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## Controlling Diabetes with Nutritional Supplements

Perhaps no other disease is as closely linked to nutrition as diabetes. Not only does nutrition play a role in its development, nutrition is also one of the disease's most powerful treatments.<sup>1</sup>

Because of this strong and critical connection to nutrition, researchers have carefully studied the use of nutritional supplements in the treatment of the disease. They found that many vitamins, such as vitamin C and the B vitamins, minerals such as chromium, as well as herbs like *Gymnema sylvestre*, **can safely, effectively, and naturally** lower blood sugars and help prevent diabetic complications.

What is even more important, however, is that these vitamins, minerals, and herbs can be combined together in a scientifically validated diabetic formula to work *synergistically*. That means their combined effectiveness is even more powerful. Like a group of good friends, these vitamins, minerals, and herbs do their best work when they are all together.

In this issue of *Ask the Doctor*, we will talk about **powerful vitamins, minerals, and herbs combined in a scientifically validated formula** that people with diabetes can use every day.

But before we get into the specific formula, we need to first talk about diabetes.

### Q. What exactly is diabetes?

**A.** When we eat, the process of digestion breaks down our food into nutrients. Most of the food we eat is broken down into sugar (also called glucose). The sugar enters the bloodstream for delivery throughout the body and is then called blood sugar.<sup>2,3</sup>

Insulin, a hormone that helps metabolize blood sugar, is made in the pancreas—a long, skinny gland located behind the stomach. Insulin takes blood sugar from the bloodstream and delivers it into the cells that make up the various organs in our body, such as our heart, lungs, and kidneys. The sugar provides energy to the cells to keep our hearts beating, our lungs breathing, and our kidneys excreting.<sup>2,3</sup>

Type 1 diabetes, sometimes called insulin-

dependent or juvenile diabetes, most often starts in childhood. In this type of diabetes, the pancreas no longer makes insulin. The sugar stays in the blood instead of going into the cells where it is needed. Because of this, all people with Type 1 diabetes have to take at least one shot of insulin every day just to stay alive.<sup>4</sup>

Type 2 diabetes most often starts in adults and is also the most common kind. About 90 to 95 percent of all people with diabetes have Type 2. In Type 2 diabetes, the pancreas is usually producing enough insulin. However, the body does not use it effectively. The condition known as “insulin resistance” occurs when the cells do not respond to (resist) insulin’s attempt to enter with glucose. The pancreas responds by producing more and more insulin. When the

cells do not respond, high levels of glucose build up in the blood, leading to Type 2 diabetes. Almost everyone with Type 2 diabetes also is insulin resistant. Because the insulin is left unused, the pancreas thinks it isn't needed and may eventually stop making it. People with Type 2 diabetes often need to take prescription drugs to lower blood sugar levels if dietary and lifestyle changes are not enough to control the problem.<sup>4</sup>

In both types of diabetes, the sugar stays in the bloodstream instead of going into the cells where it is needed and belongs. When blood sugar builds up in the blood, it causes two problems. First, the cells become starved for energy. And, over a period of time, high blood sugar levels can damage the blood vessels, nerves, eyes, and kidneys.<sup>4</sup>

**Q. What causes diabetes?**

**A.** While scientists aren't exactly sure why Type 1 diabetes happens, they do know the immune system is involved. A healthy immune system protects us from diseases caused by infections, such as colds or the flu, as well as diseases that start in our own cells, such as cancer. For some reason, in certain people, the immune system becomes confused and begins attacking and destroying the cells in the pancreas that make insulin.<sup>4</sup>

Scientists aren't exactly sure why Type 2 diabetes happens either; however, they have identified that it occurs most often in certain individuals. About 80 percent of people with type 2 diabetes are overweight, have high blood pressure, and have high cholesterol levels in their blood.<sup>4</sup>

**Q. What are the symptoms of diabetes?**

**A.** Type I diabetes develops very quickly. The classic signs of diabetes include:

- Frequent urination, because the body is trying to get rid of the excess sugar in the blood
- Intense thirst, because the body needs to replace the fluid lost through the urine
- Increased hunger, because the cells need nutrients
- Weight loss, because without insulin, the body begins to starve<sup>4</sup>

The onset of Type 2 diabetes is often very gradual and may develop without any symptoms at all. Sadly, the diagnosis most often is made only *after* a complication of the disease happens.<sup>3,4</sup>

**Q. What are the complications of diabetes?**

**A.** The complications of diabetes happen in both types of the disease. All diabetic complications are caused by chronically high blood sugars. The longer your blood sugar levels are elevated, the greater your chances are of having complications.<sup>3,4</sup>

**Circulation problems**

High blood sugar damages blood vessels. When high levels of sugar are continuously in the blood, the blood vessels become thicker and less flexible, causing poor circulation. Poor circulation can impair healing, especially on the feet and lower legs. High blood sugar also causes higher levels of fat in the bloodstream. The fat clogs and narrows the blood vessels. Partial blockages deprive the heart of some necessary nutrients. A complete blockage can result in a heart attack, heart pain (called angina), or stroke.<sup>3,4</sup>

**Nerve damage**

Nerve damage makes it hard for your nerves to send messages to the brain and other parts of the body. It may cause you to lose feeling in parts of your body or have a painful pins-and-needles-like feeling. While nerve damage most often affects the feet and legs, it can also affect other parts of the body.<sup>3,4</sup>

**Eye problems**

Diabetes can damage and weaken the small blood vessels in the retina, the part of the eye that is sensitive to light and helps you see. When the blood vessels are weak, they can leak fluid, which causes swelling in the eye. The swelling blurs your vision. If the eye damage gets worse, your eye attempts to fix this damage by making new blood vessels over the retina. But because these blood vessels are fragile, they can break open easily and bleed into the eye. Scar tissue can then form. This may cause the retina to break away from the back of the eye, which can lead to visual impairment—even blindness.<sup>3,4</sup>

**Kidney damage**

Diabetes can also damage the blood vessels in the kidney so it can't filter out the body's waste. High blood pressure is also associated with kidney damage. If you have diabetes and high blood pressure, it is important to keep them both under control as much as possible. The longer blood sugar levels are left uncontrolled, the greater the amount of kidney damage that can occur. If the kidney damage isn't stopped, some individuals may progress to needing kidney transplants or dialysis machines.<sup>3,4</sup>

All of these complications, however, can almost always be prevented.

**Q. How can the complications of diabetes be prevented?**

**A.** Vitamins, minerals, and herbal supplements can provide powerful tools for preventing serious complications and keeping people with diabetes healthy. The best nutritional supplement contains powerful vitamins, minerals, and herbs in a synergistic formula that can effectively lower blood sugars and provide the specialized nutrients people with diabetes need.

**Q. Which vitamins, minerals, and herbs should be included in a nutritional supplement for people with diabetes?**

**A.** The chart, at right, lists the best ingredients for people with diabetes. You can see that the vitamins, minerals, and herbs in a diabetic formula should work synergistically and be clinically demonstrated to help prevent the known complications of diabetes. To get the best results, it is very important that the right ingredients are in the diabetic formula you buy.

**Q. How often should I take a diabetic formula supplement?**

**A.** Read the label of the diabetic formula you are considering buying. Most quality products need to be taken twice a day. Keep in mind that you will still need to take a high quality multivitamin in *addition* to the diabetic formula supplement. A diabetic formula is complementary. That means that it is designed to be an addition to your multivitamin routine, not a replacement.

**Q. Could the diabetic formula lower my blood sugar level too much?**

**A.** In general, too low blood sugar levels should not be a problem. A high quality diabetic formula containing synergistic vitamins, minerals, and herbs, most often lowers blood sugars to normal levels. However, these vitamins, minerals, and herbs will not excessively lower blood sugar levels that are already normal.

**Q. Do I need to continue monitoring my blood sugar when taking a diabetic formula supplement?**

**A.** Diabetes is a disease that requires active participation from you. You need to be aware of your problem and be in control of it as much as possible. If you use a home glucose monitor to check your blood sugars, you may feel more comfortable by checking your levels more frequently when you first take a diabetic formula supplement. You should always follow the recommendation of your doctor or a licensed health care practitioner regarding how often you should check your blood sugar levels.

According to the American Diabetes Association (ADA) and the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) (as well as most licensed health care practitioners), a good blood sugar range for most people with diabetes (before a meal) is from about 70 to 150.<sup>1,2,35</sup> An *ideal* range is 70-120.

Taking a nutritional supplement formulated especially for diabetics that contains vitamins, minerals, and herbs that work synergistically in a scientifically valid formula will help you keep your blood sugars right where the ADA and the NIDDK recommend.

**Q. Can't I just take the diabetic formula supplement and not worry about my diet?**

**A.** Unfortunately, you cannot. Successful diabetes management means doing lots of positive things. First, you need to see your licensed health care practitioner often. You need to choose foods wisely and stay active to have a positive influence on your blood sugar levels and your health. And, taking a diabetic formula supplement every day can really help. However, the diabetic formula supplement is meant to be an addition to your healthy diet, not a substitute.

VITAMINS and HERBS	EFFECT on DIABETES
<b>Vitamin C</b> (ascorbic acid)	With vitamin E, helps get sugar out of the blood stream and into the cells. <sup>5</sup> Keeps diabetics' blood vessels and kidneys healthy. <sup>6,7</sup>
<b>Vitamin E</b> (mixed tocopherols)	With the B vitamins, vitamin E helps keeps the pancreas healthy and helps prevent nerve damage. <sup>8,9</sup> Helps prevent kidney damage, blindness, and heart attacks. <sup>10,11</sup> With vitamin C, helps keep blood vessels healthy. <sup>12,13</sup>
<b>Vitamin B6</b> (pyridoxine HCL)	With folic acid and B12, B6, helps prevents heart attacks and nerve damage. <sup>14,15</sup> Helps prevent diabetic blindness, vision loss. <sup>16</sup>
<b>Folic Acid</b>	Along with B12, folic acid helps prevents strokes and loss of limbs due to diabetic complications. <sup>17</sup>
<b>Vitamin B12</b> (cyanocobalamin)	Helps relieve neuropathic pain. <sup>18</sup> Also works with folic acid and B6 (see above).
<b>Biotin</b>	With chromium's help, biotin (one of the B vitamins) helps insulin work better, keeps the pancreas working well, and lowers blood sugar levels. <sup>19</sup>
<b>Magnesium</b> (Krebs cycle chelate)	Relieves neuropathic pain and helps insulin work more effectively. <sup>20,21</sup>
<b>Zinc</b> (picolinate)	Helps blood sugar get into the cells and insulin work better. <sup>22</sup>
<b>Selenium</b> (aspartate)	Called an "insulin mimic", selenium helps take blood sugar into the cells. Selenium also protects against blood vessel and nerve damage from elevated blood sugars. <sup>23,24</sup>
<b>Copper</b> (picolinate)	Copper helps protect the cells in the pancreas that make insulin healthy, helps prevent diabetes-related damage to blood vessels and nerves, and lowers blood sugar levels. <sup>25</sup>
<b>Manganese</b> (Krebs cycle chelate)	Helps prevent damage to blood vessels and nerves. <sup>26,27</sup>
<b>Chromium</b> (picolinate)	With biotin's help, chromium helps insulin work better, keeps the pancreas working well, and lowers blood sugar levels. <sup>19</sup>
<b>Gymnema sylvestre leaf extract</b>	Helps balance blood sugars and may protect us from gaining weight. <sup>28,29</sup>
<b>Bitter melon whole fruit extract</b>	Helps pathways in the diabetic liver work more efficiently; lowers blood sugar levels. <sup>30</sup>
<b>Fenugreek seed extract</b>	Helps lower blood sugars and helps our liver and kidneys metabolize blood sugars more efficiently. <sup>31</sup>
<b>Bilberry berry extract</b>	Helps prevent and reduce the severity of diabetic cataracts. <sup>32</sup>
<b>Mixed bioflavonoids</b> (citrus)	Helps protect vitamins C and E from diabetic damage. Like bilberry, bioflavonoids help keep diabetics' vision clear and sharp. <sup>33</sup>
<b>Vanadyl sulfate</b>	Helps cells of both the liver and muscles use insulin more effectively. <sup>34</sup>

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## Conclusion

Having diabetes might make you feel overwhelmed. Restrictions on what you may and may not eat might make you feel deprived and unfairly burdened. The possibility of disease complications may make you feel anxious and scared—even angry. It is only natural to ask "Why me?"

Taking control of your diabetes, instead of letting it control you, can help with these feelings. Eating wisely and exercising every day are two important ways to improve your health. And, taking a nutritional supplement formulated specifically for people with diabetes every day can give you the critical control you need to direct your health for years to come. *Many healthy years to come.*