Let Your Food Be Your Medicine - CARBOHYDRATES

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AAA HEALTH

ACTIVITY – Exercising, Resting, Eating (frequency), Breathing, Positive Thinking
AMOUNT – Avoid deficiencies, avoid excesses, appropriate portions
ABSORPTION – Rate of absorption (glycemic index), enzymes, probiotics, chemical balance

The sources of carbohydrates are sugars and starches in food. They commonly referred to as either
SIMPLE (e.g. white sugar, white flour, fruit, beer, etc) or
COMPLEX (e.g. whole grains, vegetables, beans and lentils, etc)
ALL carbohydrates are converted to glucose (blood sugar) for use in the body.
After digestion, the blood sugar level is normally 70-110 mg/100 ml blood

To calculate your daily maximum carbohydrate limit use this formula which is based on 30% fat, 15% protein and 55% carbohydrate intake:
You can use your actual or desired weight and multiply it by one of the following factors:
14 = sitting most of the day, 16 = light or occasional exercise, 18 = moderate exercise (daily)

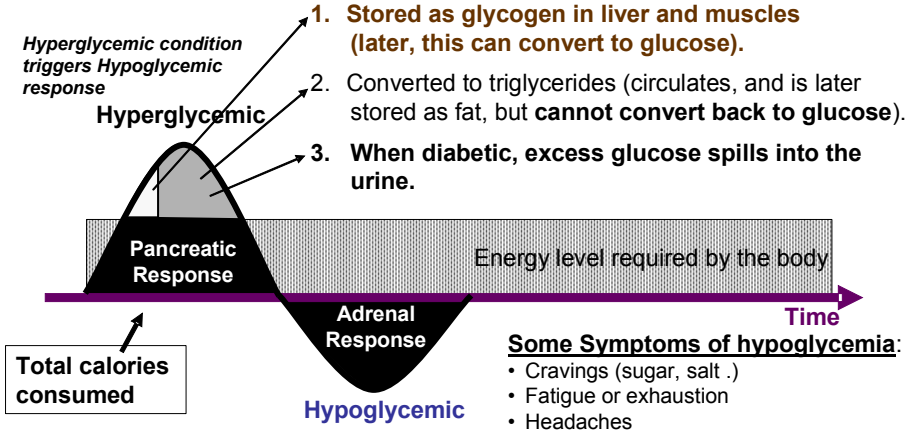
(Weight X Factor)/4 X .55 / 28 = maximum # ounces of carbohydrates per day

(for grams, just don't use the /28 in the formula)

For an average120 lb person on a 2000 calorie/day it equals about 9 oz (265 grams) of carbohydrates.

BMR – Basal Metabolic Rate – the number of calories you will burn in a 24 hour period while at rest.
AMR – Active Metabolic Rate – the number of calories you will burn in a 24 hour period adding the caloric cost of all active physical exertion you engage in throughout the day to your BMR
Site for BMR/AMR calculation: *http://www.preventdisease.com/healthtools/articles/bmr.html*
BMI – Body Mass Index - the number that represents the percentage of your body weight that is related to fat (19-25% healthy, 25-29% moderate >29% severe)
BMI calculator site: *http://www.halls.md/body-mass-index/bmi.htm*

So what happens when more carbohydrates (calories) are consumed than the body can burn?



Some Symptoms of hypoglycemia:
- Cravings (sugar, salt .)
- Fatigue or exhaustion
- Headaches
- Insomnia
- Mood swings
- Mental confusion

Glycemic Index (GI) focuses on rate of absorption. Foods with carbohydrates that break down quickly during digestion and release glucose rapidly into the bloodstream tend to have a high GI; foods with carbohydrates that break down more slowly, tend to have a low GI. Glycemic Index of 0-50 is low, 50-70 is medium, 70-100 is high. *(www.glycemicindex.com)*

Glycemic Load (GL), a related measure, focuses the blood-sugar-raising power **per serving** of food. The formula is:
Glycemic Load = Glycemic Index of the food X grams of carbohydrate per serving / 100
Glycemic Load of 0-10 is low, 11-19 is medium and 20 or more is high.
Total GL per day should be less than 120.

Blockers and Retardants to Carbohydrate Absorption

Fiber – slows down digestion. Raw fruits and vegetables and beans naturally contain fiber. (hint: taking a fiber supplement 15 minutes before eating foods with high Glycemic Index will also slow down absorption)
Acid foods – like lemon or vinegar, slow down the digestion of carbohydrates (e.g. sweet and sour).
Combine with fat/protein – just as eating will reduce the effects of alcohol, so will eating other food types affect the digestion of carbohydrates. For example, putting sour cream on a baked potato will increase the amount of time it takes to absorb the potato. (notice how having fat with potato i.e. potato chip reduces the glycemic index). However, keep in mind that adding fat increases calorie intake.

Diabetes means your blood glucose (often called blood sugar) is too high. The pancreas releases insulin into the blood. Insulin helps the glucose from food get into your cells. If your body doesn't make enough insulin, or if the cells do not respond to the insulin that is produced, then the glucose stays in your blood instead. Your blood glucose level then gets too high, causing pre-diabetes or diabetes.

Signs of Diabetes:

being very thirsty
urinating often
feeling very hungry or tired
losing weight without trying
having dry, itchy skin
having sores that heal slowly
losing the feeling in your feet or having tingling in your feet
having blurry eyesight

Signs of Insulin Resistance (Pre-diabetes):

High Triglyceride levels in the blood
High blood pressure
Inability to lose weight when on a low fat diet
Chronic fatigue,
Mental fogginess
Cravings for sugar-filled foods, binge eating
Depression, irritability and/or anxiety

NATURAL AND ARTIFICIAL SWEETENER INFORMATION

	Calories /gram	Glycemic Index	Comment	Sweetness relative to Sucrose	Source and Brand Names
Natural Sweeteners					
White Sugar (sucrose)	4.0	65	refined	1.0	cane or beet sugar
Brown Sugar (sucrose)	4.0	60	refined	1.0	cane or beet sugar
Unrefined Sugar (sucrose)	4.0	60	unrefined	1.0	cane or beet sugar Florida Crystals, Sucanat, etc
Maltodextrin (dextrose=glucose)	4.0	100	refined	0.3	Corn starch hydrolysis
Maple Syrup	4.0	54	unrefined	0.8	Maple trees
Sourgum	4.0	55	unrefined	0.8	grain source
Molasses	4.0	55	unrefined	0.8	cane or beet sugar
Honey	4.0	50	unrefined	2.0	nectar
Agave	3.0	25	unrefined	1.5	agave plant
Fructose crystals	4.0	20	refined	1.2	Corn
High Fructose Corn Syrup	4.0	73	refined	0.8	Corn (fructose and glucose)
Natural Non-calorie Sweeteners					
Stevia	0.0	0	after taste	250-300	steviol glycoside from the herb PureVia, Sun Crystals and Truvia
Monk fruit/Luo han guo	0.0	0		150-300	Lo Han fruit Nectresse
Artificial Non-calorie Sweeteners					
Acesulfame-K (not heat stable)	0.0	0	(bitter)	200.0	organic acid and potassium Ace-K, Sunett and Sweet One
Aspartame	4.0	0		160-220	aspartic acid and phenylalanine Equal and NutraSweet
Neotame	0.0	0		7,000-13,000	aspartic acid and phenylalanine and Methanol (wood alcohol):
Saccharin (not heat stable)	0.0	0	(bitter)	200-700	benzoic sulfilimine Necta Sweet, Sugar Twin, Sweet 'N Low
Sucralose	0.0	0		600.0	sucrose and chlorine Splenda
Cyclamates	0.0	0		60.0	banned in the US - causes bladder cancer
Sugar Alcohols			Laxative effect		
Arabitol	0.2	1	Med	14.0	isolated from gum arabic
Erythritol	0.2	1	High	15.0	yeast fermented glucose
Glycerol	4.3	5	Med	0.6	from triglyercides in soap making
Isomalt	2.0	2	Med	1.0	hydrogenated beet sugar
Lactitol	2.0	3	Low-Med	0.8	hydrogenated lactose
Maltitol	2.1	3	Med-High	1.7	hydrogenated starch (corn)
Mannitol	1.6	2	Low	1.2	hydrogenated fructose
Sorbitol	2.6	4	Med	0.9	reduction of glucose
Xylitol	2.4	12	Med-High	1.6	hardwoods and corncobs

SUMMARY - SIMPLE PRINCIPLES FOR CARBOHYDRATES:

- Eat more complex carbohydrates (lower glycemic index) and fewer refined, processed foods.
- Reduce portion size of carbohydrate per meal. (smaller, more frequent meals)
- Avert hypoglycemia and cravings by eating a small amount of complex carbohydrate BEFORE a craving develops.
- Exercise regularly.
- Only use Artificial sweeteners and sugar alcohols with discretion and avoid if possible.