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Glycemic Loads

By Hans R. Larsen MSc ChE

The term "glycemic load" was coined by researchers at the Harvard Medical School. The glycemic load of a particular food is the product of its glycemic index and the amount (in grams) of carbohydrate present in a serving of the food divided by 100. For example, a medium-sized apple has a glycemic index of 38 and a carbohydrate content of 21 grams, so its glycemic load would be 8. Proteins and fats contain no carbohydrates so their glycemic index and load are zero. Researchers at the Harvard Medical School reported in June 2000 that women whose food intake produced a high glycemic load were more likely to develop coronary heart disease[2]. More recently, Harvard researchers also reported that women whose glycemic load was high had a 40% higher risk of developing type 2 diabetes than did women who consumed a diet with a low glycemic load[3]. Other researchers believe that high glycemic indices and loads may be a risk factor for colon, breast, and prostate cancers[4].

The term "glycemic index" was first introduced in 1981 as a measure of the rate of absorption and conversion to glucose of various carbohydrate foods. The glycemic index of pure glucose was set to 100, and carbohydrate foods were evaluated against glucose by comparing the rate and extent (area under blood glucose versus time curve) to which 50 grams of the test food was absorbed and converted to glucose with the rate for 50 grams of pure glucose. Recently there has been a trend to use white bread as the standard (glycemic index = 100); under this scheme the glycemic index of pure glucose is 147.

Food with a high glycemic index produces a higher peak in blood glucose levels after a meal, and a greater overall blood glucose response during the first 2 hours after consumption, than do foods with a low glycemic index. This higher response is believed to be detrimental to health[4].

The average daily energy-adjusted (to 1700 kcal) glycemic load in a typical Western diet is probably around 105 while a desirable level would be about 70[5]. The average glycemic load of the three effective diets was 72 or, in other words, well below the typical level and close to the desirable level.

Whether a low carbohydrate and glycemic load diet will help prevent lone atrial fibrillation obviously needs to be determined in a large clinical trial or epidemiologic study. However, until this is done I see no disadvantage and many possible advantages for afibbers in adhering to a diet similar to that consumed by the 3 "lucky" ex-afibbers.

The simplest way to reduce glycemic load is to minimize the intake of high glycemic index foods like potatoes, rice, and white bread. A detailed table of glycemic loads is presented below.

Glycemic Loads

FOOD	Serving Size	Glycemic Index	Carbohydrates per serving, g	Glycemic Load /serving	Glycemic Load per 100 g
GRAINS & BREADS					
Bagel	1 medium	72	56	**40**	38
Pasta, cooked	1 cup	60	57	**34**	15
White rice, cooked	1 cup	64	53	**34**	19
Breakfast cereals	2/3 cup	75	44	**33**	60
Brown rice, cooked	1 cup	55	45	**25**	13
Whole wheat bread	2 slices	71	26	**18**	33
White bread	2 slices	73	25	**18**	37
Rye bread	2 slices	53	31	**16**	25
Oatmeal porridge	1 cup	58	25	**15**	6
Oatmeal, dry	½ cup	50	27	**14**	34
Cornflakes	2/3 cup	81	16	**13**	70
Rice cakes (brown)	2 cakes	82	15	**12**	67
Whole-grain bread	2 slices	45	24	**11**	21
Popcorn	2 cups	72	12	**9**	56
Crackers, Ryvita	2 slices	69	10	**7**	37
FRUITS					
Raisins	½ cup	64	58	**37**	51
Banana	1 medium	60	28	**17**	14
Watermelon	1 wedge	72	21	**15**	5
Prunes	6 only	39	32	**12**	25
Pear, fresh	1 medium	38	25	**10**	6
Apple, raw	1 medium	38	21	**8**	6
Orange	1 medium	42	16	**7**	5
Pineapple, fresh	1 slice	59	10	**6**	7
Peach, fresh	1 medium	42	11	**5**	5
Blueberries	½ cup	40	10	**4**	6
Grapes	½ cup	46	8	**4**	8
Plum, fresh	1 medium	39	9	**4**	5
Raspberries	½ cup	40	7	**3**	5
Grapefruit	½ medium	25	10	**3**	2
Strawberries	½ cup	40	6	**2**	3
LEGUMES					
Garbanzo beans	½ cup	28	27	**8**	6
Lima beans, cooked	½ cup	32	20	**6**	8
Kidney beans, cooked	½ cup	28	20	**6**	6
Green peas	½ cup	48	11	**5**	7
Lentils, red, cooked	½ cup	26	20	**5**	3
Soy beans, cooked	½ cup	18	10	**2**	2
Green beans, cooked	½ cup	29	5	**1**	2
Tofu, firm	½ cup	35	4	**1**	5

FOOD	Serving Size	Glycemic Index	Carbohydrates per serving, g	Glycemic Load /serving	Glycemic Load per 100 g
VEGETABLES					
French fries	20 pieces	75	31	**23**	23
Potato, baked	1 medium	60	34	**20**	13
Sweet potato, cooked	1 medium	61	28	**17**	8
Potato, boiled	1 medium	50	27	**14**	10
Corn, cooked	1 ear	54	19	**10**	14
Yam, cooked	½ cup	37	19	**7**	10
Beets, cooked	2 medium	64	10	**6**	6
Carrots, cooked	½ cup	60	8	**5**	6
Onion, raw*	1 medium	50	9	**5**	5
Squash, cooked*	½ cup	15	11	**2**	2
Broccoli, cooked*	1 medium stalk	15	9	**1**	1
Tomatoes, raw*	1 medium	15	7	**1**	1
Carrot, raw	1 medium	16	6	**1**	2
Asparagus, cooked*	4 spears	20	3	**1**	1
Kale, cooked*	½ cup	15	4	**1**	1
Lettuce, raw*	1 cup	15	1	**0**	0
NUTS & SEEDS					
Almonds*	½ cup	25	14	**4**	5
Sesame seeds*	½ cup	20	17	**3**	5
Peanuts*	½ cup	20	12	**2**	3
Walnuts*	½ cup	20	8	**2**	3
Sunflower seeds*	½ cup	20	5	**1**	1
DAIRY PRODUCTS					
Ice cream	½ cup	50	17	**9**	12
Yoghurt	½ cup	36	8	**3**	3
Milk	8 oz glass	27	11	**3**	1
Cheese	1 oz	25	0.5	**0**	1
MISCELLANEOUS					
Orange juice	8 oz glass	52	26	**14**	5
Sugar, refined	1 tablespoon	99	12	**12**	99
Carrot juice	8 oz glass	43	22	**9**	4
Honey	1 tablespoon	55	17	**9**	45
Maple syrup	1 tablespoon	55	13	**7**	37
Tomato juice	8 oz glass	38	10	**4**	2
Protein (soy) powder*	2 oz	15	4	**1**	1
Protein (whey) *	2 oz	15	2	**0**	0
Green tea*	1 cup	10	1	**0**	0
Stevia sweetener*	1 teaspoon	0	-	**0**	0

The glycemic index is based on glucose=100. Values (except as indicated) are from the International Table of Glycemic Index and Load published in the *American Journal of Clinical Nutrition* (July 2002, pp. 5-56)

* Glycemic index value from *The Food Connection* by Sam Graci (pp. 170-72)

The AFIB Report is published 10 times a year by Hans R. Larsen MSc ChE
1320 Point Street, Victoria, BC, Canada V8S 1A5
Phone: (250) 384-2524
E-mail: editor@afibbers.org
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