

BPA Linked to Insulin Resistance, Diabetes in Humans

A new study now links “safe” levels of Bisphenol-A (BPA) and the development of type-2 diabetes, insulin resistance, and other metabolic disorders. The Food and Drug Administration considers BPA safe at oral exposure levels of 50 micrograms per every kilogram of body weight every day. Published in the *Journal of the Endocrine Society*, researchers based at the University of Missouri wanted to determine if humans exposed to BPA exhibited the same symptoms as mice. Frederick vom Saal, an endocrinologist at the MU College of Arts and Science and co-author on the study, thinks this study provides a compelling argument that they might.

This exploratory study needs to be replicated because it suggests that BPA exposure at a dose considered safe by U.S. regulators could alter glucose-stimulated insulin responses in humans...Our study is an initial step toward investigating whether exposure to endocrine disrupting chemicals, such as BPA, contributes to insulin resistance and eventually Type 2 diabetes.”

Methods

For this study, researchers gave non-diabetic men and postmenopausal women oral doses of the FDA’s safe level of BPA. They also administered a placebo. Those who were given the BPA had altered insulin responses. Those results occurred both when scientists used an oral glucose tolerance test and a hyperglycemic clamp.

Related: [How to Detox From Plastics and Other Endocrine Disruptors](#)

Bad News BPA

Most people know BPA is bad, even if they don't know why it's bad. In addition to insulin resistance, the chemical has been associated with inflammatory bowel disease, obesity, cancer, and a whole host of hormonal issues. It's been banned in the majority of children's products, but the alternatives to BPA aren't much better. A recently released Washington State University study found that BPA alternatives like bisphenol-S caused genetic abnormalities similar to those caused by the product they're replacing.

Related: [How to Heal the Gut](#)

Even something as simple as a cash register receipt can be a big deal. The BPA found in register receipts is unbounded, meaning it is loose and more readily absorbed through the skin. The Minnesota Pollution Control Agency conducted receipts tests in 2014 and found that the thermal paper used in 18 hospitality business had from 54–79 micrograms of BPA per square centimeter of paper. That's more than the accepted safe oral dose of BPA.

Death By a Thousand Cuts

At this point, it's plastics. There are several different types of plastic, and not all of them have inspired a cause for concern. Part of that can be attributed to a desire from good enough by plastics manufacturers and government officials. But good enough has so far led to a steady increase in mystery illnesses that linger and seriously impact a person's quality of life.

Sources:

- [BPA exposure in U.S.-approved levels may alter insulin](#)

- [response in non-diabetic adults – MU News Bureau](#)
- [Experimental BPA Exposure and Glucose-Stimulated Insulin Response in Adult Men and Women – Oxford Academic](#)
 - [How to Detox From Plastics and Other Endocrine Disruptors – Organic Lifestyle Magazine](#)
 - [BPA in thermal paper – Minnesota Pollution Control Agency](#)
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Radical Diet Can Reverse Type 2 Diabetes – Groundbreaking New Study

The number of people with type 2 diabetes has been on the rise for some time now, and it's believed that this rise is directly related to the obesity epidemic. Fat accumulated in the abdomen impedes pancreatic function, which makes sense when you consider how glands work, and what happens when a gland does not have enough space to function properly. If you squeeze a gland it will secrete hormones, so consider how excessive fat accumulation plays a role when putting pressure on glands.

These findings are very exciting. They could revolutionise the way type 2 diabetes is treated. This builds on the work into the underlying cause of the condition, so that we can target management effectively. Substantial weight loss results in reduced fat inside the liver and pancreas, allowing these organs to return to normal function. What we're seeing ... is that losing weight isn't just linked to better management of type 2 diabetes: significant weight loss could actually result in lasting remission.” – [Prof Roy](#)

[Taylor, Newcastle University, lead researcher](#)

This is huge! We now have the scientific community recognizing that diabetes can be reversed by diet. Nine out of 10 people in the trial who lost 15kg (33 lbs) or more put their type 2 diabetes into remission – no more insulin!

Restricted vs. Healthy

One thing to consider though is that reducing calories is not enough. It may be enough to reverse the worst aspects of a disease, but for those wanting to enjoy a body in complete homeostasis, toxins need to be eliminated and nutrition needs to be assimilated. We would bet anything that the one person out of the ten people who did not go into remission would have healed with the right diet. You are what you eat, and science is starting to see this, to an extent. New studies are regularly coming out about gut microbes, how diet effect them, and how toxins affect us. Scientists are not yet connecting the dots with how food can heal very well, so there is a lot more about what's wrong with our diet than how to fix it. Scientists still may be a long way from realizing how powerful food can be for healing. If you want to reverse diabetes (or almost any chronic illness), check out [Holistic Guide to Healing the Endocrine System and Balancing Our Hormones](#). It's a journey, and it's not easy to heal holistically. It's a lifestyle change, a journey, a process involving more than just diet. But many have done it, and more and more people are waking up to the reality that we are in fact in control of our health.

Related Reading:

- [Detox Cheap and Easy Without Fasting – Recipes Included](#)
- [Start Eating Like That and Start Eating Like This – Your Guide to Homeostasis Through Diet](#)

- [How to Make the Healthiest Smoothies – 4 Recipes](#)
 - [Diabetes, Endocrine Functions of the Pancreas, and Natural Healing](#)
 - [Natural Diabetes Cure](#)
 - [Foods That Contribute to Diabetes](#)
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Turmeric and Diabetes

Every now and then we hear about a common food that contains amazing healing properties. Turmeric is a fine example. Although it is a spice that has been used in Asian medicine for thousands of years, its potential to cure disease has been largely ignored in the West. Now we are told it can be used to treat a whole list of ailments from diarrhea to diabetes, and scientific tests are beginning to back up these claims.

What is Turmeric?

The turmeric plant, a member of the Zingiberaceae or ginger family, is native to Southeast Asia. Like ginger, the rhizome, or root, is the source of the spice. The turmeric root looks much like ginger root except for its color. While ginger is white, turmeric is orange, so orange, it was used as a dye before it was used for medicinal purposes.

If you've never bought turmeric, you may not realize you've eaten it. Chances are, you have. It is the main spice in curries, the spice that gives curry powders an orange color.

Related: [Foods, Vitamins, and Herbs That Kill Cancer](#)

What Does Turmeric Contain That Aids in Healing?

Curcumin has been identified as turmeric's source of healing properties. Curcumin is both an anti-inflammatory and a strong anti-oxidant. It prevents inflammation and reduces chronic inflammation. It has also been found to induce apoptosis (cell death) in cancer and pre-cancer cells.

What is Turmeric Used to Treat?

According to Web M.D., turmeric is used internally to treat the following:

- Arthritis
- Heartburn (dyspepsia)
- Joint pain
- Stomach pain
- Crohn's disease and ulcerative colitis
- Bypass surgery
- Hemorrhage
- Diarrhea
- Intestinal gas
- Stomach bloating
- Loss of appetite
- Jaundice
- Liver problems
- Helicobacter pylori (H. pylori) infection
- Stomach ulcers
- Irritable bowel syndrome (IBS)
- Gallbladder disorders
- High cholesterol
- Lichen planus
- Skin inflammation from radiation treatment,
- Fatigue
- Headaches

- Bronchitis
- Colds
- Lung infections
- Fibromyalgia
- Leprosy
- Fever
- Menstrual problems
- Itchy skin
- Recovery after surgery
- Cancers
- Depression
- Alzheimer's disease
- Swelling in the middle layer of the eye (anterior uveitis)
- Water retention
- Worms
- Lupus
- Urinary bladder inflammation
- Kidney problems
- Soreness inside of the mouth and gum disease.
- Inflammatory bowel disease (used as an enema)
- Diabetes

And is used topically to treat:

- Pain
- Ringworm
- Sprains and swellings
- Bruising
- Leech bites
- Eye infections
- Acne
- Inflammatory skin conditions and skin sores
- Infected wounds

Related: [*What Causes Chronic Inflammation, and How To Stop It For Good*](#)

Turmeric and Diabetes

If you google turmeric or curcumin, you will find statements denouncing its benefits. It is common to find every alternative healthcare claim to be summarily dismissed. On the other hand, it doesn't take much effort to find scholarly articles that show turmeric's health benefits, such as the studies regarding turmeric and diabetes.

Studies have shown turmeric lowers blood sugar levels, repairs pancreas cells (even benefitting type I diabetics), reverses prediabetes, lowers cholesterol levels, reduces heart risks, protects kidneys, and reduces inflammation and oxidative stress caused by the disease.

Related: [*Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*](#)

What is Diabetes?

When we eat, carbohydrates and sugars are broken down into glucose. The pancreas produces the hormone insulin, which allows glucose in the bloodstream to enter the cells. When this process is disrupted because the body cannot make enough insulin or can't utilize the insulin it does make, high levels of glucose remain in the blood and the cells do not receive the glucose they need.

High blood sugar results in damage to blood vessels, to the kidneys, eyes, nerves, and other parts of the body. Healing and circulation may become impaired. Diabetes is also associated with high blood pressure and an increased risk of heart disease and stroke.

According to the American Diabetes Association, 30.3 million Americans or 9.4% of the population have diabetes; 1.25 million (4%) have type 1 diabetes. In 2015, diabetes was rated the 7th leading cause of death in the United States.

Type 1 Diabetes

Type 1 diabetes is an autoimmune disease that is usually diagnosed in childhood or young adulthood. The body attacks and destroys the pancreatic cells that make insulin, leaving the pancreas unable to produce sufficient amounts of insulin, if any at all. The treatment for type 1 diabetes is lifelong insulin therapy – injected insulin – along with diet and exercise management.

Gestational Diabetes

Gestational diabetes occurs during pregnancy. It is believed that hormones from the placenta create insulin resistance, causing the mother to need as much as 3 times the usual amount of insulin. The CDC estimates gestation diabetes occurs in about 9.2% of pregnancies.

Type 2 Diabetes

Type 2 diabetes is also caused by insulin resistance. Since the cells don't respond correctly to insulin, the pancreas overproduces insulin to compensate. Over time, the pancreas is unable to provide enough insulin.

Prediabetes

Prediabetes is diagnosed when blood sugar is abnormally high but not yet high enough to be considered diabetes. These elevated levels of blood sugar can still cause damage to the body.

Curcumin, Prediabetes, and Type 2 Diabetes

In a [study](#) conducted in 2012, 240 pre-diabetic patients were randomly chosen to receive either curcumin or placebo

capsules. By the end of the 9-month study, 16.4% of the control group developed type 2 diabetes, while the subjects who received curcumin showed better overall function of the pancreatic cells, and not one patient developed diabetes.

A 2014 [study](#) that reviewed articles published from 1998 to 2013 in PubMed concluded that curcumin can reduce blood glucose levels, stimulate glucose uptake, stimulate insulin secretion, improve pancreatic cell function, and reduce insulin resistance.

Although most of the positive reports involve prediabetes and type 2 diabetes, some studies are also showing improvements in the pancreas tissue of patients with type I diabetes.

Related: [*How to Optimize Curcumin Absorption – With Golden Milk Tea Recipe*](#)

Warnings

There are a few warnings about regular or daily use of turmeric for medicinal purposes. Extreme amounts taken on a daily basis may cause problems with the liver. Keep in mind that turmeric really does work to reduce blood sugar levels. Do not use it medicinally along with medication to reduce blood sugar. The result may be hypoglycemia – low blood sugar.

For excellent detail regarding dosage and interactions, check out [*Turmeric Dosage for Diabetics*](#). The entire site, [*Turmeric for Health*](#), is filled with useful information, including recipes.

To learn more about healthy absorption of turmeric and a delicious way to consume it, read [*How To Optimize Curcumin Absorption – With Golden Milk Tea Recipe*](#). To increase absorption of curcumin, always add a pinch of black pepper. There is evidence that garlic also increases absorption.

Conclusion

There is abundant evidence proving turmeric can prevent type 2 diabetes and aid in managing or reversing the disease. Remember, the smart way to manage or prevent late onset diabetes is through diet and exercise, not by simply adding supplements or medications to your daily routine. But turmeric can certainly be a healthy part of your diet plan as well as a supplemental aid, without the side effects of pharmaceuticals.

Recommended Reading:

- [*Holistic Guide to Healing the Endocrine System and Balancing Our Hormones*](#)
- [*Cinnamon – Ceylon Vs Cassia, Health Benefits, and Other Interesting Facts*](#)
- [*The Amazing Herbal Power of Ginger*](#)
- [*Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases*](#)
- [*Hypothyroidism – Natural Remedies, Causes, and How To Heal the Thyroid*](#)
- [*Total Nutrition – Make your own Homemade Multivitamin and Mineral Formula*](#)

Sources:

- [*Turmeric – Web M.D.*](#)
- [*Statistics About Diabetes – American Diabetes Association*](#)
- [*Curcumin Extract for Prevention of Type 2 Diabetes – Diabetes Care*](#)
- [*Anti-hyperglycemic and insulin sensitizer effects of turmeric and its principle constituent curcumin. – Int J Endocrinol Metab. 2014 Oct 1;12\(4\)*](#)
- [*Why All Diabetics Should Know About Turmeric – The Food Revolution Network*](#)
- [*12 Benefits Of Turmeric In Diabetes – Turmeric for Health*](#)

- [Turmeric Dosage For Diabetes – Turmeric for Health](#)
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How to Improve Blood Sugar Levels and Reverse Diabetes For Good

Every 23 seconds another person is diagnosed with diabetes – one the leading causes of death in the United States.

But these people don't have to suffer. Diabetes is preventable, manageable, and reversible.

What is Diabetes? – A Quick Overview

There are two types of diabetes – type 1 and type 2.

	Type I Diabetes	Type II Diabetes
Age of Onset	Juvenile	Adult
Cause	No insulin	Insulin resistance, obesity
Prevalence	5%	95%
Symptoms	Severe	Less severe, obesity
Progression	Abrupt	Gradual
Consequences	Kidney, eyes, cardio	Kidney, eyes, cardio

This is an over-simplified chart, but it gives you a good visual of the differences and similarities between the two. Now, let's dig a little deeper into each type of diabetes.

Type 2 diabetes is characterized by high blood sugar levels and insulin resistance. Insulin resistance happens when blood sugar levels are so consistently high that the cells don't respond to insulin (a hormone that helps lower blood sugar) like they used to. When the cells aren't as sensitive to insulin, blood sugar levels raise even more. As a result, insulin levels raise and the cells become more insulin resistant. This vicious cycle is commonly caused by eating too much sugar, not moving enough, and stressing too much.

Conversely, type 1 diabetes is when the body lacks the ability to produce insulin. In some cases, this happens because the immune system attacks the cells in the pancreas that make insulin. Despite the lack of insulin, type 1 diabetics can still manage their blood sugar levels by taking exogenous insulin.

Although type 1 and type 2 diabetes are caused in completely different ways, they both lead to higher blood sugar levels that will destroy cells throughout the body and cause chronic inflammation. If we can improve blood sugar levels then we can manage and reverse diabetes – regardless of which type of diabetes it is.

The Best Treatment for Diabetes – Diet



Studies continuously show that eating less sugar and more whole foods is an effective way to manage blood sugar levels. For example, ketogenic diets – the lowest of low carbohydrate diets – were found in one study to help type 2 diabetics get off their medications completely.

The right diet may even transfer over to type 1 diabetics as well. One case study that put a type 1 diabetic on a

paleolithic ketogenic diet found that it was effective in managing blood sugar levels and may even halt or reverse the disease process.

Even specific vegetables, fruits, herbs, and spices can help reverse type 1 and type 2 diabetes. For example, consuming curcumin (from turmeric) and fenugreek seeds together can be an effective way to lower blood sugar levels and improve the health of the cells in the pancreas that produce insulin.

Must Read: [Top Ten Blood Sugar Lowering Foods](#)

Related: [How to Optimize Curcumin Absorption](#)

There is one important caveat. Food isn't the only thing that impacts blood sugar levels. Even if you eat a plant-based, low-carbohydrate diet, your blood sugar levels can still be an issue.

Stress and Blood Sugar – The Missing Link

Right before we wake up in the morning, a stress hormone called cortisol is released. Cortisol raises blood sugar levels to provide you with the energy you need to wake up and get your morning started. To keep insulin from decreasing your blood sugar levels, cortisol also tells the cells to resist the seduction of insulin.

This brief period of insulin resistance is necessary for your body to maintain its blood sugar levels until you have your first meal. This is a great idea. Good job, body!

However, this same process occurs whenever you are stressed as well. Whether you are being chased by a lion or you are mad at a family member, cortisol is released so that you have enough energy to deal with that situation. The only problem is that most modern day stressors don't require extra energy. They require logical thinking and empathy – two processes in the

brain that cortisol shuts down.

When every day is filled with stress, your cortisol levels will be consistently high. And you know what leads to – higher blood sugar levels, insulin resistance, and poor decision making.

This can happen regardless if you eat the healthiest food or not (although healthy food will help a lot). Reversing diabetes does not rely only what you eat, It relies on what you do as well.

Related: [Natural Remedies for Chronic Stress](#)

The Cheapest & Most Natural Ways to Reverse Diabetes

Whether you start with food or with stress, it is still important to address both. However, if you are struggling to make ends meet, you don't have to wait to improve your health. You can help yourself right now – for free.

Drink More Water

Hydration is important. Although there are no studies that examine the direct effect that water consumption has on blood sugar levels, one observational study found that people with the highest blood sugar levels tended to drink the least amount of water.

This correlation can be explained by the fact that the systems that control both blood sugar and body fluid levels are linked. In other words, drinking more water can indirectly improve your blood sugar levels.

Related: [What's the Best Water for Detoxifying and For Drinking?](#)

Exercise

The fastest way to lower your blood sugar levels is by exercising. But before you lace up your running shoes, it is important to consider the type of exercise.

Low-intensity exercises like walking and cycling have a minimal effect on blood sugar levels unless they last for longer than an hour. Studies suggest that the optimal exercise strategy is high-intensity interval training.

Many different variations of high-intensity interval training can lower blood sugar levels and improve insulin sensitivity (the opposite of insulin resistance).

One of the high-intensity workouts used in many studies went like this – thirty seconds of maximal cycling efforts 4 to 6 times separated by 4 minutes of rest. That's all you need to do to lower your blood sugar levels. And if you don't have access to a bicycle or stationary bike, all you have to do is sprint.

Here is an example sprinting workout from one of the studies:

5-10 near-maximal sprints for 30 seconds each with 3-minute rest between.

By doing this, you can lower your blood sugar in less than 20 minutes (for free).

Meditate

One of the best ways to mitigate stress and reduce cortisol levels is with meditation. In one study, researchers decided to see if meditation helped lower blood sugar levels in diabetics. After one month of meditation, the eleven patients that completed the intervention had lower blood pressure and A1C levels (more about this later in the article) and less anxiety and depression.

Sleep

Sleep for at least 7 hours a night, and you can maintain healthy blood sugar levels. But if you sleep for only 4 to 5 hours a night, your fasting blood sugar levels will increase significantly.

Continue to sleep like this, and your cells become resistant to insulin. As this vicious cycle continues, your blood sugar levels continue to rise regardless of how little sugar you eat. This sounds eerily familiar to what stress does to the body because it is.

Sleeping less is a form of stress that leads to more cortisol release than normal. The cortisol raises blood sugar levels and tells the cells to become more resistant to insulin. Keep this from happening by making sleep a priority.

Putting it all Together – The Anti-Diabetes Lifestyle

Here's is a simple weekly checklist you can follow to improve your health dramatically:

1. Drink a gallon of purified water a day.

We suggest drinking a gallon of cranberry lemonade every day to provide you with a [healthy and tasty detox drink while you hydrate yourself.](#)

2. Eat only whole foods.

Make sure you get all of your food from high-quality sources as well. Look for bio-dynamic, organic, and non-GMO produce, and source all of your animal products from animals that lived a healthy life.

3. Do 3 to 4 high-intensity exercise sessions a week.

Here's a simple workout you can try:

5-10 near-maximal sprints for 30 seconds each with 3-minute rest between.

Combining high-intensity training and resistance training is an even better idea.

4. Meditate for 15 to 30 minutes a day.

You can use an app like Headspace to guide you or check out Sam Harris's guided meditation:

5. Sleep for at least 7 hours a night.

To improve your sleep quality, turn off all electronics and lights at least 30 minutes before you want to fall asleep and meditate laying down.

Related: [*Is Diabetes Caused by Sugar or Bad Genetics?*](#)

How to Know if You Are Really Reversing Diabetes

To know if your blood sugar levels are chronically high, many doctors will check your A1C levels. A1C stands for glycated hemoglobin, which is formed when blood sugar attaches to hemoglobin (the oxygen-carrying protein in red blood cells).

A1C tests measure the percentage of your hemoglobin that has blood sugar attached to it. If blood sugar levels have been high for the past 3 months, then more hemoglobin will be glycated. Thus, A1C testing provides an accurate measurement of how high your blood sugar has been over the past two to

three months.

An A1C level of 6.5 percent or higher on two separate tests indicates that you have diabetes. An A1C between 5.7 and 6.4 percent indicates pre-diabetes. Below 5.7 is considered normal.

But Dr. Chris Masterjohn suggests that you shouldn't only look at A1C levels. This is because high A1C levels do not directly cause diabetes, and people with diabetes can have low A1C levels (if they have faster blood cell turnover than the average person). In other words, A1C testing provides an indirect measurement of blood sugar levels so it isn't always a reliable indicator for diabetes.

For example, if you are obese and your fasting blood sugar is consistently above 100 mg/dl (pre-diabetic), but your A1C levels are low, then you should still be considered as a pre-diabetic that needs to implement dietary and lifestyle changes to lower your blood sugar.

This is why it is important to consider fasting blood glucose levels, blood sugar levels after a meal, and other measurements like weight and waist circumference to develop a clearer picture of what is going on inside of the body.

While you are implementing the steps to the anti-diabetes lifestyle, it is important to pay attention to multiple measurements. Fat loss, lower blood sugar levels, lower A1C levels, and decreased waist size are all indicators that you are on the right track.

Recommend Reading:

- [Healthy Alternative Sugars and More](#)
- [Holistic Guide to Healing the Endocrine System and Balancing Our](#)
- [The Way We Used To Eat – The Real Paleo Diet](#)
- [Are Low-Carbohydrate Diets Healthy?](#)

- [Detox Cheap and Easy Without Fasting – Recipes Included](#)

Sources:

- [Diabetes – CDC](#)
- [The impact of brief high-intensity exercise on blood glucose levels – NCBI](#)
- [Influence of physical training on the fuel-hormone response to prolonged low intensity exercise – Science Direct](#)
- [MINDFULNESS-BASED STRESS REDUCTION IS ASSOCIATED WITH IMPROVED GLYCEMIC CONTROL IN TYPE 2 DIABETES MELLITUS: A PILOT STUDY – ProQuest](#)
- [Recent Developments in Delivery, Bioavailability, Absorption and Metabolism of Curcumin: the Golden Pigment from Golden Spice – NCBI](#)
- [Effect of fenugreek seeds on blood glucose and serum lipids in Type 1 diabetes – Indian Council of Medical Research](#)
- [Effect of ginger \(Zingiber officinale Rosc.\) and fenugreek \(Trigonella foenumgraecum L.\) on blood lipids, blood sugar and platelet aggregation in patients with coronary artery disease – Science Direct](#)
- [Curcumin and Diabetes: A Systematic Review – Hindawi](#)
- [Low-Glycemic Index Diets in the Management of Diabetes – American Diabetes Association](#)
- [Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes – BMJ](#)
- [The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus – Nutrition & Metabolism](#)
- [Type 1 diabetes mellitus successfully managed with the paleolithic ketogenic diet – Edorium Journals](#)
- [Beneficial effects of ketogenic diet in obese diabetic subjects – Springer Link](#)
- [A low-carbohydrate, ketogenic diet to treat type 2](#)

[diabetes – Nutrition & Metabolism](#)

- [The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus – Nutrition & Metabolism](#)
 - [Role of Sleep Duration and Quality in the Risk and Severity of Type 2 Diabetes Mellitus – The JAMA Network](#)
 - [Cortisol-Induced Insulin Resistance in Man: Impaired Suppression of Glucose Production and Stimulation of Glucose Utilization due to a Postreceptor Defect of Insulin Action – Oxford Academic](#)
 - [Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes – BMJ](#)
 - [American Diabetes Association Releases 2016 Standards of Medical Care in Diabetes – Diabetes](#)
 - [Low water intake and risk for new-onset hyperglycemia. – NCBI](#)
 - [Plasma copeptin and the risk of diabetes mellitus. – NCBI](#)
 - [Mastering Nutrition Episode 012: What Is Measuring Our Hba1c REALLY Telling Us About Our Blood Glucose and Diabetes Risk? – Chris Masterjohn PhD](#)
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Top 10 Blood Sugar Lowering Foods

Eat less sugar, and you'll be healthier.

This fact has been demonstrated over and over again in studies that compare different whole-food-based diets (like the ketogenic diet, vegan diet, and low glycemic index diet) to the conventional American diet.

If you eat more whole foods, you will consume less sugar. Less sugar consumption leads to healthier blood sugar levels. And healthier blood sugar levels lead to less diabetes, heart disease, and inflammation. It's that simple.

The Only Issue With Reversing Diseases Like Diabetes

Improving your blood sugar is not easy. It may take a couple months with a whole-food plant-based diet before blood sugar levels normalize. During those months, it will be difficult for you and your body to adjust.

This rapid shift from processed foods to whole plant foods can be a shock to the system. Your body adapts to a change in diet in dramatically different ways.

In response to processed foods, your cells become more resistant to insulin – the hormone that shuttles sugar into the cells to be used as energy. As you keep eating processed foods, you keep feeding a vicious cycle of insulin resistance that leads to higher blood sugar levels and more insulin resistance. This leads to chronic inflammation, fat accumulation, vision loss, kidney disease, and nerve damage.

Must Read: [*Optimize Your Candida Cleanse & Minimize the Symptoms of Die*](#)

But Isn't Sugar Natural?

Chronic inflammation, fat gain, kidney issues, vision loss, and nerve damage? Sounds like a silly way for the body to handle something that is natural.

How natural something is doesn't matter as much as what it does in the body. Sugar, for example, is toxic to the body.

When sugar is consumed regularly without the fibers, vitamins,

minerals, and antioxidants found in whole plant foods, it overwhelms the cells. Cellular toxins will then begin to accumulate until the cell dies. If your cells never became resistant to insulin then your cells would continue to be overwhelmed by sugar, and you would have a much shorter life. However, if you're eating whole plant foods your cells won't have to become insulin resistant to save your life.

Related: [*Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases*](#)

For example, let's compare an apple to apple juice. Eat a whole organic apple, and it will lead to a gentle increase in blood sugar levels that nourishes the cells. This is because the fiber slows sugar absorption, and the antioxidants, enzymes, vitamins, and minerals from the apple help the cells utilize the sugar effectively (before it can become toxic).

But what happens if you drink apple juice instead? Blood sugar will increase much more because most of the fiber, vitamins, minerals, enzymes, and antioxidants were taken out during processing.

This means that the best strategy to improve health is to eat more whole plant foods rather than processed foods like fruit juice and cookies. However, if your goal is to improve blood sugar levels right away, it is best to consume these ten foods.

Related: [*Healthy Alternative Sugars and More*](#)

The Top Ten Foods That Lower Blood Sugar

Patience is a virtue, but sometimes it is better to be impatient when it comes to your health. Eat these ten foods if you don't want to be a patient with diabetes.

1. Red Cabbage



Red Cabbage is packed with anthocyanins – the pigment that gives this vegetable its dark red color. Many studies have found that anthocyanins can prevent or reverse obesity and type 2 diabetes by reducing inflammation, lowering blood sugar, and improving insulin resistance (the driving factor that leads to type 2 diabetes).

If you are not a fan of red cabbage, you can still get the benefits of blood sugar lowering anthocyanins by eating other dark red, purple, or blue plant foods like blueberries.

2. Blueberries



Blueberries contain a type of anthocyanin that is an active blood sugar lowering agent. Studies have found that the

flavonoids in blueberries (and other berries) may provide us with cardiovascular benefits, cancer prevention, and cognitive improvement.

3. Turmeric



Turmeric contains a bright yellow chemical called curcumin. Curcumin has been studied extensively as a potential treatment for diabetes – and the results are promising.

Not only does curcumin lower blood sugar like red cabbage and blueberries, it also promotes the function of the beta cells in the islets of Langerhans of the pancreas (the cells that produce insulin). This means that curcumin can lower your blood sugar in the short-term and improve your ability to use carbohydrates in the long-term.

One concern about curcumin is that it is poorly absorbed. If you want to ensure that you will get the benefits of curcumin, it is best to have it in a supplement called Meriva or a supplement that combines Bioperine with curcumin. Both curcumin preparations increase the absorption of curcumin much more than just having curcumin alone.

Related: [How to Optimize Curcumin Absorption – With Golden Milk Tea Recipe](#)

4. Cinnamon



Whether it is Ceylon or Cassia cinnamon, it will reduce fasting blood sugar levels and improve insulin sensitivity (the opposite of insulin resistance). But there is one caveat – Cassia cinnamon contains a toxic compound called coumarin that can cause kidney, liver, and lung damage. Just 1-2 teaspoons a day of Cassia cinnamon has enough coumarin to cause toxic effects, so it is best to stick with Ceylon cinnamon to lower blood sugar levels.

Related: [Cinnamon – Ceylon Vs Cassia, Health Benefits, and Other Interesting Facts](#)

5. Lemons



There are thousands of different flavonoids that can be found in plant foods, and lemons have two that can improve fat and glucose metabolism. These flavonoids are called hesperidin and naringin, and they help lower blood sugar, cholesterol, and

triglyceride levels.

Put lemon juice in your water or meals to provide you with health-boosting, blood-sugar-lowering flavonoids whenever you want. If you are looking to detox and lower your blood sugar levels at the same time, try our [inexpensive, easy detox – The One Gallon Challenge](#).

6. Fenugreek Seeds



This flavorful seed provides us with a quick and easy way to improve blood sugar levels while fasting and after a meal. The effects of fenugreek seeds are so powerful that they can help lower blood sugar levels in people with type 1 diabetes. This means that fenugreek seeds are effective with and without the help of insulin.

You can consume fenugreek seeds in the form of a tea or add fenugreek seed powder to dressings, sauces, or curries. It is commonly used in Indian foods to give them a slightly sweet, nutty flavor that is often described as a cross between celery and maple.

7. Dark Chocolate



This guilty pleasure may be as pleasurable for you as it is for your body. The cacao in dark chocolate contains many flavanols (a type of flavonoid) that decrease blood pressure and insulin resistance. This decrease in insulin resistance helps the cells use up excess blood sugar, which lowers blood sugar naturally.

However, make sure you are consuming dark chocolate that contains no refined sugar at all. You can avoid this by making your own dark chocolate at home.

Simply melt a half cup of coconut oil in a pan, add in a half cup of raw organic cacao powder (because it has the highest flavanol content) with a tablespoon of a [healthy, alternative sweetener](#). Stir until it is completely mixed, transfer it to a container, and put it in the refrigerator. After a couple hours, you will have your own blood-sugar-lowering dark chocolate without any dubious ingredients.

8. Broccoli Sprouts



Dozens of studies on broccoli sprouts have surfaced over the past decade. They have been found to have anti-cancer and anti-inflammatory properties, but do these sprouts also help

lower blood sugar?

In one randomized double-blind clinical trial, researchers found that 10 grams of broccoli sprouts per day significantly decreased insulin levels. This suggests that broccoli sprouts may improve insulin sensitivity, leading to lower blood sugar levels.

These medicinal sprouts can easily be grown indoors in less than a week (for cheap). Once they are finished growing, you can have them as a snack or with meals.

Related: [*You Need Sulforaphane – How and Why to Grow Broccoli Sprouts*](#)

9. Onions



Onion bulb extract was found to strongly lower blood glucose in diabetic rats. Although onion's effect on the blood sugar levels of humans is uncertain, this vegetable still has many potential health benefits.

These health benefits are partly caused by quercetin, a flavonoid antioxidant that is found in many vegetables including onions. Quercetin has been found to lower blood sugar before and after meals in many different animals with diabetes. This is a promising finding for those who want to lower their blood sugar.

However, onions aren't the best vegetable if you want to

maximize your quercetin consumption.

Related: [Your Guide to Root Vegetables – Health Benefits, Recipes, and More](#)

10. Capers



Capers have the highest quercetin content of all the foods that have been studied. These edible flower buds are picked just before they ripen and pickled before they hit your taste buds with their tangy, briny, and slightly lemony flavor.

Studies on capers have found that they have so much antioxidant activity that just a small amount prevents fat from oxidizing and causing cell damage. This makes capers the perfect addition to any meal that has meat and fat in it.

The Ultimate Blood-Sugar-Lowering Meal

Eating these ten foods on a daily basis will help you lower your blood sugar levels fast. But how do you fit these foods into your day?

By putting them all into one meal.

Imagine this – A bowl filled with salad greens of your choice and:

- shredded red cabbage
- capers
- chopped onions
- broccoli sprouts
- a handful of blueberries



Toss all of that together with a homemade dressing made of lemon, apple cider vinegar, olive oil, and fenugreek powder. Delicious!

And for dessert – homemade chocolate with a sprinkle of cinnamon. Finish it off with a curcumin supplement, and you've just combined all ten blood sugar lowering foods into one delicious meal.

However, you don't have to rely on these foods to lower your blood sugar. In fact, check out the quickest and easiest way

to [improve your blood sugar levels](#).

Further Reading:

- [*Diabetes, Endocrine Functions of the Pancreas, and Natural Healing*](#)
- [*Detox Cheap and Easy Without Fasting – Recipes Included*](#)
- [*Cinnamon – Ceylon Vs Cassia, Health Benefits, and Other Interesting Facts*](#)
- [*How to Optimize Curcumin Absorption – With Golden Milk Tea Recipe*](#)

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- [*The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus – Nutrition & Metabolism*](#)
- [*Effect of low-calorie versus low-carbohydrate ketogenic diet in type 2 diabetes – Nutrition*](#)
- [*USDA Database for the Flavonoid Content of Selected Foods – USDA*](#)
- [*Low-Glycemic Index Diets in the Management of Diabetes – American Diabetes Association*](#)
- [*Systematic review and meta-analysis of dietary carbohydrate restriction in patients with type 2 diabetes – BMJ*](#)
- [*The effect of a low-carbohydrate, ketogenic diet versus a low-glycemic index diet on glycemic control in type 2 diabetes mellitus – Nutrition & Metabolism*](#)
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- Ceylon vs Cassia – Not All Cinnamon Is Created Equal– Authority Nutrition
- Recent Developments in Delivery, Bioavailability, Absorption and Metabolism of Curcumin: the Golden Pigment from Golden Spice – NCBI
- Cocoa Reduces Blood Pressure and Insulin Resistance and Improves Endothelium-Dependent Vasodilation in Hypertensives – AHA Journals
- Effect of broccoli sprouts on insulin resistance in type 2 diabetic patients: a randomized double-blind clinical

[trial. – NCBI](#)

- [Sulforaphane – Examine](#)
 - [Relative bioavailability of the antioxidant flavonoid quercetin from various foods in man – Science Direct](#)
 - [Bioactive components of caper \(*Capparis spinosa* L.\) from Sicily and antioxidant effects in a red meat simulated gastric digestion. – NCBI](#)
 - [Quercetin attenuates fasting and postprandial hyperglycemia in animal models of diabetes mellitus – NCBI](#)
 - [Antidiabetic influence of quercetin in streptozotocin-induced diabetic rats – Science Direct](#)
 - [Onion extract may improve high blood sugar and cholesterol– Science Daily](#)
 - [Effect of fenugreek seeds on blood glucose and serum lipids in Type 1 diabetes – Indian Council of Medical Research](#)
 - [Effect of ginger \(*Zingiber officinale* Rosc.\) and fenugreek \(*Trigonella foenumgraecum* L.\) on blood lipids, blood sugar and platelet aggregation in patients with coronary artery disease – Science Direct](#)
 - [Intake of Fruit, Vegetables, and Fruit Juices and Risk of Diabetes in Women – NCBI](#)
-

Diabetes, Endocrine Functions of the Pancreas, and Natural Healing

The pancreas produces enzymes for digestion (exocrine) and makes hormones (endocrine). The pancreas makes more exocrine than endocrine. Ninety-eight to ninety-nine percent of the

pancreas is used for the digestive juices, but the pancreas also contains scattered groups of neuroendocrine cells called pancreatic islets, or islets of Langerhans. The pancreas is about 12 inches long and tapers to your left. It's located in the upper abdominal cavity, towards the back, in the C curve of the duodenum.

This is an excerpt from the ridiculously long article, [Holistic Guide to Healing the Endocrine System and Balancing Our Hormones](#) I believe that it's easier to heal the body when you understand how the body works, but understanding the endocrine system is big a task. It's a long article, but I think it's worth it and I hope you'll [check it out](#). If you just ant information on diabetes, check out [How to Improve Blood Sugar Levels and Reverse Diabetes](#).

Physiology of the endocrine pancreas – four cell types

The islet of Langerhans is comprised of four distinct types of cells, alpha, beta, delta, and gamma.

Alpha cells

Alpha cells constitute 20% of the islet's cells. They secrete a hormone known as glucagon which is a polypeptide made up of 29 amino acids, which raise blood sugar as needed to maintain normal levels.

The pancreas releases glucagon when glucose levels in the blood fall too low. Glucagon causes the liver to convert stored glycogen into glucose, which is released into the bloodstream. High blood glucose levels stimulate the release of insulin.

Beta cells

Beta cells constitute around 80% of islet cells. They produce and secrete insulin, a small protein hormone that regulates how the cells in the body utilize glucose. Seventy-five percent of this glucose is used for brain function, while the rest is used for muscle function, red blood cell production, and fuel for every single cell in the body.

Beta cells also produce insulin-like growth factors (specifically, IGF-2), which are available in many body tissues at concentrations that far exceed insulin. IGF -2 shares the molecular structure and shape of insulin and is involved in growth.

Delta cells

Delta cells, which constitute less than 1% of pancreatic islets, secrete somatostatin, the same growth-hormone-inhibiting hormone secreted by the hypothalamus. This hormone inhibits insulin release and slows the absorption of nutrients from the GI tract.

Gamma cells (F cells)

Gamma cells also constitute less than 1% of pancreatic islets. They secrete a pancreatic polypeptide to inhibit somatostatin release.

Delta cells and Gamma cells regulate each other.

Diabetes Mellitus

As of 2015, diabetes is the seventh leading cause of death in the U.S. and it's moving up, especially throughout the rest of the world. If stats took into consideration cardiovascular disease (when caused by diabetes) and kidney failure, those numbers could be considerably higher.

There are two main types of diabetes. Type I is insulin-dependent diabetes mellitus and Type II is non-insulin-dependent diabetes, which used to go by the name "maturity-onset" or "adult-onset diabetes," but with our modern diets, it's not just adults over 40 anymore, or even just adults who are diagnosed with Type II. The third type of diabetes, gestational diabetes, is a temporary condition that occurs during pregnancy. Type I and Type II diabetics end up at essentially the same place, though they arrive there in a very

different manner.

With Type I, the body can't produce enough insulin to drive the sugar into cells where it needs to be used for energy production. With type II the body produces enough insulin (at least in the beginning), but cells become insulin resistant, so sugar stays in the blood.

Natural Protocol for Dealing with Diabetes

Alternative methods for dealing with both types of diabetes are similar, but there are a few additional needs for anyone with type I due to the fact that it's an autoimmune disease as well as an endocrine disease.

Metformin is the first-line medication for the treatment of type 2 diabetes, generally used to keep blood sugar levels low. Like almost every other pharmaceutical, it's toxic and has a list of side effects. The good news is the following herbs are shown to work just as well, or even better when you consider the lack of side effects:

- [Gymnema sylvestre](#), also called "miracle fruit" (note that this is a common name for two unrelated plants), is an herb native to the tropical forests of southern and central India and Sri Lanka. Studies have shown that this plant can help maintain healthy blood sugar levels.
- The [prickly pear cactus](#), known as nopal in Mexico, offers many medicinal effects including the ability to lower blood sugar. It has been well documented by many studies, and it's used for treating type-2 Diabetes in Mexico.

Other herbal supplementation known to stabilize blood sugar levels:

- [Fenugreek extract](#)
- [Momordica charantia](#)
- [Corosolic acid](#)
- [Mulberry](#)

The following nutrition can help reverse insulin resistance:

- [Chromium GTF](#)
- [Beneficial fatty acids](#) with DHA
- [Konjac mannan](#)
- [Cinnulin PF](#)

You can also help to rebuild the beta cells in the pancreas to optimize insulin production with:

- [Gymnema sylvestre](#)
- [R lipoic acid](#)

Remember, adrenaline suppresses the release of insulin. Some say to reduce stress, which is always a good idea, but more importantly, handle stress well without losing your temper.

Specific Additions for Type I diabetes (insulin dependent)

Since Type I diabetes is an autoimmune disease, addressing autoimmune activity makes sense. But, the following nutrition wouldn't be a bad idea for type II diabetes or for almost any autoimmune disease.

Immunomodulators

The following can balance immune system activity and reduce inflammation.

- [L-carnosine](#)
- [Cetyl myristoleate](#) (CMO)
- [Ginseng](#)

Infection

Viruses may be a cause of Type I diabetes (and Lyme, and many

other autoimmune diseases). It's not at all the whole story (and our bodies can turn off and on viruses depending on our health and genetics, and incidentally, our genetics change with our health as well). Candida, bacterial infections, other fungi, parasites, and/or viruses are likely to be running havoc on anyone with diabetes.

- [Garlic](#) (antimicrobial, many other benefits, pills are ok but best when eaten raw, crushed, [see more on garlic](#))
- [Olive leaf](#) (rare herb that leaves beneficial bacteria intact, kills bad guys)
- [SF722](#) (antimicrobial, specifically very effective antifungal)
- [Berberine](#) (powerful antimicrobial)

Other Nutrition

Protect organs from damage and repair damage caused by the high insulin caused by diabetes:

- [Blood cleaning formula](#), because the healthier the blood is, the healthier the body is.
- [Proteolytic enzymes](#) (aka systemic enzymes) to break down protein. (Better assimilation of proteins, and helps break down virus proteins, too.)
- [Probiotics](#), because anyone who's eaten enough sugar to get a diabetes diagnosis needs to take a good probiotic for a long time!
- [Coenzyme Q10](#) may help with blood glucose control, and it's got a massive amount of other benefits, many of which help with diabetic issues.

Diet is, as always, paramount. Check out [Detox Cheap and Easy Without Fasting – Recipes Included](#). And again, this is an excerpt from the ridiculously long article, [Holistic Guide to Healing the Endocrine System and Balancing Our Hormones](#).

Related Reading:

- [Holistic Guide to Healing the Endocrine System and](#)

[Balancing Our Hormones](#)

- [Candida, Gut Flora, Allergies, and Disease](#)
 - [Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases](#)
 - [Hypothyroidism – Natural Remedies, Causes, and How To Heal the Thyroid](#)
 - [How To Detoxify and Heal From Vaccinations – For Adults and Children](#)
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Is Diabetes Caused by Sugar or Bad Genetics?

To put it simplistically, sugar feeds the worst of our gut flora, including parasites, non-beneficial bacteria, and Candida. This opens the doors to all sorts of disease. People whose calorie intake is 25% sugar or more are three times more likely to die of heart disease. Fructose, one type of sugar we've recently started consuming in much larger quantities, even has the power to alter our genes and increase the likelihood of developing Alzheimer's, ADHD, or other brain issues, though this author suspects that all food has the power to alter our genes one way or another, hence the importance of a healthy diet.

We tell kids that too much sugar isn't good for them. We tell them this all of the time, and we heard it all the time, but that message often dies off once we reach adulthood. The rotten teeth, mood swings, and hyperactivity that we warn the little ones about are problems many adults deal with due to consuming too much sugar! Unless you're overweight or developing diabetes, conventional medicine is content to pay lip service to the dangers of sugar.

Why Quality Matters

It's difficult to find definitive information regarding sugar. Arguments over how bad sugar really is tend to end up with someone claiming, "Even fruit has sugar," followed by "Everything must have sugar to survive," followed by a general throwing up of the hands and a return to previous eating habits out of confusion and frustration.

Or was it just the justification we wanted?

If I'm going to eat sugar anyway, why not eat what I want?

But that's a reductive and damaging argument that we know on some level is wrong. We ask children to eat an apple instead of drinking a soda. If health is the objective, it's time we adults heed the same advice.

Fruit contains fructose, yes. But it also contains antioxidants, vitamins, and the fiber needed to slow down the actual absorption of the fructose. Incidentally, whole raw foods generally have the nutrition that our beneficial flora prefer. Synthetic or refined forms of fructose don't have any of these benefits, or any health benefits, as it's derived from corn starch or sucrose (table sugar, basically) and devoid of any actual nutrients. Comparing the synthetic or refined fructose to the sugar that's in an apple is like handing someone that apple and a piece of paper and claiming they're the same thing since they both come from trees. Refined, processed sugar isn't good for you, and not all sugars are equal.

Sugar Is ALL Around You

So, it seems easy to move forward here. No sugar in the morning cup of tea, lay off the desserts, and stop using... vegetable broth? Say no to granola?

Sugar is not just an after meal treat. Once you decide to limit your sugar intake, you will find that most of the food people regularly consume, processed foods, are products containing sugar to deliberately mask the taste of nutrient-void, bland, preservative-laden ingredients. People have become accustomed to sugar being slipped into everything. We know sugar is incredibly addictive.

The FDA claims to be trying to get labels changed in an effort to better indicate hidden sweeteners, but there are only two options right now. Learn your sugars (from glucose to stevia to xylitol to corn syrup), read labels, and cook more of your own food at home from scratch.

But...But, It's Genetic!

While it's absolutely true that some people are predisposed to certain conditions through their genes, science is learning that what you eat actually changes your genes. Fructose, according to a recently released UCLA study, is the difference between knowing your mother has diabetes and actually developing diabetes yourself. The majority of genes that can be altered by the consumption of too much fructose are associated with inflammation, cell communication, and metabolism regulation. It's no surprise, then, that possible conditions from consuming enough fructose to alter the brain's genes include Alzheimer's, ADHD, cardiovascular disease, Parkinson's, and depression, to name a few.

Nature has a way of balancing things though; the right foods can play a role in rebuilding you and making you stronger. People who eat the best diets deserve the best DNA, right? Be sure to check out [Healthy Sugar Alternatives & More](#) to get to know your sweeteners.

Related Reading:

- [Candida, Gut Flora, Allergies, and Disease](#)

- [Healthy Sugar Alternatives & More](#)
- [Gluten, Candida, Leaky Gut Syndrome, and Autoimmune Diseases](#)
- [Hypothyroidism – Natural Remedies, Causes, and How To Heal the Thyroid](#)

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