

USC Westside Center
for Diabetes
6310 San Vicente Blvd.
Suite 220
Los Angeles, CA 90048

Phone: 323-931-7525
Fax: 323-931-0987



Stopping Diabetes Before it Starts

By Thomas Buchanan, MD

Diabetes and its associated complications—blindness, kidney failure, foot amputations and heart disease—are affecting more and more Hispanic Americans at younger and younger ages. Methods to both identify who will get diabetes and initiate treatments to prevent the disease are desperately needed.

At USC, we have been studying the cause of diabetes in young Hispanic women who develop a mild form of the disease, called gestational diabetes, during pregnancy. The research has shown that half of these young women will have diabetes before age 40, and many at even younger ages.

They appear to get diabetes this way:

At first, their tissues respond normally to insulin, the hormone that is supposed to drive sugar

from the bloodstream into cells. But in time, tissues can fail to respond to insulin, primarily because of obesity. As a result, the pancreas, which makes insulin, is placed under a high workload to make extra insulin the body needs to drive sugar into cells.

Year after year of extra work causes the pancreas to wear out. It makes less insulin, while the body needs more of it. Without enough insulin, the body cannot move sugar from blood to cells. Blood sugar rises and the woman gets diabetes.

To counter this, we tested a medication that makes tissues respond better to insulin. When women took the medication, the pancreas did not have to work so hard, so it did not wear out—and women were protected from getting diabetes.

Similar effects are possible if overweight people shed pounds and exercise regularly. Thus, diabetes can be prevented through healthy eating, exercise and, in some cases, medications.

In another area, we're also studying why diabetes runs in families. Our research indicates that the pancreas's tendency to wear out when overworked is inherited. That is, brothers and sisters seem to have the same degree of that tendency. This means that there may be genes passed from one generation to the next that cause some people to get diabetes, while others do not.

Our group now is conducting a study in more than 2,000 family members of Hispanic women with gestational diabetes. The hope: to find the gene or genes that cause diabetes.

center
for diabetes

NEWSLETTER

Volume 1, Issue 2

inside this issue...

2 Pump Update: Minimed Paradigm release postponed, and Disetronic introduces a new infusion set

3 Sugar: Have your fruit-cake and eat it too

4 Kids with Diabetes: Care at school is critical to a healthy life, now and later

5 Changing Rules: FAA issues guidelines for flying with diabetes supplies

6 Prevention: USC physician seeks causes and ways to head off diabetes

points of interest

- Therapies to prevent type 2 diabetes compared
- Advances in diabetes management and pumps
- Handling stress
- Cholesterol-lowering drugs

Diabetes Prevention Program Results Reported Early

By Anne Peters, MD

The Diabetes Prevention Program was a large study looking at various approaches to prevent type 2 diabetes in patients with impaired glucose tolerance (pre-diabetes). Participating patients were randomly assigned to one of four groups: placebo (no special therapy); troglitazone (Rezulin, a drug that was later withdrawn from the market); metformin (Glucophage); or diet and exercise. The 3,819 patients were followed for three years.

Which therapy worked the best? Diet and exercise. This treatment reduced the expected rate of developing type 2 diabetes by 58 percent. Metformin also worked, although to a lesser extent (31 percent reduction). Troglitazone, which was pulled out of the study after only 10 months, produced a 23 percent reduction in the development of diabetes, even in patients three years after they stopped taking it. Therefore it seems likely that pioglitazone (Actos) and rosiglitazone (Avandia)—which are related to troglitazone—may also lower the risk for developing diabetes.

Patients in the diet and exercise program lost about 7 percent of their body weight (which means a 200 pound person would lose 15 pounds) the first year. They maintained a 5 percent weight loss (10 pounds) for the rest of the study. Exercise meant that patients did at least 30 minutes of aerobic exercise (usually brisk walking) five times



MARK HARMEL

aged to stick to the diet.

The patients who did the best on metformin tended to be younger and more overweight, with slightly higher blood sugar levels. The patients in the metformin group also had a 3 percent weight loss while on the drug.

What does this mean? Patients with risk factors for diabetes should work on diet and exercise to try and prevent the development of the disease. An individualized plan, coordinated between a dietitian and physician, can be helpful. Medications may also be helpful in preventing diabetes, and a physician can decide which is most appropriate in each case depending on patients' risk factors. Additionally, diet and exercise are key components to the treatment of diabetes once it develops, so these are good habits to adopt.

per week. The approach to weight loss was not new—just to eat in a healthy manner, following a low-fat diet and decreasing calorie intake and portion size. Patients were followed closely, however, and strongly encour-

American Heart Association Expresses Concern Over Atkins Diet

By Anne Peters, MD

Nutrition is an area of many theories and relatively little research. Recently, many people have turned to high-protein diets, but unfortunately, no data exist on their long-term benefits and risks. The American Heart Association (AHA) and the American Diabetes Association (ADA) have been evaluating the available information on these diets.

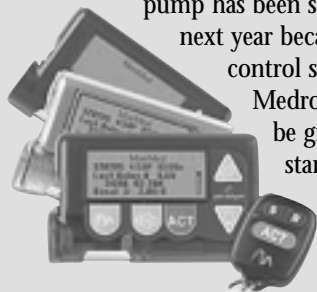
The AHA findings lead to a strong recommendation against high-protein weight-loss programs such as the Atkins Diet, Protein Power, The Zone and Sugar Busters. Their report cites a lack of credible scientific evidence of long-term weight loss and the possibility of increased risk for those with diabetes and heart disease.

(continued on page 3)

What's New with Pumps?

By Mary Rose Sosa

Minimed has been bought out by Medtronic. The release of the new Minimed Paradigm pump has been suspended until early next year because of strict quality control standards imposed by Medtronic. Upgrades will still be granted to any patients started on the 508 model after March 2001.

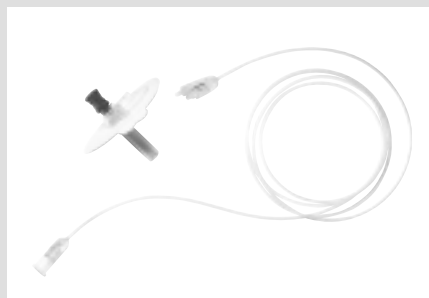


Animas pumps are now being shipped with diabetes management software. The ezManager is designed for Palm OS and Windows-based desktop computers. You can download a free 30-day trial of ezManager at www.animascorp.com.

Disetronic has launched its new D-Tron pump. It has an insulin pen within the pump, though most pump users I've demonstrated it to find it to be too big and heavy.

Disetronic also has a new infusion set that's compatible with all pumps. It's called the Ultraflex Soft. It's inserted manually and is supposed to be really comfortable. It disconnects directly from the site like the Silhouette and the cannula goes straight into the subcutaneous tissue like the SofSet. I look forward to getting some feedback from patients. Any volunteers?

You may e-mail me with any pump concerns or questions at maryrosesos@yahoo.com. Happy pumping!



Stress and Diabetes

By Sarah Calistro

In the weeks since the terrorists' attack on the United States on Sept. 11, initial shock over the tragedy has turned into stress and anxiety for many Americans. Those with diabetes, though, may feel the effects even more.

Stress is mental and physical strain that comes about when the body feels as if it is under attack, which leads to anxiety. Feeling under attack triggers the fight-or-flight response.

Although everyone handles stress differently, the fight-or-flight response can cause high blood pressure and an increased pulse. Levels of stress hormones rise, which makes stored energy—mainly glucose and fat—available to cells (priming them to help the body escape danger).

The fight-or-flight response does not always work as efficiently in the body of a person with diabetes. If not enough insulin is available, glucose can build up, and people with type 2 diabetes usually have increased blood sugar levels during stress.

But stress and panic attacks can also appear as hypoglycemia. Type 1 diabetics can have different reactions to stress, with glucose levels falling or rising.

The best way for people with diabetes to deal with stress's effects on the body is to check their blood sugar and treat any high or low sugar levels. During periods of

stress, diabetics should monitor blood sugar levels carefully.

Several methods can help reduce stress in those with diabetes:

- Try to continue life as usual.
- Exercise. It's not only good for diabetes control, but it helps deal with physiological stress on the body.
- If feeling overwhelmed with anxiety, try breathing exercises. Sit or lie down in a relaxed position, take in a deep breath and push out as much air as possible. Continue this while remaining relaxed for 5 to 20 minutes a day. Perform these exercises at least once a day if feeling stressed, anxious or depressed.
- Try to stay optimistic. Replace bad thoughts with good thoughts.
- Avoid watching or reading excessive news coverage, which may be overwhelming.
- Prioritize tasks. They'll seem less overwhelming and easier to manage.
- Keep a journal of emotions and thoughts about recent events.
- Participate in enjoyable activities.
- Avoid stimulants and alcohol.
- Laugh and smile—it's good for the body to be happy.

Sarah Calistro is a student at UCLA and daughter of center patient Frank Calistro.

For more information on stress, relaxation and diabetes, visit these Web sites:

"Stress" (American Diabetes Association)
www.diabetes.org and click on the menu's "Healthy Living" link

"Manage Stress" (Life Clinic)
www.lifeclinic.com/focus/stress

"Diabetes, Depression & Stress"
(Carol E. Watkins, MD: Northern County Psychiatric Associates)
www.ncpamd.com/dmdepression.htm

A Holiday Treat: Sugar Guidelines

By Meg Werner Moreta, MS RD CDE

For decades, people with diabetes have been told to eliminate all sugar. However, mounting research indicates that sugar can be part of a healthy diet.

Even the American Diabetes Association has liberalized its views on sugar, based on research suggesting that sugar doesn't raise blood sugar levels as rapidly when used appropriately. In fact, many nutritious foods contain natural sugars, such as fructose, maltose and lactose that are all considered forms of carbohydrates. As much as 55 to 60 percent of a diabetic diet can come from carbohydrate

sources (fruit, milk, vegetables, grains and starches). In 1995, a new group was added to the Diabetic Exchanges list called "Other Carbohydrates," and this list of foods consists mainly of concentrated sugars.

Sugar Guidelines

- Sugar can be part of a healthy meal plan, but these foods tend not to have the same nutritional value as fruit, milk or starchy goods.
- When eating any food with added sugar, you should substitute it for a serving of starch, fruit or milk in your meal plan.

- Remember to keep the portions small, because foods that are high in added sugar often are high in fat, too.
- Always check the nutrition label for sources of carbohydrates. It will be your most accurate source of nutrition information.

As a registered dietitian, I feel that all foods fit into a healthy diet—even the high-sugar foods—when following a personalized meal plan. Just remember you can have your cake and eat it too.



Should I Worry About my Cholesterol-lowering Drug?

By Peter Butler, MD

The withdrawal of the cholesterol-lowering drug Baycol has spawned much publicity recently. This drug was withdrawn from the market because of deaths caused by severe inflammation of muscles, which in turn can lead to kidney failure. Patients who were on Baycol should have been contacted to discontinue this treatment and had an alternative prescribed for them. Those who are still using Baycol should stop using it and contact their prescribing physician for an alternative.

Baycol is a class of drug often called "statins" because the drugs' chemical names end in -statin. Other drugs in this class and widely in use include Lescol, Lipitor, Mevacor, Zocor and Pravachol.

These drugs have a very powerful effect on lowering the level of the harmful kinds of cholesterol in the blood. Most people tolerate them well, with only minor side effects. Severe inflammation of all body muscles, resulting in severe muscle pain, is a rare side effect, and is most common shortly after starting the drug. It's extremely unusual in people taking only one of the above kind of lipid-lowering drugs, but slightly more likely to occur in people who also take Lopid, a different kind of lipid-lowering drug. If you have started on a cholesterol-lowering drug and have muscle pains, you should stop the medicine and immediately call your physician.

Why lower lipids? Cholesterol is an important chemical that is carried around the blood and used to make some hormones (cortisol, for example) and help

build healthy membranes for all the cells that make up the body. It is only harmful when too much is present in the blood. In many people, blood lipids do not need to be lowered.

But in people with diabetes—especially type-2 diabetes—cholesterol and other potentially harmful blood lipids such as triglycerides are commonly more concentrated. In diabetes, lowering these raised levels has been shown to be especially beneficial in preventing heart attacks, strokes and other blood vessel problems.

Therefore, for those with diabetes, the benefits of taking statins far outweigh the potential rare side effect of muscle inflammation. These drugs have been a major advance in preventing the increased rates of heart disease and strokes that are present in people with diabetes.

AHA Questions Diets' Results

(continued from page 1)

Such diets may be particularly risky for patients with diabetes since they can speed kidney disease progression. They also may increase risk for gout, osteoporosis and cancer. The ADA has similar concerns and will soon come out with its own statement.

Neither report denies that high-protein dieters lose weight at first; the concern is over the long term. Many patients feel better eating a diet lower in carbohydrates. However, this underscores the importance of working with a dietitian who can regulate the whole diet and help develop healthy eating habits.

Kids' Care at School Critical to Good Health

By Francine Kaufman, MD

The USC Diabetes Program has been very successful in raising funds through National Institutes of Health grants for research in genetics, prevention of diabetes and islet cell biology.

We are counting on this research to provide significant advances in patient care.

One of the purposes of the Westside Center for Diabetes is to apply what is discovered through research directly to our patients and their care.

We need to raise additional funds to support the center's operating costs and provide high quality care for our patients, while using the latest, most advanced technologies. If you are interested in helping, please contact Bill Watson at (323) 442-2559, or send in your tax-deductible donation to "USC Westside Center for Diabetes." Thank you!

Appropriate diabetes care in school and daycare centers is important for children's immediate safety, long-term wellbeing and optimal academic performance.

The Diabetes Control and Complications Trial showed that improved blood glucose control decreases the risk of diabetes complications later. To achieve control, a child must monitor blood glucose frequently, follow a meal plan and take medications. Children usually take insulin through injections or a pump. Physical activity and nutrition also affect blood glucose levels.

For appropriate care of the student with diabetes, school and day care staff must understand diabetes and be trained in its management—as well as in treatment of diabetes emergencies.

Yet studies have shown that most school personnel don't adequately understand diabetes, and that parents of children with diabetes lack confidence in their teacher's ability to manage diabetes effectively.

Consequently, diabetes education must be targeted toward daycare providers, teachers and others including administrators, coaches, school nurses, health aides, bus drivers and secretaries.



The care of a child in school or daycare revolves around the "diabetes health care plan." This individualized plan should be developed by the parent/guardian, the student's diabetes care team

and the school or day care provider. It delineates responsibilities assumed by parents or guardians, school personnel and the student. It also should also specify instructions for the following:

- Blood glucose monitoring, including the frequency and circumstances requiring testing.
- Insulin administration (if necessary), including doses and injection times prescribed for specific blood glucose values and the storage of insulin.
- Meals and snacks, including food content, amounts and timing.
- Symptoms and treatment of low blood glucose, including the administration of glucagons if recommended by the student's treating physician.
- Symptoms and treatment of high blood glucose.
- Ketone testing and appropriate actions to take for abnormal ketone levels, if required by the student's health care provider.

Thyroid Hormone Replacement Therapy - Tricks of the Trade

By Ruchi Mathur, MD
Excerpted from *MedicineNet.com*

As an endocrinologist, I frequently see patients with thyroid disease. Many of these patients suffer from a form of hypothyroidism, or low thyroid hormone blood levels, and I often must prescribe thyroid hormone replacement therapy for such patients.

Once a stable dose of thyroid replacement has been reached, as indicated by normal thyroid blood tests, the patient may continue the same dose for years. But patients should keep a few things in mind to ensure they're achieving maximum results.

A variety of conditions, such as advancing age or the administration of androgen therapy for breast cancer, can reduce dosage requirements. Other conditions—and many medications—may require an increase in the thyroid hormone dose. These are some common conditions that can alter thyroid hormone replacement requirements:

Decreased Requirements:

- Aging
- Androgen therapy in women (breast cancer therapy)

Increased requirements:

- Gastrointestinal disorders
- Pregnancy
- Medications including sulcrafate, antacids, iron, cholesterol-lowering drugs, seizure drugs and amiodarone

Patients should let their doctor know of any medication changes made by other health care professionals. Thyroid hormone replacement therapy should be taken at the same time each day, usually on an empty stomach without any other medications, if possible. It's best to avoid taking multivitamins or antacids around the same time, as well. Following these suggestions can help patients assure the best therapy possible.

Diabetes...an Aspirin a Day

By Ruchi Mathur, MD
Excerpted from *MedicineNet.com*

A patient came into my office a few months ago with newly diagnosed diabetes. We decided to try to manage her diabetes with diet and exercise. She was very compliant and was trying desperately to change her lifestyle to avoid medication. She started walking regularly and read every label on every item of food she bought. Her enthusiasm was remarkable and very successful. At age 62, she managed to completely change her lifestyle. I saw her in follow-up last week and told her how impressed I was with her progress: She had managed to control her diabetes with diet and exercise and did not need medication to control her blood sugar. Her blood pressure was under control and her cholesterol levels were normal. She was thrilled.

As we concluded our visit, I handed her a prescription. She took it with a frown and said: "I thought you said I didn't need any medication. You know how much I despise the thought of taking pills. What's this all about?" I had prescribed coated aspirin. It had nothing to do with her blood sugar control—well, not directly.

People with diabetes have a two-to-four-fold increase in risk for dying from heart disease. A major risk contributor: increased production of thromboxane, a substance that causes vessels to constrict and causes platelets—the cells that are responsible for clotting—to stick together and form clots inside the arteries.

Aspirin, though, blocks thromboxane production. Many studies have shown aspirin therapy can benefit patients after a heart attack. And in patients with no previous heart disease, those who started on aspirin experienced 44 percent less risk for heart attacks than others. Among diabetic patients specifically, the heart attack rate was 10.1

percent in the untreated group, compared to a rate of 4.0 percent in the group on aspirin. The American Diabetes Association subsequently released guidelines for aspirin use in diabetes:

- Aspirin should be used in any diabetic patient who has evidence of heart disease, a prior heart attack, previous bypass procedures, a stroke, angina, claudication or blood vessel disease.
- Aspirin therapy should be considered in high-risk men and women with type 1 or type 2 diabetes. This includes diabetic patients who have a family history of heart disease, smoke cigarettes, have high blood pressure, are obese, have protein in the urine, have high cholesterol or are over age 30.

Since my patient was over age 30 and had no contraindications, such as aspirin sensitivity, stomach ulcers or bleeding, or liver disease, aspirin therapy could benefit her. I mentioned to her that despite her successful lifestyle changes and controlled blood sugar, certain risks are inherent in diabetes. Although somewhat resistant, she seemed to



understand that just like a vitamin a day, aspirin therapy is a preventive measure. In fact, she seemed much more enthusiastic when I told her that aspirin reduced her chance of heart attack by 25 to 30 percent.

Aspirin therapy is simple, and a dose of baby aspirin, coated aspirin or regular aspirin work equally well. Blood sugar control is not a criterion for deciding who should take aspirin. Patients with diabetes should discuss aspirin therapy with their primary care physician. If there are no contraindications, the benefits far outweigh the risks.

FAA Changes Rules for Traveling with Diabetes Supplies

By Anne Peters, MD

The newest rules regarding people who fly with diabetes are listed below. Check the ADA website (www.diabetes.org) for the most up-to-date information.

- Passengers may board with syringes or insulin delivery systems only if they can produce a vial of insulin with a pharmaceutical pre-printed label that clearly identifies the medication as prescribed for that individual.
- Lancets can be carried if capped and are brought on with a glucose meter that has the manufacturer's name embossed on the meter.
- Prescriptions and letters of medical necessity will not be accepted.
- These rules apply within the 50 United States only. These are minimum standards—carriers may have specific regulations.
- For further information, contact the ADA at 703-549-1500 Ext. 2108 or the Civil Aviation Security Division of the FAA at 202-267-9863.