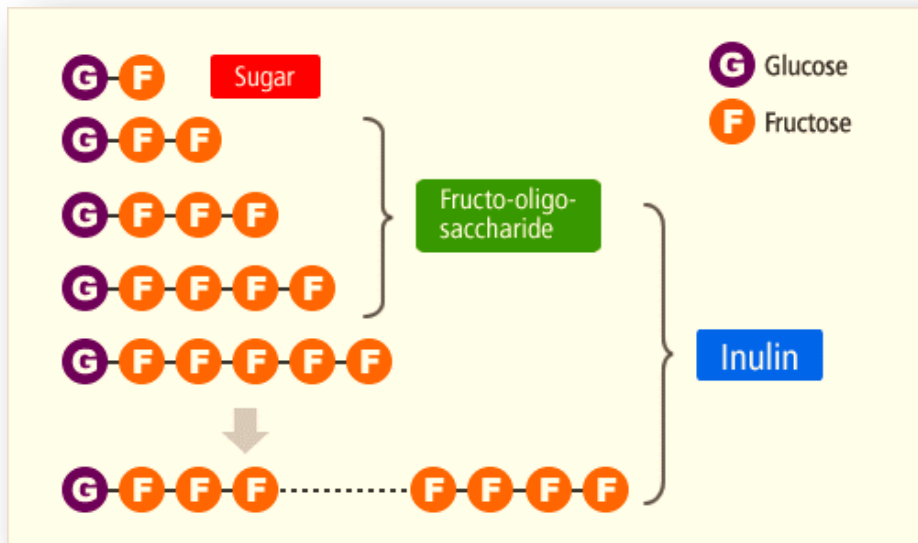
# Oligosaccharides

## Fructooligosaccharides



# Fructooligosaccharides (FOS)

- ✓ Food for gut bacteria
- ✓ Not digestible by pancreatic enzymes
- ✓ Also known as prebiotics

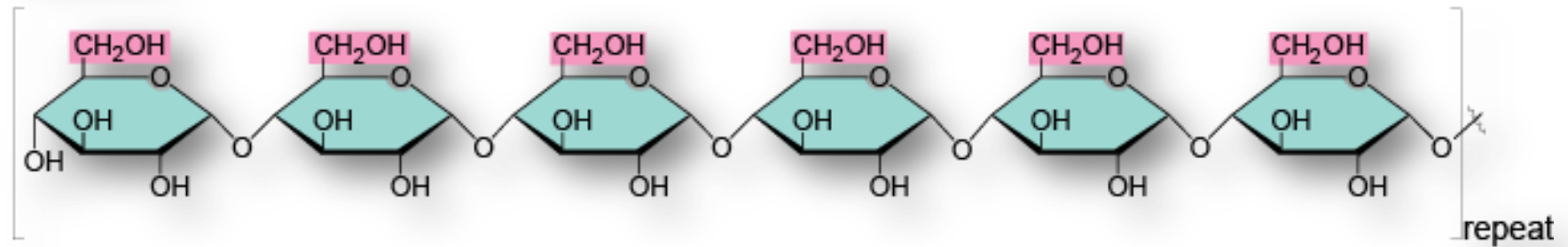


## Food Sources:

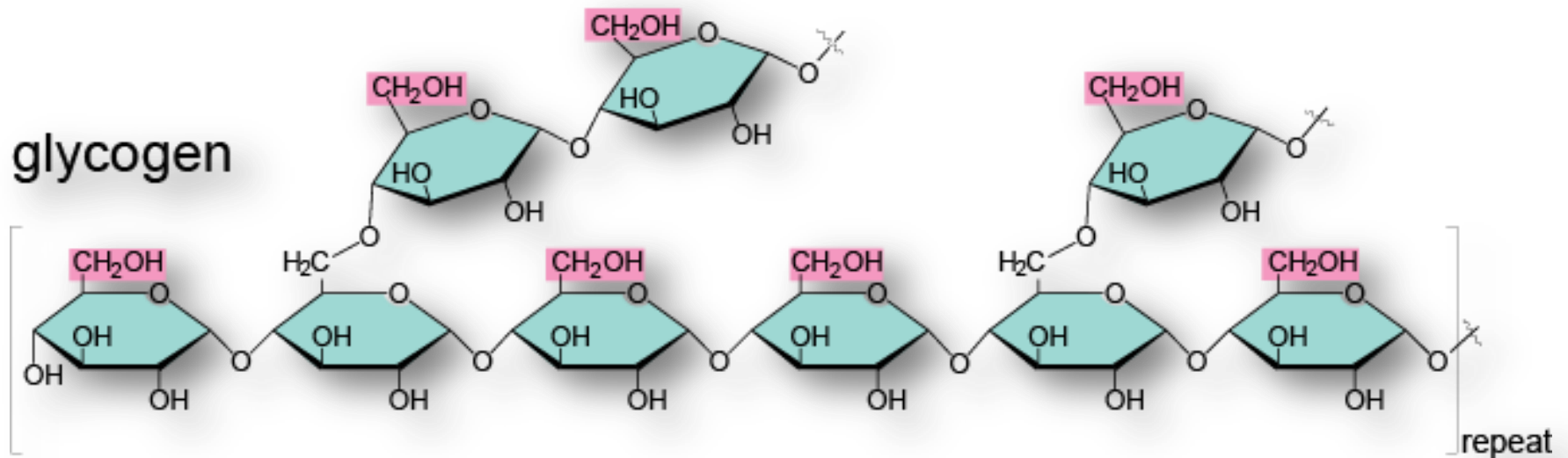
- ✓ Jerusalem artichoke
- ✓ Yacon
- ✓ Blue agave
- ✓ Bananas
- ✓ Onions
- ✓ Chicory root
- ✓ Garlic
- ✓ Asparagus
- ✓ Jícama
- ✓ Tomatoes
- ✓ Leeks

# Polysaccharides

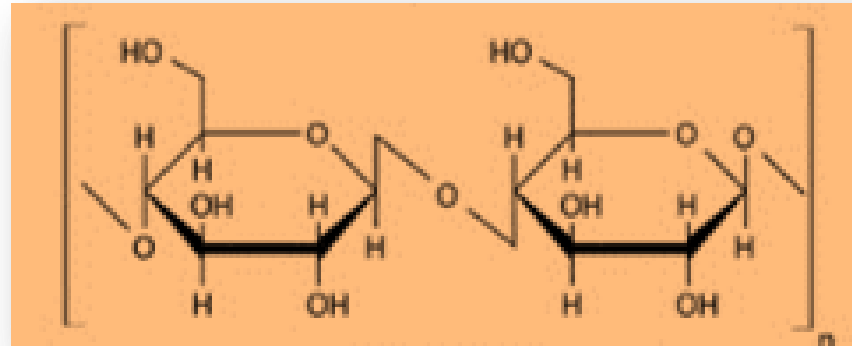
starch



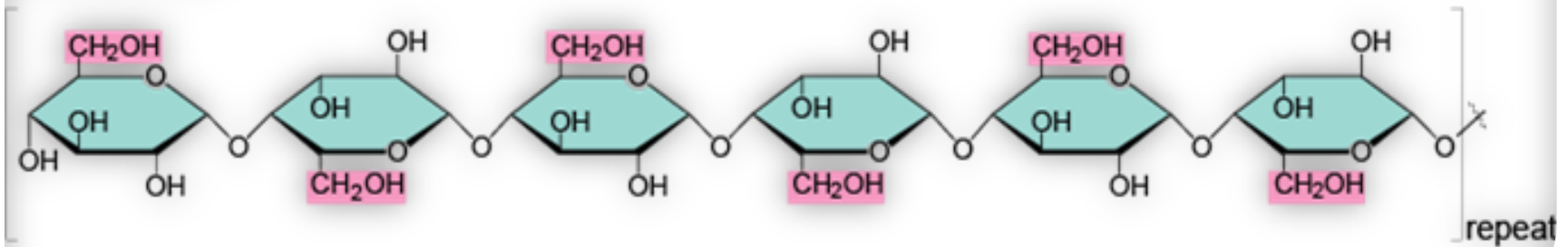
glycogen



# Cellulose



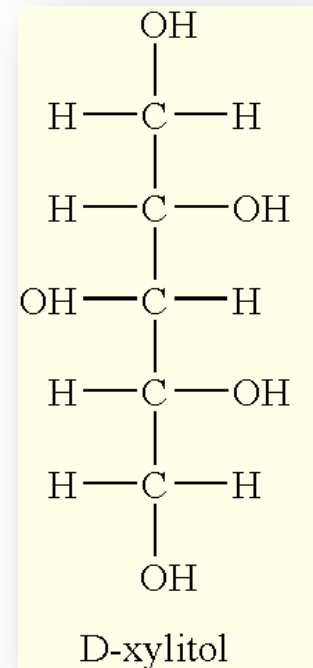
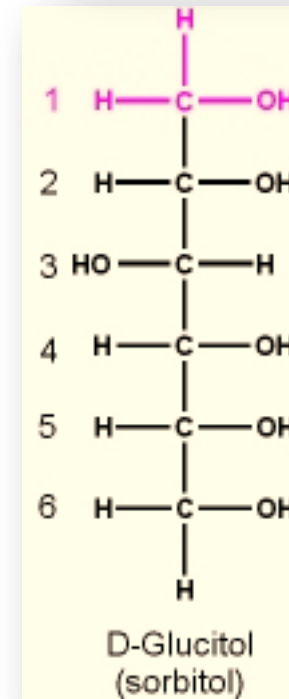
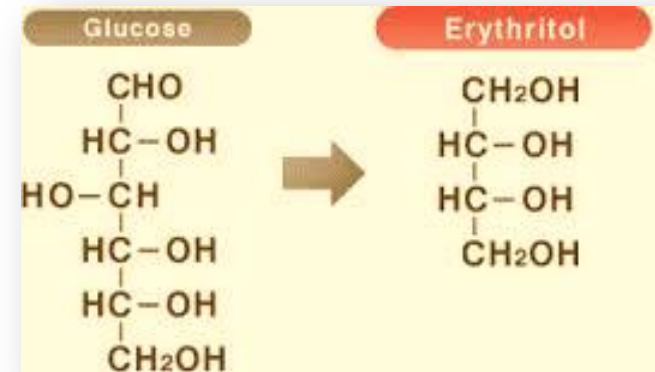
cellulose



*\*\*There can be several hundred to over 10,000 glucose molecules bonded together*

# Sugar Alcohols

- ★ Also known as polyols
- ★ Do not contain ethanol
- ★ Sweetness similar to sucrose
- ★ Fewer calories than sugar
- ★ Naturally occurring and chemically derived
- ★ Do not raise blood sugar





# Sugar Alcohols Compared

Name	Sweetness relative to sucrose	Energy (kcal/g)	Sweetness per food energy, relative to sucrose
<b>Erythritol*</b> (4 carbon)	0.812	0.213	15
<b>Mannitol</b> (6 carbon)	0.5	1.6	1.2
<b>Sorbitol</b> (6 carbon)	0.6	2.6	0.92
<b>Xylitol</b> (5 carbon)	1.0	2.4	1.6
Compare with: <b>Sucrose</b>	1.0	4.0	1.0

*\* Erythritol is by far the best choice, sorbitol the worst*

# Erythritol

- ★ Most absorbed in the small intestine and excreted unchanged in the urine
- ★ About 10% enters the colon - does not normally cause laxative effects
- ★ Free of side effects in regular use
- ★ Doses over 50 grams (1.8 oz) can cause nausea and stomach rumbling
- ★ More difficult for intestinal bacteria to digest than other sugar alcohols, so it's less likely to cause gas or bloating
- ★ Naturally occurring in pears, melons, grapes, mushrooms, wine, soy sauce, and cheese



## Smart Sweet Erythritol 4.5lbs

by Smart Sweet

★★★★★ 1 customer review

Price: \$36.50 + \$6.91 shipping

Note: Not eligible for Amazon Prime.

In Stock.

Ships from and sold by Global Sweet Polyols, LLC.

- All Natural, Free of GMO, Gluten, Wheat, Soy & Corn
- Zero Calories, Zero Glycemic Index
- Safe for Diabetics, High Digestive Tolerance
- 70% as Sweet as Sugar

# How Does Cooking Affect Carbohydrates?

- ★ Conversion of starch to sugar
- ★ Increases glycemic index
- ★ Increases available calories
- ★ Decreases resistant starch content
- ★ High heat creates acrylamide, a known carcinogen



# The Top 20 Foods By Average Acrylamide Intake In US

- ★ French fries (made in restaurants)
- ★ French fries (oven baked)
- ★ Potato chips
- ★ Breakfast cereals
- ★ Cookies
- ★ Brewed coffee
- ★ Toast
- ★ Pies and cakes
- ★ Crackers
- ★ Soft bread
- ★ Chile con carne
- ★ Corn snacks
- ★ Popcorn
- ★ Pretzels
- ★ Pizza
- ★ Burrito / tostada
- ★ Peanut butter
- ★ Breaded chicken
- ★ Bagels
- ★ Soup mix



# When Are Higher Carbs Needed?

- ★ Need to gain weight
- ★ Competitive athletics
- ★ High caloric need
- ★ Growing children
- ★ Pregnancy unless insulin resistant





# Types of Carbs

★ Grains – whole vs processed

★ Legumes

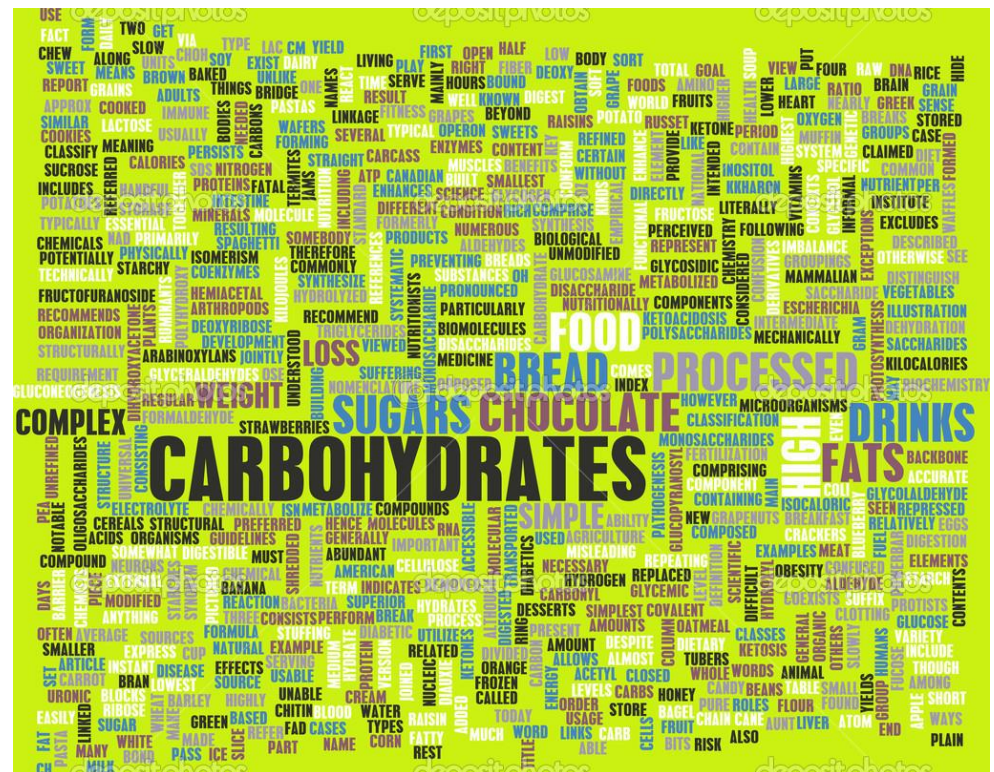
★ Fruits

★ Vegetables

★ Fiber –  
soluble vs insoluble

★ Sugar

★ Sugar alcohols



# Assessment of Carbohydrate Status and Tolerances

- ✓ Fasting blood glucose
- ✓ Home testing - post meal and exercise blood glucose
- ✓ Hemoglobin A1C
- ✓ Fructosamine
- ✓ Insulin



# Nutrition Facts

**Serving Size:** About (20g)

**Servings Per Container:** 16

	Amount Per Serving	% Daily Value*
<b>Total Calories</b>	60	
Calories From Fat	15	
<b>Total Fat</b>	2 g	3%
Saturated Fat	1 g	4%
Trans Fat	0 g	
<b>Cholesterol</b>	0 mg	0%
<b>Sodium</b>	45 mg	2%
<b>Total Carbohydrates</b>	15 g	5%
Dietary Fiber	4 g	17%
Sugars	4 g	
Sugar Alcohols (Polyols)	3 g	
<b>Protein</b>	2 g	
Vitamin A		0%
Vitamin C		0%
Calcium		2%
Iron		2%

\*Percent Daily Values are based on a 2,000 calorie diet.

**Ingredients:** Wheat flour, unsweetened chocolate, erythritol, inulin, oat flour, cocoa powder, evaporated cane juice, whey protein concentrate, corn starch (low glycemic), natural flavors, salt, baking soda, wheat gluten, guar gum





# Carbohydrates in Foods

★ See 3 PDF documents included on website

NDB_No	Description	Weight(g)	Measure	Carbohydrate, by difference(g) Per Measure	Fiber, total dietary(g) Per Measure	Sugars, total(g) Per Measure
11356	Potatoes, Russet, flesh and skin, baked	299.0	1.0 potato large (3" to 4-1/4" dia.	64.11	6.9	3.2
11647	Sweet potato, canned, syrup pack, drained solids	196.0	1.0 cup	49.71	5.9	11.2
11378	Potatoes, mashed, dehydrated, flakes without milk, dry form	60.0	1.0 cup	48.70	4.0	2.0
11215	Garlic, raw	136.0	1.0 cup	44.96	2.9	1.3
11039	Lima beans, immature seeds, frozen, baby, unprepared	164.0	1.0 cup	41.23	9.8	-
11176	Corn, sweet, yellow, canned, vacuum pack, regular pack	210.0	1.0 cup	40.82	4.2	7.4
11196	Cowpeas (blackeyes), immature seeds, frozen, cooked, boiled, drained, without salt	170.0	1.0 cup	40.39	10.9	7.5
11032	Lima beans, immature seeds, cooked, boiled, drained, without salt	170.0	1.0 cup	40.19	9.0	2.7
11170	Corn, sweet, yellow, canned, brine pack, regular pack, solids and liquids	256.0	1.0 cup	35.48	4.4	7.2
11040	Lima beans, immature seeds, frozen, baby, cooked, boiled, drained, without salt	180.0	1.0 cup	35.01	10.8	2.4
11383	Potatoes, mashed, dehydrated, prepared from granules with milk, water and margarine added	210.0	1.0 cup	33.87	2.7	3.6
11192	Cowpeas (blackeyes), immature seeds, cooked, boiled, drained, without salt	165.0	1.0 cup	33.53	8.2	5.3
11316	Peas, mature seeds, sprouted, raw	120.0	1.0 cup	32.53	--	-
11179	Corn, sweet, yellow, frozen, kernels cut off cob, boiled, drained, without salt	165.0	1.0 cup	31.84	4.0	5.0
11037	Lima beans, immature seeds, frozen, fordhook, unprepared	160.0	1.0 cup	31.73	8.8	2.2
11048	Beans, pinto, immature seeds, frozen, unprepared	94.0	0.333 package (10 oz)	30.55	5.4	-
11381	Potatoes, mashed, dehydrated, prepared from granules without milk, whole milk and butter added	210.0	1.0 cup	30.16	4.6	-
11259	Mountain yam, hawaii, cooked, steamed, without salt	145.0	1.0 cup, cubes	29.00	--	-
11450	Soybeans, green, raw	256.0	1.0 cup	28.29	10.8	-



# Carbohydrate Intolerance and Special Diets

- ★ Lactose intolerance
- ★ Low glycemic
- ★ Gluten free
- ★ Specific carbohydrate diet (GAPs):  
monosaccharides only are allowed
- ★ FODMAPs: **F**ermentable  
**O**ligosaccharides, **D**isaccharides,  
**M**onosaccharides **A**nd **P**olyols



# Good Carbs, Bad Carbs

- ★ Personalized to the individual
- ★ Processed tend to be bad for everyone
- ★ Gut health may temporarily restrict some
- ★ Glucose tolerance plays a major role
- ★ Restriction of “good carbs” is generally temporary while healing