



## Diabetes Mellitus – Type 2

### WHAT IS IT?

Diabetes is a group of common clinical conditions with elevated blood glucose due to abnormalities in the metabolism of sugar. Type 2 diabetics have insulin in their systems, but their tissues are often resistant to its action. In addition to high blood sugar, diabetic patients can develop kidney, eye, nerve and heart disease especially when they have the condition for many years.

### DIAGNOSIS

Diabetes is typically diagnosed by blood tests. A random blood sugar greater than 200, fasting blood sugar greater than 126, or a 3-month "average" blood sugar, called HgbA1C, greater than 6.5 are all diagnostic of diabetes.

### TREATMENT

Integrative care is ideal for diabetes management as it incorporates many modes of optimizing health.

#### Lifestyle

- ☐ **Exercise:** Exercising regularly can prevent the onset of diabetes and also improve its control once diagnosed. Aim for 30 minutes of moderate exercise most days of the week.
- ☐ **Low glycemic index and load:** These are a score determined for each food. Higher glycemic load foods cause a greater elevation in blood sugar. Eating a low glycemic load diet can improve levels.

#### Medications

- ☐ Many pharmaceutical medications enhance the body's natural insulin or replace it altogether. Common side effects of most diabetes medications include hypoglycemia, or sugars that are too low. Be sure to discuss your diabetes medications with your doctor. Understand how each one acts in the body and what the optimal time is to take each.

### Botanical or Dietary Supplements

- ☐ Chromium is found in a variety of foods but has been shown to lower blood sugar when taken at higher doses (>200mcg/day) in supplement form. It may cause abdominal discomfort and should be avoided at very high doses in patients with kidney or liver disease.
- ☐ Alpha-Lipoic Acid (ALA) has been shown to improve nerve pain from diabetes. The best science for this is with an intravenous formulation, but it may also be tried orally at 600-1200mg/day.
- ☐ Cinnamon cassia, the most popular form of cinnamon in the United States, has been shown to lower fasting blood sugar. Dosing is about 2000 mg/day divided and optimally an aqueous extract is used if taken in supplement form.
- ☐ Fenugreek is a common cooking spice in Middle Eastern cuisine, fenugreek has been shown to lower blood sugar and cholesterol levels. Dosing depends on the formulation used and it may cause urine to smell like maple syrup.
- ☐ Gymnema leaves have been chewed in India for years and have earned the name "sugar destroyer." It has been shown to lower glucose levels and can be ingested as a tea three times daily or a supplement 400-600mg/day.

Make sure to ask your health care provider exactly how and when you should take this product.

### My Health Care Provider's Notes:

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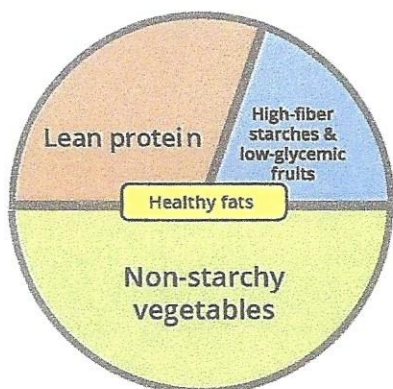
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## Balanced Meals for Diabetics

A **balanced food plan** is recommended for diabetics, in which 40% of the daily calories consumed are carbohydrates, 30% lean protein, and 30% healthy fat. The graphic illustrates a balanced meal plate for achieving these proportions.



This guide also offers many sample meal and snack choices that follow the 40–30–30 proportions and include low-glycemic foods. Feel free to substitute your favorite fruits, vegetables, and proteins.

- A 1500–1800 calorie a day meal plan (good for an inactive person who weighs between 130–160 lbs.) could be broken into 3 meals of roughly 400–500 calories and about 100–200 per snack.
- If the person is active or weighs between 170–200 lbs. the daily requirements are approximately 2,000–2,500 calories and could be broken down to 600 calories per meal and several snacks during the day.
- At less than 130 lbs, the caloric requirements are between 1400–1600 calories a day.

### BREAKFAST CHOICES

1 cup oatmeal, 6 oz. organic, low-fat milk or substitute soy or goat milk, 2 tbsp. fresh ground flax meal

2 oz. wild smoked salmon or trout, 1 tbsp. reduced-fat

organic cream cheese or soft goat cheese, small whole wheat pita pocket or whole wheat English muffin

2 soft boiled or poached eggs, 1 slice whole grain toast, green tea

1 cup hot brown rice cereal,  $\frac{3}{4}$  cup berries,  $\frac{1}{4}$  cup almonds or walnuts

8 oz. no-fat plain yogurt, 1 cup berries, 1 tbsp. flax oil or  $\frac{1}{4}$  cup nuts

1 cup organic low-fat cottage cheese, 1 tbsp flax oil,  $\frac{3}{4}$  cup berries

1 whole grain bran muffin, 1 tbsp. almond butter or natural peanut butter, 6 oz. organic milk or soymilk

Egg white omelette with mushrooms, green pepper, and onions, 1 oz. goat cheese, 1 slice whole grain toast or 1 fruit

Protein shake with 2 scoops protein powder, organic milk, soymilk, or yogurt, and 1 fruit

$\frac{3}{4}$  cup high-fiber, low-sugar cold cereal such as Kashi, All-Bran, or Grape-Nuts with  $\frac{1}{4}$  cup almonds or walnuts, 1 cup organic skim milk, soy or goat milk and  $\frac{3}{4}$  cup berries

Whole grain waffle with soy and flax meal, fresh berries, a dribble of syrup or all-fruit jam

3–4 Ryvetta crackers with goat cheese and cut up strawberries on top

Breakfast parfait with 4 oz. plain yogurt,  $\frac{1}{2}$  cup high fiber cereal, and  $\frac{1}{2}$  cup berries

$\frac{3}{4}$  cup Bulgar wheat hot cereal, 6 oz. skim milk,  $\frac{3}{4}$  cup walnuts,  $\frac{1}{2}$  pink grapefruit





## LUNCH & DINNER CHOICES

4 slices white turkey meat, Dijon mustard and tomato on 1 slice Ezekiel\* bread or small pita, spinach salad with flax & olive oil dressing

4 oz. crabmeat, 1 tbsp. low-fat mayonnaise, chopped celery, romaine lettuce, tomato, 1 slice whole grain bread, side mixed green salad

Stir fried tofu with snow peas, onion, bean sprouts, red pepper over ½ cup brown rice

2 bean burritos with green salad with flax & olive oil vinaigrette

Mixed grilled veggie wrap with low-fat cheese and side spinach salad with olive oil & vinegar dressing

Seasoned sardines in water with mixed green salad and low-fat dressing choice

4 oz. broiled red snapper, steamed broccoli, baked yams

Large mixed green salad with olive oil and lemon juice, 4 oz. free range chicken on top with chopped yellow and sweet red peppers

4 oz. stuffed flounder wrapped with spinach and lowfat feta cheese over ½ cup brown rice mixed with carrots and zucchini

Lentil and brown rice casserole with mixed vegetables and 2 oz. goat cheese

Chicken salad sandwich made with free-range chicken, low-fat canola mayonnaise on high fiber bread with lettuce and tomato and roasted vegetables on the side

Garden vegetable or free-range turkey, buffalo, or veni-

son burger on whole wheat bun with lettuce, tomato, and onion, and veggie slaw on the side

Quinoa bean salad with chopped celery, onion, carrots, zucchini, and white beans over romaine lettuce

Mixed green salad with 2 oz. goat cheese, cut up pear, ¼ cup walnuts, and poppy seed dressing, whole grain crackers and vegetable or lentil soup

Brown rice stir fry with vegetable medley and black beans seasoned with soy sauce or Bragg's amino acid dressing

5 oz. tempeh with stewed tomatoes, 1 cup cooked vegetables, over ½ cup whole wheat pasta sauteed with onions, garlic and olive oil

4–6 oz. white fish baked or broiled seasoned with olive oil, cilantro, and soy sauce or Bragg's amino acid dressing, with roasted kale and sweet potatoes



## Food Shopping Tips for Healthy Living

**The key to eating well with regularity** is preparation. It is now easier than ever for families to eat healthy, nutritious meals. Most ordinary supermarkets now carry organic and healthier brands.

FDA regulations are making companies list trans fat use and other harmful ingredients on labels. There are many selections of pre-cut vegetables that can easily be steamed and tossed with a little flax or olive oil and some culinary herbs for a quick side dish. The key is to know what to look for.

The following are some general shopping tips:

### PRODUCE

Organic produce might be more expensive, but it can be a wise purchase, especially with certain foods that naturally store a lot of pesticides. Some examples are: spinach, lettuce, apples, bell peppers, celery, imported grapes, potatoes, and strawberries. The Environmental Working Group provides a shopper's guide to pesticides at <http://www.foodnews.org/>.

Ideally, all produce should be fresh, ripe, in season and locally grown. Frozen organic fruit is a great choice for foods like berries that are very nutritious, low glycemic, but often out of season in most parts of the country.

### MEAT, POULTRY, EGGS, AND DAIRY

Although harder to find than produce, free-range, hormone and antibiotic-free meats and organic milk should be used whenever possible.

Eggs should also be organic or from free-range, antibiotic and hormone-free poultry. Because it isn't always easy to get fish high in omega-3 fatty acids into our diets, it is especially beneficial to choose eggs labeled as high omega-3, which means that these important fatty acids were fed to the chickens. Other practical sources of omega-3 fatty acids are walnuts, flax oil, and flax seeds.

### SEAFOOD

It is becoming increasingly more important to eat wild-caught, non-farm-raised fish or seafood and especially limit those fish high in mercury from the diet such as tuna, swordfish, and shark.

For people who are used to eating tuna fish several times a week, canned wild salmon which is now in many traditional super markets makes a good alternative. It can be prepared the same way as traditional tuna salad and is high in omega-3 fatty acids.

### BUY WHOLE FRESH FOODS

It is always best to buy whole fresh foods whenever possible. In cases where this is not always practical, it is more nutritious to use frozen than canned foods. Certain foods like beans, broths, and sauces are fine from cans or jars when you are rushed and don't have time to prepare from scratch.

### TO AVOID

The most important foods to avoid are non-domestic produce as they are almost always sprayed with pesticides (some with DDT which is banned in the US), foods with additives, colors, preservatives, emulsifiers, chemical names that you don't understand, and packaged foods with multiple ingredients including hydrogenated fats, corn syrup and artificial sweeteners.

Look for sugar in products such as sucrose, glucose, dextrose, fructose, honey, molasses, raw and cane sugar and minimize the amounts consumed.





## Shopping List: Food to Keep on Hand

Having the right foods on hand makes it easy to put together quick, healthy meals.

### REFRIGERATOR

#### Dairy & Eggs

- Skim or soy milk
- Low-fat cottage cheese
- String cheese
- Plain yogurt
- Low-fat ricotta cheese
- Eggs
- Tempeh
- Tofu

#### Produce

- Salad greens
- Onions
- Celery
- Garlic
- Spinach
- Tomatoes
- Cucumbers
- Peppers
- Berries in season
- Apples
- Oranges
- Grapefruit
- Avocado
- Other assorted non-starchy vegetables

#### Meat & Fish

- Smoked wild salmon
- Chicken breast or ground turkey
- Fresh fish

#### Breads

- Ezekiel or stone ground whole wheat bread

- Whole wheat wraps or pita pockets

#### Other

- Hummus
- Flax oil

### FREEZER

- Veggie burgers
- Frozen edamame
- Frozen berries when not in season
- Frozen veggies if fresh not available

### PANTRY

#### Grains & Grain Products

- Whole grain crackers
- Brown rice
- Quinoa
- Whole wheat pasta
- Oatmeal
- High fiber cereal

#### Nuts & Legumes

- Almonds
- Walnuts
- Beans, all varieties

#### Spreads, Dressings & Condiments

- Almond or natural peanut butter
- All fruit jam with no additional sugar added
- Marinara sauce (no sugar added)
- Mustard
- Balsamic vinegar
- Olive oil

- Paul Newman's light dressings
- Salsa

#### Other

- Vegetable and chicken broth (low sodium)
- Cans of wild salmon and tuna
- Different types of herbal and green, white, and red teas
- Stevia (an herbal sweetener that won't raise insulin)

### SPICES

- Bay leaf/basil
- Cardamom
- Cilantro
- Celery seed
- Cinnamon
- Cumin
- Cloves
- Dandelion
- Dill
- Dry mustard
- Fennel
- Fenugreek
- Garlic
- Ginger root
- Oregano
- Parsley
- Rosemary
- Saffron
- Savory
- Sea salt
- Tarragon
- Thyme
- Turmeric



## SNACKS

Almond or natural peanut butter on apple or celery

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Protein shake with freshly ground flax seeds

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¼ cup of nuts with one fruit

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8 small whole grain crackers with 1 oz. low-fat cheese or cheese stick

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1 serving soy chips or baked lays with salsa

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Hard-boiled egg with cup up vegetables

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2 oz. lean hormone-free turkey, ham or cheese rolled with mustard

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Balanced protein bar without corn syrup or hydrogenated oil

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Guacamole and 1 serving baked chips

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1 serving baked chips with hummus

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1 serving edamame

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1 cup Greek yogurt with apples, or berries

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½ cup mixed trail mix using nuts, berries, coconut pieces, and high-fiber cereal

## BEVERAGES

Purified water

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Seltzer plain or flavored

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Organic skim milk, soymilk, goat milk, or almond milk

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Green, red, white teas best

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Herbal non-caffeinated tea

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Decaffeinated coffee or tea

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Green drinks—high in chlorophyll,\* which helps keep the system alkaline\*

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Fresh mixed vegetable juice (low in carrot and beet which are high in sugar)