



How to Overcome Diabetes Naturally

ULTRAMETABOLISM
The Simple Plan For Automatic
Weight Loss

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Diabetes: A Preventable and Reversible Epidemic

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The diabetes epidemic is accelerating along with the obesity epidemic. This is an entirely preventable lifestyle disease. Type 2 diabetes, or what was once called adult onset diabetes, is an increasing worldwide epidemic affecting nearly 100 million people and over 20 million Americans. We are seeing increasing rates of Type 2 diabetes, especially in children, a group in which the incidence of the disease has increased over 1000% in the last decade and in which it was virtually unknown before this generation. One in three children born today will have diabetes in his or her lifetime. In a report in the *New England Journal of Medicine*, Walter Willett, MD, PhD and his colleagues from the Harvard School of Public Health demonstrated that 91% of all Type 2 disease could be prevented through improvements in lifestyle and diet.

The Road to Diabetes Starts in Childhood

The condition is often undiagnosed until its later stages. Insulin resistance, or the state in which the body becomes resistant to the effects of insulin, is the main cause of the disease. When our diet is full of empty calories from an abundance of quickly absorbed sugars and carbohydrates (bread, pasta, rice, potatoes, etc.), the body slowly becomes resistant to the effects of insulin, thus needing more to do the same job of keeping blood sugar levels even. High insulin levels are the first sign of a problem. The high insulin level leads to an appetite that is out of control and increasing weight gain around the belly.

High levels of insulin precede Type 2 diabetes by decades. Insulin resistance and the metabolic syndrome associated with it is often accompanied by increasing central obesity, fatigue after meals, sugar cravings, high triglycerides, low HDL, high blood pressure and problems with blood clotting, as well as increased inflammation. These clues can often be picked up decades before anyone ever gets diabetes and may help you prevent diabetes entirely. If you have a family history of obesity (especially around the belly), diabetes, early heart disease or dementia, you are even more prone to this problem.

Most people know about the common complications of diabetes such as heart attacks, strokes, amputations, blindness, kidney failure and nerve damage. Some may even know that diabetes increases your risk of dementia and cancers and can cause impotence. But most people don't realize that insulin resistance, or pre-diabetes, can be just as bad, causing heart attacks, strokes, dementia, cancer and impotence decades before you get diabetes. In fact, many people with pre-diabetes never get diabetes, but they are at severe risk just the same.

Living in Harmony with Our Genes

We are susceptible to diabetes because we are highly adapted to a nutrient-dense, low-sugar, high-fiber diet rich in omega-3 fats. When we eat out of harmony with our genes, we turn on genes that promote diabetes. The Pima Indians in Arizona were thin and fit 100 years ago, living on more than 70% carbohydrates. They ate high-fiber, unprocessed plant foods, and they had no diabetes or obesity. Now, in one generation, they are nearly all obese and

80% have diabetes by the time they are 30 years old because they are eating foods that turn on all the wrong gene messages — foods such as sugars, trans fats, white flour and other processed foods.

Diabetes Is Reversible: Diagnose Problems as Early as Possible

If you have pre-diabetes or even diabetes, however, new science shows us that it is reversible through an aggressive approach of lifestyle changes, nutritional support and, occasionally, medications.

It is important to diagnose Type 2 diabetes early, but it is often not diagnosed until very late. In fact, all doctors should aggressively diagnose pre-diabetes decades before diabetes occurs and before any damage is done to your body. Damage begins with even slight changes in insulin and blood sugar levels. Unfortunately, there is a continuum of risk from slightly abnormal insulin and blood sugar to full-blown diabetes. The disease should be addressed as early as possible on the continuum.

In a recent study, anyone with a fasting blood sugar level of over 87 was at increased risk of diabetes. The lowest-risk group had a blood sugar level of less than 81. Most doctors are not concerned until the blood sugar level is over 110 or, worse, over 126, which is diabetes. Therefore, I recommend early testing for anyone who has a family history of Type 2 diabetes, central abdominal weight gain or abnormal cholesterol. Don't wait until your blood sugar level is high.

Testing for Insulin Resistance and Diabetes

The tests I recommend include the following:

1. The **insulin glucose challenge test** with two-hour glucose challenge, 75 grams, measures fasting blood sugar level, one- and two-hour blood sugar levels, AND insulin. Your blood sugar should be less than 80 fasting and should not rise above 110 or 120 after one to two hours. Your insulin should be less than 5 fasting and should not rise above 30 after one to two hours. I recommend this test for everyone over 50 and for anyone with any risk of insulin resistance, even children.
2. The **hemoglobin A1C** is an important measure of glycated hemoglobin, which can be an early indicator of sugar problems. It measures sugars and proteins combining into glycated proteins called AGEs (advanced glycation end products), like the crust on bread or the crispy top on crème brûlée. These create inflammation and oxidative stress throughout the body, and promote heart disease, dementia and accelerating aging. The hemoglobin A1C should ideally be less than 5.5. Anything over 6 is considered diabetes.
3. **Lipid profiles** are important. An HDL, or “good,” cholesterol result under 60 and triglycerides over 100 should make you suspicious of insulin resistance. An HDL level under 40 and a triglyceride level over 150 is usually diagnostic.
4. **An NMR lipid profile** identifies the size of your cholesterol particles. With insulin resistance or Type 2 diabetes, you develop small LDL and HDL cholesterol particles. They are much more dangerous than larger particles and lead to increased risk of atherosclerosis, or heart disease.

5. **High-sensitivity C-reactive protein** is a measure of inflammation, one of the classic conditions that is both the cause and the result of insulin resistance and diabetes. It should be less than 1 and is often associated with diabetes. In fact, anyone with a high C-reactive protein has a 1700% increased risk of getting diabetes.
6. **Homocysteine** is often abnormal with diabetics. It is a measure of folic acid deficiency. It should be between 6 and 8.
7. **Fibrinogen** measures your risk of clotting, which can cause heart attacks and strokes. It is also a sign of inflammation and is associated with insulin resistance and diabetes. It should be less than 300.
8. **Ferritin** levels are often elevated. They should be less than 150. Ferritin is a nonspecific marker of inflammation associated with diabetes. It also can mean an overload of iron in the body.
9. **Uric acid** level should be less than 6. Higher levels indicate problems with insulin resistance. This can lead to gout, which is related to insulin resistance and Type 2 diabetes.
10. **Elevated liver function** results from insulin resistance. This is the major cause of fatty liver and elevated liver function tests in this country. This is entirely due to the sugar and carbohydrates in our diet that cause fatty liver, liver damage and even cirrhosis.

Dietary Recommendations

Eating in a way that balances your blood sugar, reduces inflammation and oxidative stress, and improves your liver detoxification is the key to preventing and reversing insulin resistance and diabetes. This is a way of eating that is based on a whole-foods diet, high in fiber, low in sugars and flours, and rich in colorful fruits and vegetables. It is a way of eating that has a low glycemic load and includes anti-inflammatory, antioxidant and detoxifying foods. It includes plenty of omega-3 fats and olive oil, soy products, beans, nuts and seeds. All these foods help prevent and reverse diabetes and insulin resistance. Here are the basic guidelines for those who own a body! This is the way of eating that turns on all the right gene messages, promotes a healthy metabolism, and prevents aging and age-related diseases such as diabetes and heart disease.

The UltraMetabolism Prescription: General Principles

Meal Timing

- **Eat protein for breakfast** every day, such as whole omega-3 eggs, a protein shake (soy) or nut butters.
- **Eat something every four hours** to keep your insulin and glucose levels normal.
- **Eat small protein snacks** in the morning and in the afternoon, such as a handful of almonds.
- **Finish eating two to three hours before bedtime.** If you have a snack earlier in the day, you won't be as hungry, even if you eat your bigger meal a little later.

Meal Composition

- **Controlling the glycemic load** of your meals is very important. You can do this by combining adequate protein, fats and whole-food carbohydrates from vegetables, legumes, nuts, seeds and fruit at every meal or snack. It is most important to avoid eating quickly absorbed carbohydrates alone, as they raise your sugar and insulin levels.

Travel Suggestions

- **Almonds** in a ziplock bag are a useful emergency snack. Two handfuls are a good portion for a snack. This can be eaten with a piece of **fruit**. Real food is the best.

Basic UltraMetabolism Whole Real Food Principles

Choose from a variety of the following foods:

- Choose **organic produce and animal products** whenever possible.
- Coldwater **fish** such as [salmon](#), halibut and sable contain an abundance of **beneficial essential fatty acids**, omega-3 oils that reduce inflammation. A great selection of smaller, wild Alaskan salmon, sable and halibut high in omega-3 fats and low in toxins is available from www.vitalchoice.com. Canned wild salmon is a great emergency food.
- Eat high-quality **protein** such as fish, especially fatty, coldwater fish such as salmon, sable, small halibut, herring and sardines, as well as shellfish.
- Eat up to eight **omega-3-rich eggs** per week.
- Create meals **high in low-glycemic legumes** such as lentils, chickpeas and soybeans (try edamame, the Japanese soybeans in a pod, quickly steamed with a little salt, as a snack). These foods slow the release of sugars into the bloodstream, helping to prevent the excess insulin release that can lead to hyperinsulinemia and its related health concerns, including poor heart health, obesity, high blood pressure, high LDL “bad” cholesterol and low HDL “good” cholesterol.
- Eat a cornucopia of **fresh fruits and vegetables** teeming with phytonutrients — carotenoids, flavonoids and polyphenols — associated with a lower incidence of nearly all health problems, including obesity and aging.
- Use more **low-burning, low-glycemic vegetables** such as asparagus, broccoli, kale, spinach, cabbage and Brussels sprouts.
- Berries, cherries, peaches, plums, rhubarb, pears and apples are **optimal fruits**; cantaloupes and other melons, grapes and kiwifruit are suitable; however, they

contain more sugar. Organic frozen berries (Cascadian Farm) can be used in your protein shakes.

- Focus on **anti-inflammatory foods** including wild fish and other sources of omega-3 fats, red and purple berries (these are rich in polyphenols), dark green leafy vegetables, orange sweet potatoes and nuts.
- Eat more **antioxidant-rich foods** including orange and yellow vegetables, dark green leafy vegetables (kale, collards, spinach, etc.), anthocyanidins (berries, beets, grapes, pomegranate), purple grapes containing trans-resveratrol, blueberries, bilberries, cranberries and cherries. In fact, antioxidants are in all colorful fruits and vegetables.
- Include **detoxifying foods** in your diet, such as cruciferous vegetables (broccoli, kale, collards, Brussels sprouts, cauliflower, bok choy, Chinese cabbage, Chinese broccoli), green tea, watercress, dandelion greens, cilantro, artichokes, garlic, citrus peels, pomegranate and even cocoa.
- Use **herbs** such as rosemary, ginger and turmeric, which are powerful antioxidants, anti-inflammatories and detoxifiers.
- **Avoid excessive quantities of meat.** Use lean organic or grass-fed (when possible) animal products — eggs, beef, chicken, pork, lamb, buffalo, ostrich, etc. There are good sources at Whole Foods or other local health food stores (also see mail-order sources).
- Rich **garlic and onions** are noted for their cholesterol- and blood pressure–lowering and antioxidant effects. They also have anti-inflammatory properties and enhance detoxification.
- **A diet high in fiber** further helps to stabilize blood sugar by slowing the absorption of carbohydrates and supports a healthy lower bowel and digestive tract. Try to gradually increase fiber to 30–50 grams a day, and use predominantly soluble or viscous fiber (legumes, nuts, seeds, whole grains, vegetables and fruit), which slows sugar absorption from the gut.
- Stay **high in extra-virgin olive oil**, which contains anti-inflammatories and antioxidants. It should be your main oil.
- **Soy products** such as soy milk, soybeans and tofu are rich in antioxidants that can reduce cancer risk, lower cholesterol, and improve insulin and blood sugar metabolism.
- Increase your intake of **nuts and seeds**, including raw walnuts, almonds, macadamia nuts, and pumpkin and flax seeds.

- And yes ... **chocolate**, but only the darkest, most luxurious kind and only two to three ounces per day. It should be 70% cocoa.

Decrease (or ideally eliminate) your intake of the following foods:

- **All processed or junk foods**
- Foods containing **refined white flour and sugar**, such as breads, cereals (Corn Flakes, Frosted Flakes, Puffed Wheat and sweetened granola), flour-based pastas, bagels and pastries
- All foods containing **high-fructose corn syrup**
- All **artificial sweeteners** (aspartame, Sorbitol, etc.)
- **Starchy, high-glycemic cooked vegetables**, such as potatoes, corn and root vegetables such as rutabagas, parsnips and turnips
- **Processed fruit juices**, which are often loaded with sugars (Try juicing your own carrots, celery and beets instead, or try other fruit and vegetable combinations.)
- **Processed canned vegetables** (usually very high in sodium)
- Foods containing **hydrogenated or partially hydrogenated oils** (which become trans fatty acids in the bloodstream), such as most crackers, chips, cakes, candies, cookies, doughnuts and processed cheeses
- **Processed oils** such as corn, safflower, sunflower, peanut and canola
- **Red meats (unless organic or grass fed) and organ meats**
- **Large predatory fish and river fish**, which contain mercury and other contaminants in unacceptable amounts, including swordfish, tuna, tilefish and shark
- **Most dairy** (Substitute unsweetened, gluten-free soy milk, almond milk or hazelnut milk products.)
- **Most caffeine** (Try to switch to green tea or have a half cup of coffee per day.)
- **Alcohol** — limit to no more than three glasses of red wine per week

Exercise

Exercise is critical for the improvement of insulin sensitivity. It helps reduce central body fat, improving sugar metabolism. Walking after dinner is a powerful way to reduce your

blood sugar. Regular exercise can help prevent diabetes, or if you already have diabetes, regular exercise will help reduce your risk of complications diabetes and can even reverse the disease. Ideally, you should walk for 30 minutes every day.

More vigorous and sustained exercise is often needed to reverse severe insulin resistance or diabetes. Doing sustained aerobic exercise (70–85% of your target heart rate, which is 220 minus your age multiplied by 0.70 to 0.85) for up to 60 minutes, five to six times a week, is often necessary to get diabetes under full control.

Interval training can be an added benefit to helping improve your metabolism and mitochondrial function. It helps to increase efficient calorie burning, so that you also burn more calories and energy during the time you are NOT exercising. This is described in detail in UltraMetabolism.

Strength training helps maintain and build muscle, which can also help also with your overall blood sugar and energy metabolism.

Supplementation

Nutritional supplements can be very effective in Type 2 diabetes and insulin resistance. I recommend a number of different things depending on the severity of the problem, including the following:

1. A multivitamin and mineral.
2. Calcium, magnesium and vitamin D.
3. Fish oil 1000–4000 mg per day improves insulin sensitivity and cholesterol, and reduces inflammation.)
4. Extra magnesium 200–600 mg per day helps with glucose metabolism and is often deficient in diabetics.
5. Chromium 500–1000 mcg is very important for proper sugar metabolism.
6. Antioxidants such as vitamin C and vitamin E are important in helping to reduce blood sugar and improve blood sugar balance.
7. B-complex vitamins are important and are part of a good multivitamin. Extra vitamin B6 (50–150 mg per day) and B12 (1000–3000 mcg) are especially helpful in protecting against diabetic neuropathy or nerve damage.
8. Biotin 2000–4000 mcg per day enhances insulin sensitivity.
9. I also encourage people to use alpha lipoic acid, a powerful antioxidant, 300 mg twice per day, which can reduce blood sugar significantly. It also can be effective for diabetic nerve damage or neuropathy.
10. Evening primrose oil (gamma linolenic acid) 500–1000 mg twice per day is important to overcome deficiencies common in diabetics.
11. I encourage people to use cinnamon as a supplement. One to two 500 mg tablets twice per day can help control blood sugar levels.
12. Other herbs and supplements that can be helpful include green tea, ginseng, bitter melon, gymnema, bilberry, ginkgo, onions and garlic. Fenugreek can also be used to help with improving blood sugar levels, although large amounts must be taken.
13. Banaba leaf (*Lagerstroemia speciosa*) can be an effective herb. Take 24 mg twice per day.

14. I recommend konjac fiber, such as PGX (WellBetX) as an additional supplement, four capsules 10 minutes before meals with a glass of water. This helps reduce blood sugar after meals and improves long-term blood sugar control while reducing appetite and cholesterol.

Stress Management

Mind and body techniques are also helpful, to relieve the stress that plays a dramatic role in blood sugar imbalances. Stress triggers insulin resistance, promotes weight gain around the middle, increases inflammation and ultimately can cause diabetes. It is essential to engage in relaxation practices on a regular basis, such as yoga, breathing, progressive muscle relaxation, guided imagery, hot baths, exercise, meditation, massage, biofeedback, hypnosis or even making love. Your survival depends on it.

Medications

A number of medications may be helpful. There are many different classes of medications, each with their own effects. Sometimes combinations are helpful.

The main classes are as follow:

The **biguanides**, especially metformin (Glucophage), are one of the best medications to improve insulin sensitivity. Metformin can help lower blood sugars by improving your cells' response to insulin.

Thiazolidinedione drugs, including rosiglitazone and pioglitazone (Avandia and Actos), are a new class of diabetes medication that can help improve uptake of glucose by the cells by making you more insulin sensitive. They also reduce inflammation and help improve metabolism by working on the PPAR, a special class of cell receptors that control metabolism. They can cause weight gain and liver damage.

Alpha-glucosidase inhibitors include acarbose and miglitol, which can help lower the absorption of sugar and carbohydrates in the intestines, reducing the absorption of sugar after meals.

Sulfonylureas are older medications and include glipizide, glyburide and glimepiride. I strongly recommend against these medications because they cause further insulin production, only reducing your blood sugar levels in the short term but leading to worsening of the syndrome over the long term. They have also been linked to high risk of heart attacks, which you are trying to prevent. They treat the symptoms rather than the cause.

Insulin is the last resort after all other measures have failed and often leads to a slippery slope of weight gain, increased cholesterol and high blood pressure. Many patients have been able to come off insulin entirely if treated early and aggressively.

Summary

Diabetes and its precursor, insulin resistance, are looming as the major threat to our health in the 21st century. This is a tragic consequence of our toxic food environment, our unmitigated exposure to stress and our sedentary lifestyle. However, these problems are completely preventable and often reversible through aggressive lifestyle changes, supplements, exercise and stress management.

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