

HIGH FIBER DIET

(Taken from the Diet/ Nutrition Care Manual for Cedars-Sinai Medical Center)

INDICATIONS:

This diet may be used in the treatment of chronic constipation, hemorrhoids, and non-inflammatory diseases of the colon such as irritable bowel syndrome and diverticulosis. The purpose of the diet is to promote increased bulk of stools and regularity of bowel function and to reduce abdominal pain associated with diverticular disease. Epidemiological studies have also indicated some additional benefits for individuals who consume a high fiber diet including a reduced incidence of heart disease, diabetes, obesity, gallstones, varicose veins, and cancer of the colon. Some additional metabolic effects of certain types of dietary fiber include reduced serum cholesterol and triglyceride levels and reduced post prandial glucose levels with a subsequent reduction in insulin requirements for diabetes.

DESCRIPTION:

This diet is essentially a normal diet with increased amounts of food rich in plant fiber including fruits, vegetables, whole grain breads and cereals. The goal of the high fiber diet is to increase dietary fiber intake to at least 25 to 35 grams per day, thereby exceeding the average American fiber intake.

PERScription:

This diet order should indicate High Fiber Diet. Patients should be instructed to drink eight glasses of fluids daily to insure adequate hydration since fiber may hold water in the colon.

MODIFICATION:

This diet can be modified to meet the requirements of most diets in this manual except soft, low fiber, low residue, and texture modified.

NUTRITIONAL ADEQUACY:

This diet is nutritionally adequate and meets the Recommended Daily Allowances as established by the National Research Council.

ADDITIONAL COMMENTS:

The fiber content of foods was originally measured as crude fiber, which consists of residue remaining after treatment with dilute acid and alkali. Crude fiber values are no longer acceptable since they underestimate actual dietary fiber by a factor ranging from 2 to 5. Dietary fiber, which is the unit

presently used to measure fiber in foods, consists of indigestive components of plant cell walls that cannot be hydrolyzed by human digestible enzymes. Dietary fiber components may be divided into two main categories: those that are soluble and those that are insoluble in water.

The structural fiber such as cellulose (found in coarse bran), hemi-cellulose (found in bran cereals and whole breads), and lignin (found in many fruits) and not water-soluble. The water-soluble fibers include pectins (found in bananas, oranges, carrots, and apples), gums (found in oatmeal), and mucilages (found in psyllium).

The most important function of all types of fiber is to increase the bulk of the stool to facilitate transit through the gastrointestinal tract. The water soluble fibers also produce specific metabolic effects including a reduction in serum cholesterol levels through binding of bile acids, and reduction in LDL cholesterol production with increased production of HDL cholesterol. Soluble dietary fiber has also been shown to reduce serum triglyceride levels.

In addition, soluble fiber delays gastric emptying causing a reduced rate of glucose absorption with lower post prandial glucose levels. This effect cause reduced insulin requirements in diabetics. Since an individual with hyperlipidemia or diabetes may want to concentrate on increasing soluble fiber intake, DIETARY FIBER IN COMMON FOODS specifies which foods contain over 50% of their fiber in soluble form.

The crude fiber content of the average American diet is approximately 5 grams, which represents 10 to 25 grams of dietary fiber. The goal of the high fiber diet is to increase dietary fiber intake to at least 25 to 35 grams per day, thereby exceeding the average American fiber intake. Studies indicate that a fiber intake of at least 25 grams produces measures that characterize optimal bowel function. These measures include: reduced transit time, increased stool volume, and increased frequency compared to measures in those consuming a typical low fiber diet of western society. This level of fiber intake has also been shown to alleviate symptoms of diverticular disease.

In certain individuals, a high fiber diet may initially produce some undesirable side effects including gastrointestinal disease, bloating, and

flatulence. A gradual increase in fiber intake may prevent these symptoms from occurring. If symptoms persist, the diet should be discontinued.

It should also be noted that high fiber diets, which emphasis on soluble fiber, have been shown to increase fecal energy losses by 60 to 300 calories per day. High fiber diets may also promote increased losses of divalent minerals including calcium, magnesium, iron, and zinc. As a precautionary measure, patients on high fiber diets should be advised to take a multiple vitamin/mineral supplement and to consume adequate calories.

Dietary fiber values of various food items have been listed in the DIETARY FIBER IN COMMON FOODS. An individual on a high fiber diet should select menu items from this list which provide at least 25 grams of fiber per day. Meats, milk, dairy products, and fats do not contain fiber and are therefore not included in the table.

DIETARY FIBER IN COMMON FOODS

* Indicates food with at least 50% of fiber present as soluble fiber.

FOOD	SERVING SIZE	DIETARY FIBER (grams/serving)
BREAKFAST CEREALS:		
All-Bran	1/3 c (1oz)	8.5
Bran Buds	1/3 c (1oz)	7.9
Bran Chex	2/3 c (1oz)	4.6
Cheerios-type	1-1/4 c (1oz)	1.1
Corn Bran	2/3 c (1oz)	5.4
Cracklin' Bran	1/3 c (1oz)	4.3
Crispy Wheats n'Raisins	3/4 c (1oz)	1.3
40% Bran type	3/4 c (1oz)	4.0
Frosted Mini-Wheats	4 biscuits (1oz)	2.1
Graham Crackos	3/4 c (1oz)	1.7
Grape-nuts	1/4 c (1oz)	1.4
Heartland Natural Cereal, Plain	1/4 c (1oz)	1.3
Honey Bran	1/8 c (1oz)	3.1
Most	7/8 c (1oz)	3.5
Nutri-Grain, barley	2/3 c (1oz)	1.7
Nutri-Grain, corn	3/4 c (1oz)	1.8
Nutri- Grain, rye	3/4 c (1oz)	1.8
Nutri- Grain, wheat	3/4 c (1oz)	1.8
100% bran	1/2 c (1oz)	8.4
100% natural cereal, plain	1/4 c (1oz)	1.0

Raisin bran- type	3/4 c (1oz)	4.0
Shredded wheat	2/3 c (1oz)	2.6
Tasteeos	1-1/4 c (1oz)	1.0
Total	1 c (1oz)	2.0
Wheat'n'Raisin Chex	3/4 c (1oz)	2.5
Wheat Chex	2/3 c (1oz)	2.1
Wheaties	1 c (1oz)	2.0
*Oatbran (dry)	1/4 c (1oz)	5.3
Oatmeal, regular, quick and instant, cooked	3/4 c (1oz)	1.6
Wheat Germ	1/4 c (1oz)	3.4
Cornflakes	1/1/4 c (1oz)	0.3
Rice Krispies	1 c (1oz)	0.1
Special K	1-1/3 c (1oz)	0.2
Sugar Smacks	3/4 c (1oz)	0.4
FRUITS:		
*Apple (without skin)	1 medium	2.7
*Apple (with skin)	1 medium	3.5
*Apricot (fresh)	1 medium	1.8
*Apricot (dried)	3 halves	1.4
*Banana	1 medium	2.4
Blueberries	1/2 c	2.0
Cantaloupe	1/4 melon	1.0
Cherries, sweet	10	1.2
Dates	3	1.9
*Grapefruit	1/2	1.6
*Grapes	20	0.6
*Orange	1	2.6
*Peach (with skin)	1	1.9
*Peach (without skin)	1	1.2
Pear (with skin)	1/2 large	3.1
Pear (without skin)	1/2 large	2.5
Pineapple	1/2 c	1.1
*Plums, damson	5	0.9
Prunes	3	3.0
Raisins	1/4 c	3.1
Raspberries	1/2 c	3.1
Strawberries	1 c	3.0
Watermelon juices	1 c	0.4
Apple	1/4 c (4oz)	0.4
Grapefruit	1/2 c (4oz)	0.5
Grape	1/2 c (4oz)	0.6
Orange	1/2 c (4oz)	0.5
Papaya	1/2 c (4oz)	0.8

VEGETABLES COOKED:		
Asparagus, cut	1/2 c	1.0
Beans, string, green	1/2 c	1.6
*Broccoli	1/2 c	2.2
Brussels sprouts	1/2 c	2.3
*Cabbage, red	1/2 c	1.4
*Cabbage, white	1/2 c	1.4
*Carrots	1/2 c	2.3
Cauliflower	1/2 c	1.1
Corn, canned	1/2 c	2.9
Kale leaves	1/2 c	1.4
Parsnip	1/2 c	2.7
Peas	1/2 c	3.6
*Potato (without skin)	1 medium	1.4
*Potato (with skin)	1 medium	2.5
Spinach	1/2 c	2.1
Squash, summer	1/2 c	1.4
*Sweet potatoes	1/2 medium	1.7
Turnip	1/2 c	1.6
Zucchini	1/2 c	1.8
RAW:		
Bean sprouts, soy	1/2 c	1.5
Celery, diced	1/2 c	1.1
Cucumber	1/2 c	0.4
Lettuce, sliced	1 c	0.9
Mushrooms, sliced	1/2 c	0.9
Onions, sliced	1/2 c	0.8
Pepper, green, sliced	1/2 c	0.5
Tomato	1 medium	1.5
Spinach	1/2 c	0.2
LEGUMES:		
Baked Beans, tomato sauce	1/2 c	8.8
Dried peas, cooked	1/2 c	4.7
Kidney beans, cooked	1/2 c	7.3
Lima beans, cooked/canned	1/2 c	4.5
Lentils, cooked	1/2 c	3.7
Navy beans, cooked	1/2c	6.0
BREADS:		
Bagels	1 bagel	0.6
Bran muffins	1 muffin	2.5
Cracked wheat	1 slice	1.0

Crisp bread, rye	2 crackers	2.0
Crisp bread, wheat	2 crackers	1.8
French bread	1 slice	0.7
Italian bread	1 slice	0.3
Mixed grain	1 slice	0.9
Oatmeal	1 slice	0.5
Pita bread (5'')	1 piece	0.4
Pumpnickel Bread	1 slice	1.0
Raisin Bread	1 slice	0.6
Rye Bread	1 slice	0.8
White Bread	1 slice	0.4
Whole wheat bread	1 slice	1.4
COOKED PASTA& RICE:		
Macaroni	1 c	1.0
Rice, brown	1/2 c	1.0
Rice, polished	1/2 c	0.2
Spaghetti (regular)	1 c	1.1
Spaghetti (whole bread)	1 c	3.9
GRAIN PRODUCTS:		
Barley, dry	1-1/2 c tbsp.	1.4
Cornmeal, degerm, yel	2 tbsp.	1.6
Cracker, graham	2 squares	1.4
Cracker, rye, wafer	3 wafers	2.3
Cracker, whole wheat	6 crackers	2.2
Flour, oat, whole	1-1/2 tbsp.	2.5
Flour, rye, wafer	1-1/2 tbsp.	2.5
Flour, rye, dark	1-1/2 tbsp.	0.5
Flour, whole meal (100%)	1-1/2 tbsp.	1.8
Flour, whole wheat (85%)	1-1/2 tbsp.	1.4
Muffin, whole wheat	1 muffin	2.2
Popcorn, popped	3 c	3.0
Roll, whole wheat	1 roll	1.6
Wheat bran	1/2 c	11.9
Wheat bran	1 tbsp.	1.5
NUTS:		
Almonds	3/4 c	14.3
	1 tbsp.	1.1
Chestnuts	12 nuts	6.8
	3 nuts	1.8
Peanuts, roasted	2/3 c	9.3
	1 tbsp.	0.8

Pecans	4.5 c	7.2
	1 tbsp.	0.5

SAMPLE MENU:

BREAKFAST:	PORTION SIZE:	DIETARY FIBER:
Orange juice	1/2 c	0.3
Banana	1	2.3
40% Bran Flakes	1oz	3.9
Hard cooked eggs	1	0
Wheat bread	1 slice	2.6
Low-fat milk	8 oz	0
Margarine	1 tsp	0
Jelly	1 packet	0
Coffee, sugar, salt, pepper		
		9.1 SUBTOTAL
LUNCH:		
Vegetable soup	7.5 oz	1.4
Hamburger	3 oz	0
Hamburger bun	1	1.2
Potato puffs	1/2 cup	1.6
Catsup	1 packet	0
Lettuce leaf	1 leaf	0.8
Sliced tomato	2 slices	0
French dressing	1 packet	0.1
Fresh apple	1	2.5
Iced tea	1 cup	0
Sugar, salt, pepper		
		7.6 SUBTOTAL
DINNER:		
Cranberry juice	1/2 c	0.4
Chicken drumsticks	2	0
Baked potato (with skin)	1 medium	4
Green peas	1/2 c	3.6
Tossed green salad	1 small	1.5
Italian dressing	1 packet	0
Fresh orange	1	3
Wheat bread	1 slice	2.6
Margarine	1 tsp	0
Tea	1 cup	0
Sugar, salt, pepper		
		15.1 SUBTOTAL
SNACK:		
Graham crackers	2 squares	1.4
Low-fat milk	1 cup	0
		1.4 subtotal
Daily total dietary fiber (gr)		33.2