

## TOPICS IN LIVING WITH TYPE 1 DIABETES

### Achieving Good Control: Key to a Healthier Future

Learning that you or your child has type 1 diabetes may understandably seem overwhelming at first. Keeping blood sugars as normal as possible to feel good and stay healthy means planning an insulin treatment regimen, focusing on meal planning and exercise, and monitoring blood sugar levels several times a day.

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## ASK A MEDICAL PROFESSIONAL

### Diabetes and Vacation

Having diabetes should not prevent you from leading a normal life and participating in family-fun vacations. It does require, however, some pre-planning and precautions to make the trip free of any diabetes-related problems. Member of JDRF Lay Review Committee Kathy Spain, a registered nurse and certified diabetes educator, provides important tips for adjusting to the hurried pace of travel and avoiding common pitfalls in order to ensure a safe, enjoyable vacation.

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## ASK A PARENT

### Help from JDRF's Volunteer Families

**Q:** My 7-year-old daughter is on a carb diet, and I can't seem to impress on her that she needs to eat the proper foods for the insulin to work. It has been a daily battle since we came home from the hospital two weeks ago. What is more, she will not let my husband give her the shots and insists that I be the only one near her. Even at that, she fights me.

**A:** *from a parent of a child with diabetes:* There are many fun ways to build a child's familiarity—and your own—to the concept of carb counting. Food games of any kind can be very educational. We still find our family playing its own version of Carb Jeopardy even six years later! Engage your daughter at mealtime by inviting her to measure the food for dinner plates. Teach her how to read the carbohydrate information on a nutritional label. There is also an interesting website, [type1tools.com](http://www.type1tools.com), devoted to carb counting tools such as colorful flash cards, stickers, magnets, etc. You can access their products at: <https://www.type1tools.com/shop/index.cfm>

Be sure to also tap into the expertise of your child's healthcare team, as they may have some good recommendations on

educational carb counting tools/tricks. In addition, should your daughter's appetite outpace the current insulin dosing, you should be sure to discuss this with her physician, as there are many ways to alter insulin regimens to accommodate the unpredictability of a young child's eating patterns. Just remember that because of her diagnosis, your daughter is likely to have a heightened awareness about food; this makes it ripe for being another battleground related to diabetes.

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## MEDIA: JDRF Scientist Discusses Diabetes Treatment in Television Interview

JDRF's scientific program manager Aaron Kowalski, Ph.D., appeared on the July 10th episode of the diabetes talk show *dLifeTV*. Dr. Kowalski discussed new developments in diabetes research and new technologies that could lead to the development of an artificial pancreas.

*dLifeTV* began airing seven new episodes on June 12, 2005, which will continue throughout the summer on Sundays at 7:00 p.m. Eastern/4:00 p.m. Pacific on CNBC.

The show is co-hosted by Miss America 1999 and author Nicole Johnson Baker; TV/radio personality and author Mother Love; comedian and co-host of the Tom Joyner Radio Show, J. Anthony Brown; and actor Jim Turner, who can be seen in "Bewitched" with Nicole Kidman. The show's correspondents include Gary Hall, Jr., Olympic gold medal swimmer. All five live with diabetes. The new episodes feature guests from the worlds of entertainment, sports, healthcare, fitness, food, and nutrition, sharing personal experiences and/or expertise about how to manage diabetes for a fuller life.

For more information on *dLifeTV*, visit [www.dlife.com](http://www.dlife.com).

## JDRF LAUNCHES NEW SITE FOR TEENS

Teens with diabetes face their own set of issues and concerns. JDRF **Teens Online** features sound advice on topics like driving, dieting, and preparing for college, plus personal stories by teens, like **Erin Rabideau**, 17, living with challenges of the disease.

## WHAT A JDRF CHAPTER CAN DO FOR YOU

JDRF Chapters are places to go for one-on-one support, family networking, support groups, and useful tools like the Bag of Hope and Teen Pak. View what **one JDRF Chapter** offers newly diagnosed families and **find a JDRF chapter** in your area.

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### Achieving Good Control: Key to a Healthier Future

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Fortunately, new insulin formulations and better glucose monitoring techniques have made it simpler and more comfortable to achieve good control in the face of daily variables. New delivery systems like the pump are providing patients with more freedom, flexibility, and ease of control. Similarly, advanced home glucose monitors are helping patients and parents achieve their goals and avoid unexpected fluctuations in blood glucose.

#### SELF-MONITORING: WHAT ARE THE BENEFITS?

- Feeling good
- Preventing high or low blood sugar
- Optimizing growth and normal development
- Preventing infection
- Leading a more flexible lifestyle by learning how daily events affect blood sugar
- Reducing the risk of long-term complications

Self-monitoring of blood glucose has been called one of the most important advances in diabetes management since the discovery of insulin. Daily blood sugar testing allows you and your doctor to evaluate everyday management of diabetes and determine the effectiveness of the treatment plan. Self-monitoring means far greater freedom.

Medical researchers have learned that high blood sugar levels over time can cause serious complications that can affect many systems of the body. A landmark national study, the Diabetes Control and Complications Trial (DCCT), has proven that “intensive therapy”—the effort to keep blood glucose levels as close to normal as possible—can prevent some of the long-term complications of diabetes. (See box, “[Intensive Therapy](#),” below)

#### USING YOUR METER

A small portable machine called a blood glucose meter allows you to monitor your or your child’s blood sugar level. You should consult your doctor or diabetes educator to see which meter best suits your needs. Insurance companies will often underwrite the cost of meters and metering supplies.

In a typical blood glucose meter, a blood sample is placed on a disposable “test strip,” which in turn is placed in the meter. The meter will give you blood glucose results in milligrams per deciliter (mg/dl). In the normal body—without diabetes—blood sugar levels remain relatively constant, rarely exceeding 140 mg/dl, and blood glucose control occurs automatically as rising glucose levels cue the

release of just the right amount of insulin from the pancreas. In someone with diabetes, however, glucose levels can surge to as high as 1,000 mg/dl within just a few minutes, swings that cannot be controlled naturally by the body. Self-monitoring is critical because it, in effect, takes on the role of the normal pancreas. The results of your blood glucose meter provide you with instant feedback. Once you know your level, you can make immediate decisions about how to adjust your food, exercise or insulin dose to achieve target levels. By tracking results over time, you and your doctor may also make changes based on your long-term glucose patterns.

#### WHAT IS GOOD CONTROL?

You should check with your doctor to determine the range of blood sugar levels best for you or your child. In general, optimal blood sugar goals are:

**Before Meals: 90–130 mg/dl**

**1.5—2 hours after a meal: <180 mg/dl**

If your before-meals blood sugar is consistently lower than 70 mg/dl or higher than 140 mg/dl, or your bedtime blood sugar is consistently lower than 100 mg/dl or higher than 160 mg/dl, you may need a change in the treatment plan and should consult your doctor.

#### NEW MONITORING TECHNOLOGY

A few decades ago, blood glucose testing was restricted to a doctor’s office. Today, patients and their families can take control of their own care using monitoring systems get test results in seconds, and some store results for later recall. And the lancing devices used to produce the drop of blood for analysis cause as little discomfort as possible.

Being slowly introduced into everyday use are meters that read blood sugar levels continuously and therefore can capture trends in blood sugar control, rather than just individual moments. The newest devices barely penetrate the skin to collect tissue fluid rather than blood and have the still-imperfect ability to sound alarms at the occurrence of hypoglycemia (low blood sugar).

#### LONG-RANGE TRENDS: HEMOGLOBIN A1c TESTS

Another critical blood glucose test for type 1 diabetes patients is the hemoglobin A1c test, or “HbA1c.” Because the HbA1c reflects the average blood sugar control over a 2-3 month period, the test allows doctors to determine the effectiveness of a treatment plan. Results of this test are given in percentages. For a person without diabetes, the HbA1c level is 4 to 6 percent. For a person with diabetes, a HbA1c level of less than 7 percent indicates excellent control; a level of 7 percent, very good control; a level of 8 percent, good control; and 9 percent or higher, poor control.

Studies show that people who maintain HbA1c levels close to 7 percent are less likely to develop diabetes complications than persons whose hemoglobin A1c levels are 9 percent or higher. Any drop in A1c levels reduces the risk of complications. Your doctor will help you set a goal for your HbA1c. Target goals are individualized, depending on such factors as age, maturity level, and existence of other health problems.

The hemoglobin test is usually performed in a doctor's office at the time of regular checkups. In general, all people with type 1 diabetes should have a hemoglobin test every three months.

### INTENSIVE THERAPY

*The findings of a large scale human clinical trial, the Diabetes Control and Complications Trial (DCCT), have demonstrated that the goals of treatment of diabetes should be to achieve blood sugars as close to normal as possible through what is known as intensive therapy or "tight control." The DCCT began in 1983 and nearly all patients in the original group have continued to be studied to the present day. Conducted by the National Institute of Diabetes and Digestive and Kidney Diseases, the trial compared the effects of two treatment regimens—standard therapy and intensive treatment—aimed at achieving blood glucose as close as possible to normal. **Standard treatment** included one or two insulin injections a day, daily blood sugar checks, four yearly visits to a doctor, a diabetes nurse educator, and/or a dietitian.*

***Intensive therapy** involved four or more blood glucose checks a day, four daily injections and/or an insulin pump a day, and access to and regular consultation with a team of treatment experts.*

*The results of the DCCT were striking: benefits enjoyed by those in the intensive therapy group compared to the standard therapy group, included 76 percent reduced risk of eye disease, 60 percent reduced risk of nerve disease, and 50 percent reduced risk of kidney disease. A follow-up trial, the Epidemiology of Diabetes Interventions and Complications study (EDIC), was begun in 1994, right after DCCT ended. EDIC evaluated the status of DCCT participants in order to show long-term effects of intensive therapy. The results are still coming in. They, too, are striking, showing the same reduced complications-risk findings of DCCT and more: a 50% reduced risk of cardiovascular events, such as heart attacks, stroke, and coronary artery disease.*

*"The longer we follow patients, the more we're impressed with the lasting benefits of tight glucose control," said Saul Genuth, M.D., the chair of the follow-up EDIC study. "The earlier intensive therapy begins and the longer it is maintained, the better chances of reducing the complications of diabetes."*

### ASK A MEDICAL PROFESSIONAL

#### Diabetes and Vacation, *continued from page 1*

By Kathy Spain, R.N., C.D.E.

Having diabetes should not prevent you from leading a normal life and participating in family fun vacations. It does require, however, some pre-planning and precautions to make the trip free of any diabetes-related problems.

Before your trip, and especially if this is your first time away from home since diagnosis, you may want to check with your doctor to discuss any potential issues when traveling. If you are traveling to a different time zone, you may need to alter your insulin administration. Changing time zones is easier for those on the pump or Lantus/with rapid-acting insulin, but whether you require insulin from a pump or from injections, you'll need to test your blood sugar more frequently. Be prepared to take additional insulin as necessary and keep fast-acting carbohydrate sources readily available for episodes of hypoglycemia.

If you are traveling by plane, be sure to pack your diabetes supplies in your carry-on luggage. Many flights do not serve meals, so bring meals and snacks on board. Keep all diabetes medications and supplies in their original containers to get through airport security checkpoints without trouble. If you wear an insulin pump, do not disconnect it and send it through the X-ray scanner. Inform security that you wear an insulin pump before you walk through the scanner.

On vacation it is common to eat more often and to eat different foods than usual. Practice measuring portions and counting carbohydrates before you leave. Be prepared to check blood sugars more often and make corrections when getting an improper amount of insulin.

If you plan on visiting an amusement park or engaging in high energy activity, first discuss with your doctor whether you should reduce your longer-acting insulin (or basal rate for pump users). Expect to test blood sugar levels more often when you're active and to cover highs with short-acting insulin. A good plan is to test hourly to determine the appropriate adjustments. Make sure you have a good supply of snacks before entering the park. Carry a small backpack filled with juice boxes and other low blood sugar supplies. Make certain you have plenty of blood sugar testing supplies, insulin, and glucagon available.

If you're on an insulin pump, you may choose to disconnect it during high energy activities, test blood sugars hourly, and reconnect for insulin boluses when necessary. Be sure to keep

the pump out of the sun. Try wrapping the pump in towels and placing it in an ice chest; however, be sure not to freeze the insulin.

The increased activity may place you at a higher risk of developing low blood sugar. Be diligent about testing your blood sugar at the start of an active day, and if necessary take extra carbohydrate and protein to help keep blood sugars from dropping too low.

Vacation should be an enjoyable and relaxing time for the family. Be prepared by packing enough diabetes supplies and snacks to last you while you are away. Wearing a medical identification in case of an emergency is a good practice. If you plan to travel out of the country, a letter from your doctor explaining that you have diabetes and a list of the supplies you must carry is helpful. Most of all, have fun and enjoy your trip!

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## ASK A PARENT

### Help from JDRF's Volunteer Families, *continued from page 1*

But it doesn't need to stay that way. You can use it as an opportunity for fun and a little bit of education. Before you know it, she will come to see that diabetes isn't about food deprivation—it just requires more mindfulness. In time, this will be an amazing asset as she enters adulthood. Her focus on staying healthy will be sharper than most of her peers even in her younger years.

As for managing your daughter's injections, it is a good idea that both of you share the responsibility for her diabetes care. That will make you each of you feel confident in your abilities and prevent one parent from 'burning out' as caregiver.

But if she prefers that you give her injections for now, you can suggest something like, "Let's have Dad watch how we do it, so he can learn too." If she's willing to let him watch, great! If not, don't be upset. I can remember bargaining with my daughter to let her father do injections. She repeatedly said no. Then one day she revealed there was one time when the shot that Dad gave her really hurt. So she wasn't willing to have that happen again. When I explained that we were all learning, she was willing to give him another chance. He even practiced on himself with saline for her!

A significant way in which you can enhance your learning curve on the many aspects of life with diabetes is to join a local support group, meet other families, connect with your local JDRF chapter. I cannot overemphasize the importance of reaching out to other families who are veterans at living successfully with diabetes.

*Do you have a question? JDRF's [Online Diabetes Support Team](#)—consisting of people with diabetes and those close to them—will answer questions and offer immediate, one-on-one support.*

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