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Making Sense of Your Numbers



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Dear Readers:

Whether you were just diagnosed with diabetes, have been testing your blood glucose for years or simply live with or know someone who has diabetes, you will find that this issue of *Walgreens Diabetes & You* contains informa-

tion that is useful and motivational for managing diabetes.

The articles provide a balance of practical diabetes information as well as updates on the latest developments with medicines and therapies. They are written by health care professionals who have years of experience in diabetes care. There are some healthy and great-tasting recipes, as well as inspirational stories, such as one from Brian Segrin, who after years of struggling to control his blood glucose levels, took control of his diabetes and dramatically lowered his A1C level.

But some of the most inspirational stories of all come from our readers. Katie from Chicago recently wrote in to share her experience with switching from multiple daily insulin injections to wearing an insulin pump. The change has improved her quality of life and many of her healthy living tips can benefit all people with diabetes.

If you have a question or a story to share that can benefit others with diabetes, please feel free to write us here at *Walgreens Diabetes & You*:

Walgreen Co., Diabetes & You,
200 Wilmot Road, MS # 2112,
Deerfield, IL 60015;
or send e-mail to:
diabetes.magazine@walgreens.com

Sincerely,

Andrea Tassone, PharmD, CDM
Disease State Manager

Here's what Katie had to say:

I am 31 years old and have had type 1 diabetes since I was five. Over the years, I have found a few tips that are especially helpful to me in managing my diabetes. First, I count my carbohydrates before I eat. It is an easy-to-use method for meal planning. I watch what I eat and do not need to totally avoid sweets or deprive myself of any of the foods that I enjoy. I just make sure that I account for the carbohydrates in my day so that I can adjust my insulin dose as needed. Another important key is exercise. I work out at least 3 times per week, this helps to keep my blood glucose under control. Most importantly, I monitor my blood glucose on a regular basis. For me it is four to six times per day. From what I have been told, keeping my blood glucose under control will help to prevent the onset of heart disease, eye, kidney and skin problems. I also wanted to let other readers of *Walgreens Diabetes & You* know about how using an insulin pump has changed my life. I feel like a lot of people with diabetes who are injecting insulin on a regular basis have misconceptions about the pump.

My doctor had encouraged me to try an insulin pump for a long time, but I was afraid to. I thought that the pump needed to be attached to me all of the time, and that I would not be able to swim or shower without the pump. I worried that the catheter would fall out, or that the pump would be too bulky to wear. Or that maybe I would need to use a different type of insulin. But I finally decided to give the pump a try after talking with a friend who tried out the pump and loved it. Little did I know how much it would improve my life! After receiving extensive pump training from my physician, I found out that the pump was waterproof, and that I could shower or swim with it on (although not all pumps are waterproof). I was still able to use the same rapid-acting insulin that I was injecting with prior to using the pump, and now I only had to use one kind of insulin instead of two. I feel very secure on the pump. Since I have been using it, I have not experienced extremely low hypoglycemic episodes. Now when I have low blood sugar, I have symptoms. This gives me the signal I need to treat myself appropriately. If I do not feel like eating, I do not have to—being on the pump gives me the flexibility to skip meals occasionally. It took a few months to figure out how to program the pump and adjust the basal dose of the insulin, but the time that it took was well worth it. I have more flexibility than ever.

- Katie, from Chicago

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Walgreens Diabetes Resource Center

Check it out on the Web!
Look for the following symbol at the end of an article and visit our Diabetes Resource Center.

Learn more about diabetes at



www.walgreens.com/diabetes

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dedicated to finding a cure



Research Update From JDRF

The Juvenile Diabetes Research Foundation International has a singular mission: to find a cure for diabetes and its complications through the support of research. Juvenile diabetes strikes children suddenly and requires multiple insulin injections or continuous infusion of insulin through a pump for survival. But insulin is not a cure, nor does it prevent the development of devastating complications including kidney failure, blindness, heart disease, stroke and amputation. As the leading charitable funder of diabetes research worldwide, including more than \$600 million over more than 30 years, JDRF is driven by results in three areas and has been in the forefront of many important recent research breakthroughs.

GOAL 1: RESTORATION OF NORMAL BLOOD GLUCOSE LEVELS

Islet transplantation continues to show great promise. Since 1999, more than 200 patients have been given infusions of insulin-producing islet cells—the cells that have been destroyed in people with juvenile diabetes—using a treatment known as the Edmonton Protocol. Follow-up studies indicate that 80 percent of those patients experienced life without insulin injections and had a greatly improved quality of life. JDRF is dedicating resources to making this potential cure safe, effective and widely available.

Last year, JDRF-funded researchers at Columbia University reported in *The New England Journal of Medicine* that, in a small group of patients newly diagnosed with juvenile diabetes, a two-week treatment with a drug known as an anti-CD3 antibody delayed further progress of the disease, preserved some remaining islet function and caused improvement in blood glucose control for one year. Further trials are under way, and protocols are being designed to test the drug

on patients up to six months after diagnosis and in at-risk individuals who have not yet been diagnosed with juvenile diabetes.

Several studies continue to provide proof of principle that stem cells have great potential to form the basis for critically needed medical therapies and an unlimited supply of insulin-producing cells to cure juvenile diabetes. JDRF recently established important stem cell research partnerships with several countries around the world.

GOAL 2: AVOIDANCE AND REVERSAL OF COMPLICATIONS

With JDRF funding, a research team at Albert Einstein College of Medicine in New York, has found a drug that may prove effective against diabetes-related complications. In preliminary research, the drug benfotiamine, derived from thiamine (vitamin B1), was found to block three major biological mechanisms or pathways that lead to damage of the eyes, kidneys and nerves.

GOAL 3: PREVENTION OF DIABETES

JDRF has taken a critical role in supporting studies that track disease progress and reveal how genes, the environment and the immune system interact in the development of juvenile diabetes. JDRF is partnering with the U.S. National Institutes of Health through the international type 1 Diabetes Genetics Consortium to collect and analyze the world's juvenile diabetes-related genetic data. In addition, many studies funded by JDRF are looking at the patterns of juvenile diabetes and possible environmental triggers in various populations.

To donate to JDRF or learn more about juvenile diabetes research, visit the JDRF Web site at www.jdrf.org or call (800) 533-CURE.



The Lowdown on Lipids

By Evan Benjamin, MD, FACP

LEARN ABOUT LIPIDS TO REDUCE YOUR RISK OF HEART DISEASE

One of the most important benefits of controlling blood glucose levels is the reduced risk of heart disease. People with diabetes are at an increased risk of developing heart disease because of abnormal levels of fats in the blood known as lipids. It is important to keep your blood lipids in the normal ranges. Interestingly, studies show that if you improve your blood glucose levels, you will likely improve your blood lipids.

WHAT ARE LIPIDS?

Lipids are measured with a blood sample. They are made up of cholesterol and triglycerides. Cholesterol is subdivided into low density lipoproteins (LDL) and high density lipoproteins (HDL). LDL cholesterol is often called the “bad cholesterol” because it tends to stick to your blood vessel walls and can form plaque on those walls. This plaque narrows the walls of the blood vessels and reduces the blood flow through your vessels. Ultimately, the plaque can stop blood flow completely, which would result in a heart attack, stroke or possible amputation.

HDL cholesterol is called the “good cholesterol” because it actually helps to remove cholesterol away from the blood vessel walls and into the liver, where it can be removed from the body entirely. Medical studies show that low levels of LDL cholesterol (less than 100 mg/dL) and high levels of HDL cholesterol (greater than 45 mg/dL) can reduce the risk of developing heart disease in people with diabetes.

Triglycerides are thought of as fat freely flowing in your blood stream not attached to other proteins. People with type 2 diabetes tend to have high triglyceride levels, as well as low HDL cholesterol levels—a scenario that increases the risk of developing heart disease.

If arteries in the heart are narrowed by plaque, a heart attack may occur. If the blood vessels of the brain are narrowed, a stroke is more likely to occur. If the blood vessels in the limbs are narrowed, the resulting poor circulation could cause an infection and—in extreme cases—amputation of a foot or a leg.

It is important to understand lipids and follow the American Diabetes Association’s

guidelines for testing. The ADA recommends that adults with diabetes have a fasting (before breakfast) lipid profile measured every year. This includes the measurement of total cholesterol, triglycerides, HDL and LDL cholesterol levels. If these numbers are not normal, discuss with your health care provider what steps to take.

IMPROVING YOUR LIPIDS

The first step in improving your lipids may be to make some changes in the foods you eat. Try to eat more healthier fats such as olive oil and canola oil while eating less unhealthy fats. That means to avoid saturated fat from animal sources—such as butter, whole milk and fatty meats. It is recommended that people with high cholesterol consume 20 to 35 grams of dietary fiber, plus 2 grams of margarine-like spread containing plant sterol/stanols daily. These fats can help to lower LDL levels. You might also benefit from some weight loss. Weight loss has many benefits, including the improvement of blood lipid levels and blood glucose control. In general, the greater the weight loss, the greater the improvement in lipids and glucose control. It is worth noting that even a small amount of weight loss, about 10 pounds to 20 pounds, can bring about better blood glucose and blood lipid levels. The best way to lose weight is to cut back on the amount of calories you take in. One simple technique is to decrease portion sizes.

Another way to lower lipid levels is to increase your physical activity. Increased physical activity can improve blood glucose control and make it easier to take weight off. In addition, being active can help make the insulin that your body produces work better.

WHAT IF I CAN'T LOWER MY LIPIDS?

When blood glucose control, weight loss and/or increased physical activity do not result in improved lipid control, it may be necessary to take medications. Treatment with medicine

in people with diabetes may be recommended when LDL cholesterol is above 100 mg/dL or triglyceride levels are above 200 mg/dL. This is aimed to normalize LDL levels first and then treat the elevated triglyceride levels. If triglyceride levels are above 500 mg/dL, they should be treated before an elevated LDL level due to the risk of developing pancreatitis.

This is the same medication regimen health care providers use to manage a person diagnosed with heart disease—because the risk for heart attack, stroke, or heart failure in people with type 2 diabetes is as high as in people without diabetes who have already had a heart attack.

Statins for lowering your blood lipid levels

Today, statins are the most commonly prescribed medicines for treating lipid problems. Statins primarily help lower LDL cholesterol levels by about 18 percent to 55 percent—depending on the dose. Statins work by not allowing the body to make new cholesterol in the liver. The statins are usually given in a single dose at the evening meal or at bedtime. It is important that these medications be given in the evening to take advantage of the fact that the body makes more cholesterol at night than during the day. The statins are well tolerated by most people and do not affect blood glucose control.

What's new? Zetia—a new medicine used to lower levels of total cholesterol and LDL cholesterol in the blood. It can be used by itself or with a statin to treat high cholesterol. Zetia prevents cholesterol from being absorbed by your body.

Learn more about heart health at



www.walgreens.com/hearthealth

Answers to Frequently Asked Questions

By Hope Warshaw, MMSc, RD, CDE

Q: How do I know if I have diabetes?

A: You can tell if you have diabetes based on the results of a blood glucose test taken on two different days. The tests should be performed in a laboratory with blood drawn from a vein. A diagnosis of diabetes may be determined if the test performed before breakfast results in a reading of 126 mg/dL or higher. If the test is performed casually, meaning any time of day, a diagnosis of diabetes may be made if the reading is 200 mg/dL or higher.



toothbrush after every meal and floss at least once a day. Let your dentist know you have diabetes, and have your teeth cleaned twice a year.

Q: When should a person with type 2 diabetes start to take insulin?

A: The short answer is when blood glucose levels cannot be controlled on the maximum dose of two or more oral diabetes med-

ications. Although many people with type 2 diabetes are able to manage the disease with diabetes medications, diet and exercise, nearly 30 percent of people with type 2 diabetes take insulin injections.

Q: What is "borderline diabetes"?

A: The terms "borderline diabetes" or "a touch of sugar" have been used by health care providers for decades to soften the blow of the diagnosis of type 2 diabetes. The terms should not be used because they deny the seriousness of diabetes and do not encourage people to control their blood glucose levels carefully. A condition known as pre-diabetes is used to describe people who have higher-than-normal blood glucose levels, but who have not been diagnosed with diabetes.

Q: Why can't people take insulin by mouth?

A: The difficulty with taking insulin by mouth is that insulin is a large protein and proteins are broken down by digestive enzymes in your stomach. In order to take insulin by mouth, you would need to protect the insulin from those digestive enzymes. Researchers are working on other ways of delivering insulin, there may be a day in the future when insulin can be taken by pill or inhaled.

Q: How can diabetes affect my teeth and gums?

A: Diabetes can affect your teeth and gums if your blood glucose levels run high over time. High blood glucose levels can promote the growth of bacteria in your mouth, which can contribute to bad breath and can cause gum disease.

Q: What is the best treatment for low blood glucose or hypoglycemia?

A: Low blood glucose is defined as a blood glucose level below 70 mg/dL or a level that has been established by your health care provider. Symptoms may include sweatiness, shakiness, hunger, dizziness, numbness around the mouth and disorientation. The best treatment is glucose tablets.

Q: How can I prevent diabetes-related dental problems?

A: Keep your blood glucose levels in control. Also, be sure to brush your teeth with a soft

Learn more about diabetes at



www.walgreens.com/diabetes

Hispanics

and the Prevalence of Diabetes

It is important to know your risk for diabetes because diabetes can affect anyone. Unfortunately, almost six million Americans have diabetes and do not even know it. Your risk for diabetes goes up as you get older, gain too much weight, or if you do not stay active.

Risk factors for diabetes include:

- Having high blood pressure (at or above 130/80)
- Having a family history of diabetes
- Having diabetes during pregnancy or having a baby weighing more than nine pounds at birth

Diabetes is more common in African Americans, American Indians, Asian-Americans Pacific Islanders and Latinos. In fact, Latinos are almost twice as likely as the general population to have diabetes. Unfortunately, out of the two million Latinos who have diabetes, an estimated one third of them have not been diagnosed. This fact is troubling because uncontrolled diabetes can lead to complications such as blindness, heart problems, amputations and kidney damage.

To find out if you are at risk for diabetes, you can take a quick and simple test by visiting the ADA's web site at www.diabetes.org/risktest.

The American Diabetes Association continues its commitment toward reaching the Latino community through patient and professional education, public awareness and community outreach programs such as Diabetes Assistance & Resources (DAR). This ADA program targets the Latino community by providing English and Spanish-language materials about diabetes. The ADA area offices located throughout the United States staff committees consisting of volunteers who promote the DAR

program within their communities. Besides disseminating bilingual information, they also organize special events designed for the Hispanic community, like "Feria de Salud", a diabetes health fair organized to reach Latinos in an educational and festive setting. The ADA's web site has a link on its home page to view information available in Spanish. Plus, you can call a toll-free number (1-800-DIABETES) the ADA offers to obtain free information from bilingual representatives. The Association also offers a catalog with recipe books, educational books on diabetes and general information about diabetes. All of these materials are geared both to individuals who think they may be at risk for diabetes and those who have been diagnosed with diabetes. If you take the time to find out more about diabetes and what you can do to prevent it, delay its onset and control it once diagnosed you can lead a healthier and happier life. You can also support family members with diabetes by joining them in their efforts to exercise and eat healthier and by sharing what you have learned about the disease.

Latinos are not the only ethnic group commonly affected by diabetes:

- African Americans are also two times as likely to have type 2 diabetes as the general population.
- The overall prevalence of type 2 diabetes in Native Americans is 15.1 percent.

Test Your Knowledge About Diabetes
Take Our Diabetes Quiz Online



www.walgreens.com/diabetesquiz

Two-In-One Diabetes Medications

By Amy C. Rogowski, BS, PharmD, CDOE

The number of medications available to manage blood glucose levels continues to grow. One of the newer groups of medications is called combination pills. Avandamet, Glucovance and Metaglip are some of the brand names. Each of them combines two different medications into one pill. For some people, it can be convenient to take both medications together. The following is an overview of how these medications work, and what benefits they provide:

- Avandamet is a combination of a glitazone (rosiglitazone) and a biguanide (metformin). People with type 2 diabetes make too little insulin. In addition, they are most likely insulin resistant, meaning their bodies do not use the insulin they make effectively. These two medications work to decrease insulin resistance. Rosiglitazone decreases insulin resistance in muscles, and metformin decreases the liver's over production of glucose. Because the glitazone and biguanide do not increase blood insulin levels, they do not cause hypoglycemia, unless they are combined with a sulfonylurea or insulin. The medication is available in tablets of the following strengths:
 - 1 mg rosiglitazone/500 mg metformin
 - 2 mg rosiglitazone/500 mg metformin
 - 4 mg rosiglitazone/500 mg metformin.
- Glucovance is a combination of a sulfonylurea (glyburide) and a biguanide (metformin). The glyburide portion increases the amount of insulin produced by the pancreas, and the metformin stops the liver from over-producing glucose in the liver. It also helps muscle cells utilize glucose better (metformin component). The medication is available in tablets of the following strengths:
 - 1.25 mg glyburide/250 mg metformin



- 2.5 mg glyburide/500 mg metformin
- 5 mg glyburide/500 mg metformin.
- Metaglip is also a combination of a sulfonylurea (glipizide) and a biguanide (metformin). It works in the identical fashion as Glucovance. The only potential difference is that glipizide does not act in the body quite as long as glyburide. This might be an advantage for someone prone to hypoglycemia and a disadvantage for someone with less control of his or her blood glucose. Your health care provider can discuss which one is more beneficial for your individual needs. The medication is available in tablets of the following strengths:
 - 2.5 mg glipizide/250 mg metformin
 - 2.5 mg glipizide/500 mg metformin
 - 5 mg glipizide/500 mg metformin.

Learn more about diabetes at

www.walgreens.com/druginfo