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**DIABETES IN CONTROL.com NEWSLETTER**

*The Newsletter for Professionals in Diabetes Care*

March 12, 2003 Issue #146

**From the Editors Desk:**

Although the Step study showed the benefits of walking more, what can you do for your patients who can't or won't walk? **Kristina Sandstedt, MS, Clinical Exercise Physiologist, Diabetes Educator** brings us the first installment of Seated Exercise Series: Chair Calisthenics. These simple movements can be done while watching TV.

I have received a new **OneTouch UltraSmart Meter** and have one of my pump patients using it. We will be bringing you a personalized review soon.

We are looking for Pharmacists who want to experience insulin pump use, and become a pump trainer. If you have an interest [please click here](#) to see if you qualify for this experience.

Check out this weeks **Tools for Your Practice**: The response to our Step Study results was over whelming so we have made the protocols and pedometers available to those that want to start their one STEP study program in their office or place of work. So this Weeks Tools for your Practice will tell you how to get started.

This week's overview:

Item #2 Tells us that just attempting to lose weight has benefits. Item#8 Shows us how a doctor does group education in his office. Item!#9 Lets us know that people with short thighs have a greater risk in developing diabetes. Item #13 explains how dentists can help find patients who are unaware of having diabetes.

**Check out this weeks "Test Your Knowledge" question. [Click Here](#)**

Dave Joffe, *Editor-in-Chief*

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**News Flash - News Flash!!!!!!**

**Lipid Soluble Thiamine May Benefit Diabetes Patients**

New research results point to a possible role for lipid soluble thiamine in preventing some of the most common side effects of diabetes. Researchers reported that diabetic retinopathy damage may be avoided through the use of high doses of lipid soluble thiamine. [See Item #15](#)

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**Eli Lilly and Company Has Recalled Humalog Pen**

The FDA released the following information. Drug cartridges may be cracked or broken. Humalog Pen (insulin lispro injection, rDNA origin), U-100, 3 mL, 100 units per mL, disposable insulin delivery system. Rx only, NDC 0002-8725-01 (HP-8725). Recall # D-112-3. CODE Lot FF2S19C, exp. August 1, 2004.

There are 12,825 units in nationwide distribution.

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## New Product: **UltiGuard**



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## **Tools for your Practice: Start Your Own Step Study Program**

Click here for information on how to start a STEP study in your office or place of work.

### **STEP STUDY**

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This newsletter is the condensed version. If you would like to see the full newsletter go to <http://www.diabetesincontrol.com/Issue146index.htm>

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## **OPEN STUDIES:**

**Pre Enrollment** – Needle Disintegrator Feedback Study. You could be one of the chosen to zap your needles, pen needles and lancets in this professional feedback study. [Click here to sign up](#)

**WarmFoot Study II** Learn more and participate. [Click Here](#)

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## **This Weeks Items:**

1. **Metabolic Syndrome Affects 1 in 5 Americans**  
[Click Here](#)
2. **Even Attempted Weight Loss Reduces Mortality**  
[Click Here](#)
3. **Cardiovascular Risk Factors Affected By Diet**  
[Click Here](#)
4. **Get Enough Sleep and Avoid Diabetes\***  
[Click Here](#)
5. **Endothelial Function Impaired In Young Diabetics**  
[Click Here](#)
6. **Excess Weight for Older People with Diabetes Predicts Better Survival**  
[Click Here](#)
7. **Blood Pressure Strongly Associated with Insulin Resistance in African Americans**  
[Click Here](#)
8. **Multiple Benefits to Group Diabetes Model in Physicians Office\***  
[Click Here](#)
9. **Short Thighs of 15.1 Inches Linked to Greater Risk of Diabetes\***  
[Click Here](#)
10. **New Study Shows Fast Food and TV, Triple Obesity Risk, Except for Blacks?**  
[Click Here](#)
11. **Global Report Urges Less Sugar to Stem the Epidemic of Obesity-Linked Diseases**

[Click Here](#)

12. **Study: Can Science Lower Heart Disease Risk of Diabetes**

[Click Here](#)

13. **Diagnosing Diabetes in the Dentists Office**

[Click Here](#)

14. **Vitamins May Help Prevent Infections in Diabetics\***

[Click Here](#)

15. **Lipid Soluble Thiamine May Benefit Diabetes Patients**

[Click Here](#)

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## **ITEMS For The Week:**

Item 1

### **Metabolic Syndrome Affects 1 in 5 Americans**

*The metabolic syndrome, affects more than 20% of the US population, according to a report in the February 24th Archives of Internal Medicine.*

The metabolic syndrome includes high blood pressure, low HDL cholesterol level, high triglyceride level, high plasma glucose concentration, and obesity, the authors explain; the syndrome is defined by three or more of those conditions. Its prevalence in the US was previously uncertain.

Dr. Steven Heymsfield from the Obesity Research Center of Columbia University in New York and colleagues used data from the Third National Health and Nutrition Examination Survey (NHANES III) to estimate the prevalence of metabolic syndrome in 3305 black, 3477 Mexican American, and 5581 white men and women aged 20 years and older.

Overall, the authors report, 22.8% of men and 22.6% of women satisfied the Third Report of the National Cholesterol Education Program Adult Treatment Panel (ATP III) guidelines for the diagnosis of metabolic syndrome.

The prevalence was higher in Mexican American (20.8%) and white (24.3%) men than in black men (13.9%), the report indicates, and higher in Mexican American women (27.2%) than in black (20.9%) and white (22.9%) women.

The prevalence of metabolic syndrome increased significantly with advancing age, the researchers note.

According to multiple regression models, additional independent risk factors for metabolic syndrome included current smoking, high carbohydrate intake, and physical inactivity in men, as well as current and previous smoking, non-drinking, low household income, and postmenopausal status in women.

"Metabolic syndrome is extremely common, particular in some age, weight, and minority groups," increasing physical activity "is the most potent lifestyle treatment for metabolic syndrome," said Dr. Heymsfield. "Metabolic syndrome is most sensitive to treatment in the 'overweight' range, so even if you are few pounds overweight you may have great health benefits from small weight loss." Arch Intern Med 2003; 163: 427-736, 395-397.

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### **Breakthrough in Diabetes Education for Children**

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<http://www.diabetesincontrol.com/featurearchive.shtml>

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Item 2

**Even Attempted Weight Loss Reduces Mortality**

Attempts at loss weight, whether successful or not, may reduce their risk of death.

According to a report published in the March 4th issue of the Annals of Internal Medicine. Although many health risks have been linked with being overweight, the effect of weight loss on long-term health outcomes and longevity has been unclear, lead author Dr. Edward W. Gregg and colleagues, from the US Centers for Disease Control and Prevention in Atlanta, note. Furthermore, most of the studies that have looked at the effect on mortality rates have not assessed intentional weight loss.

Dr. Gregg's team evaluated findings from a study of 6391 overweight and obese adults living in the US in 1989. Intention to lose weight and recent weight change were determined by self-reports. The subjects were then followed for 9 years.

Subjects who reported intentional weight loss were 24% less likely to die than subjects who did not try to lose weight and did not lose weight. In contrast, unintentional weight loss was associated with a 31% higher mortality in subjects who were not trying to lose weight.

*Still, the researchers found that persons who attempted to lose weight, regardless of actual success, were less likely to die than were their peers who did not even attempt to lose weight. In fact, persons who attempted to lose weight, but actually gained weight, were slightly less likely to die than persons who were not trying to lose weight and did not lose weight.*

The findings indicate that intent plays a key role in determining whether weight loss will be beneficial, the authors note.

However, the results leave several issues unresolved, the investigators point out. "Our results do not fully clarify the issue of whether greater intentional weight loss confers greater benefits," they note. "Also, important questions about the effect of weight loss intent, weight loss, and weight gain on mortality unanswered, including the attributes of those who reported attempting to lose weight." *Ann Intern Med 2003; 138: 383-389.*

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**FACT: The nation spends \$13,243 on each diabetes patient, compared to \$2560 per person for people who do not have diabetes. See Last weeks Item [Cost of Diabetes](#)**

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Item 3

**Cardiovascular Risk Factors Affected By Diet**

*A high fat diet has a beneficial effect on postprandial glucose and insulin over time.*

Researchers report, a high fat diet has a beneficial effect on postprandial glucose and insulin over time but, it is associated with higher postprandial concentrations of triacylglycerols and non-esterified fatty acids,

A high glycemic index diet also appears to increase postprandial insulin resistance over time, however, say researchers from the Hammersmith Hospital, London, England.

Postprandial concentrations of glucose, insulin and triacylglycerols correlated with risk for coronary heart disease, they point out. Carbohydrates affected many metabolites that could affect cardiovascular risk factors.

The researchers carried out a randomized crossover study, which looked at the effect of carbohydrates on daytime profiles of insulin, glucose, non-esterified fatty acids and triacylglycerols in 17 middle-aged

men with one or more cardiac risk factors.

The researchers examined the acute (day 1) and medium-term (day 24) effects of four different diets:

1. High fat: half fat and at least 34% monounsaturated fatty acids;
2. Low glycemic index: high in carbohydrate as well as low glycemic index;
3. High-sucrose: high carbohydrate increase of 90 grams sucrose per day;
4. High glycemic index: high in both carbohydrate and glycemic index.

Daytime profiles of lipid and carbohydrate metabolism were completed at breakfast, lunch and late afternoon on days 1 and 24.

There was no change from day 1 or, on day 24, between diets in fasting glucose, lipids or homeostatic assessment model.

When compared with the three high-carbohydrate diets, the high fat diet was associated with lower postprandial insulin and glucose but higher postprandial triacylglycerols and non-esterified fatty acids.

There was a significant increase with the high sucrose diet between days 1 and 24 in triacylglycerol concentration at 15.00 hours.

Postprandial homeostatic assessment mode median changes from day 1 to 24 were falls of 61% for the high fat diet, 43% for the low glycemic index diet and 20% for the high sucrose diet.

The high glycemic index diet was significantly different from these, with a rise of 31%.

Although patients were advised to maintain an identical energy intake with the different diets, there was significant weight loss on the low glycemic index diet compared with weight gain on the high sucrose diet. *British Journal of Nutrition 2003;89:2:207-218*

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Item 4

**Get Enough Sleep and Avoid Diabetes**

*Sleeping five hours or less or nine hours or more each night may increase your risk of developing diabetes.*

*Prior to the invention of the electric light bulb, which has allowed us to transform night into day, people were sleeping NINE hours per night. While there are many benefits of electric light, constantly neglecting our sleeping needs poses a huge risk to our health.*

After following more than 70,000 diabetes-free women for a 10-year period, researchers found that women who slept five hours or less every night were 34 percent more likely to develop diabetes symptoms than women who slept for seven or eight hours each night.

Comparatively, women who slept nine hours or more each night were 35 percent more likely to develop diabetes symptoms.

During the course of the study, which began in 1986, 1,969 women developed diabetes and most showed symptoms of the condition.

Researchers were not certain why sleeping too much or too little might be linked to diabetes, though one theory involves leptin, a hormone that may play a role in signaling the body to stop eating.

Too little sleep may reduce levels of leptin, possibly causing people to gain weight and develop diabetes. When researchers removed factors such as overweight and obesity, too little sleep was not linked to diabetes, which suggests that sleep may indirectly affect diabetes by promoting weight gain.

One theory why too much sleep may increase diabetes risk is that people who sleep a lot tend to have poorer health in general. They may also have sleep apnea, a condition that may prevent restful sleep and cause people to sleep more overall due to feeling tired. Independently, sleep apnea may also increase diabetes risk. *Diabetes Care Feb, 2003;26:380-4*

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**Let your Patients Check Their Own A1c Levels. It will motivate to better control.**  
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**DID YOU KNOW: DIABETES IN CONTROL will be at the American Pharmacist Association Annual Conference in New Orleans, Please stop by our booth.**  
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Item 5

**Endothelial Function Impaired In Young Diabetics**

*Impaired endothelial function occurs in the first 10 years of diabetes mellitus (DM) in children.*

Researchers in the United States have found, that after impaired endothelial function occurs, it is followed by an increase in carotid intimal-medial thickness (IMT), Both endothelial function and carotid IMT are known to be abnormal in preclinical atherosclerosis. The researchers underline that the relative timing of these events is critical to developing strategies to prevent progression of atherosclerosis and other vascular complications in these children.

Dr T P Singh and colleagues at Wayne State University, Detroit, Michigan, are the first to examine the two conditions concurrently in a pediatric population exposed to a risk for arteriosclerosis. Their objective was to evaluate endothelium-dependent vasodilation and carotid IMT in children with insulin-dependent DM.

Although vascular complications of diabetes are not clinically evident in diabetic children, preclinical arteriosclerosis is more common in young people exposed to cardiovascular risk factors.

Study participants were 31 diabetics in their mid-teen years (age 15 years  $\pm$  2.4; duration of diabetes 6.8  $\pm$  3.9 years) and 35 age-matched healthy controls.

The investigators used high-resolution vascular ultrasound to compare carotid IMT and brachial artery responses to reactive hyperemia (endothelium-dependent vasodilation) and to sublingual nitroglycerin (endothelium-independent vasodilation).

Although there were no differences between the two groups in baseline brachial artery diameter, endothelium-dependent vasodilation was significantly lower in the diabetic than in the healthy children. There was no difference in endothelium-independent vasodilation or mean carotid IMT between the groups.

Endothelium-dependent brachial vasodilation correlated with blood glucose levels and was weakly and inversely related to duration of diabetes, total cholesterol and low-density lipoprotein cholesterol levels.

The relative timing of endothelial function impairment and increase in carotid IMT in these children is key to thwarting progression of atherosclerosis and other vascular complications, these authors conclude. *J Am Coll Cardiol 2003 Feb 19;41:4:661-5*

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Item 6

**Excess Weight for Older People with Diabetes Predicts Better Survival**

*Obesity is a negative prognostic factor in type 2 diabetics who are younger than 65 years, but higher body weight in older patients predicts better survival.*

The effect of obesity on mortality in patients under 65 years old appears to be mediated in part by hypertension, duration of diabetes and fasting plasma glucose, according to investigators from the Division of Endocrinology and Metabolic Diseases and the Division of Medical Statistics at the University of Verona Medical School in Verona, Italy.

A cohort of 3,398 patients with type 2 diabetes was followed for a period of 10 years. Survival in the different quartiles of body mass index was evaluated using two Cox models. One model controlled for sex, age, treatment and smoking. The second model controlled for the previous variables and for hypertension, duration of diabetes and fasting plasma glucose levels.

During the follow-up period there were 1,212 deaths. A significantly higher all-cause mortality was observed in patients under 65 years old who were in the highest body mass index quartile. Inclusion of hypertension, duration of diabetes and fasting plasma glucose in the Cox model resulted in a slightly lower relative risk in these patients.

In older type II diabetic patients, a moderate excess weight predicts a better survival, while obesity is a negative prognostic factor in patients younger than 65 y. In the latter patients, the effect of obesity on mortality seems to be partly mediated by hypertension, duration of diabetes, and fasting plasma glucose. *International Journal of Obesity (2003) 27, 281-285.*

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**DID YOU KNOW:**

***Sleeping five hours or less or nine hours or more each night may increase your risk of developing diabetes. See Item#4 [CLICK HERE](#)***

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Item 7

**Blood Pressure Strongly Associated with Insulin Resistance in African Americans**

*Insulin resistance is strongly associated with hypertension, especially in African Americans.*

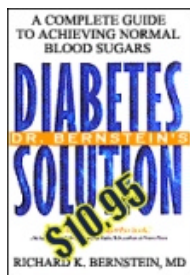
According to recent research from the United States, "Hypertension and diabetes mellitus are the leading contributors to end-stage renal disease. African Americans suffer higher rates of renal failure as well as other vascular morbidities associated with hypertension and diabetes

"Insulin resistance is a component of diabetes and also precedes the clinical expression of type 2 diabetes," said Bonita Falkner at Thomas Jefferson University in Philadelphia. "The relationship of blood pressure with insulin resistance, or impaired insulin action, occurs in African Americans and can be detected at young ages prior to the clinical expression of hypertension or diabetes. Through its relationship with hypertension, diabetes, and hyperlipidemia, insulin resistance is associated with endothelial dysfunction. The interface of insulin resistance with endothelial dysfunction may begin to explain the role of insulin resistance in vascular and renal pathology. The injury process, subsequent to both hypertension and diabetes, appears to be mediated by alterations tissue regulatory factors, and include vasoactive peptides such as angiotensin II, endothelin, and growth factors."

The researcher concluded, "Understanding the determinants that up-regulate the aberrant pathways and the early phases of these processes will be necessary to formulate strategies to effectively achieve renal protection and reduce the rates of renal failure in African Americans."

*Study published in Kidney International (Insulin resistance in African Americans. Kidney Int, 2003;63(Suppl. 83):27-30).*

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**Dr. Richard Bernstein's book the Diabetes Solution**

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Over a Million Copies Sold! Dr. Bernstein, a renowned and even revolutionary figure in diabetes treatment and diabetic himself will show you how you could stop the roller-coaster swings in your blood sugars, steady your glucose levels, reduce your insulin intake and

enjoy the same level of good health that nondiabetics enjoy.

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Item 8

**Multiple Benefits to Group Diabetes Model in Physicians Office**

*Patients form their own support group.*

Over time, patients develop relationships with others in a way that is very difficult with the 15-minute drop-in visit a couple of times a year.

Group visits in one St. Petersburg family practice residency program are providing patients with better care and residents with an innovative learning experience.

The St. Peter model earned the 2002 Patient Care Award for Excellence in Patient Education Innovation, presented at a conference on patient education sponsored by the Society of Teachers of Family Medicine

Dr. Devin Sawyer, first encountered the group visit model during his family practice residency at Providence St. Peter Hospital in Olympia, Wash. That group, for pregnant teenagers, combined individualized prenatal care with group teaching in a setting that fostered the growth of a support network among the young mothers.

After residency, Dr. Sawyer joined the St. Peter's clinic and expanded the group visit model to include a similarly structured diabetes group. Like the prenatal group, the diabetes group focuses on extended group teaching, combined with individualized patient care.

The bonds patients form during group visits benefit them outside of the clinic setting as well. Patients of like characteristics meet for an extended visit that is composed of a didactic session followed by individualized patient care. Each group has its own provider team that includes physicians as well as health professionals whose expertise is useful to the patient population.

Before each group visit, the medical team reviews charts and chooses the focus of the visit. Because the chart review is done before the group convenes, physicians can spend more time actively focused on patients and less on review.

Patients meet quarterly for a 2-hour session that begins with checking of vital signs, body mass index, and immunizations, and blood and urine collection. Each patient has a brief meeting with a physician who reviews the results and performs a foot check. The didactic session focuses on concepts of self-efficacy and self-management, often with guest speakers. Frequently, patients who have been in the program longer serve as role models for patients just beginning to come to terms with their disease.

"The idea is that, over the years, you have patients who develop relationships with others in a way that is very difficult with the 15-minute drop-in visit a couple of times a year," Dr. Sawyer said.

While patients certainly benefit from the extended teaching they receive, residents are also taking home some valuable lessons, Dr. Sawyer said.

"It's an innovative way to deliver patient care. It's not the usual format where you're 'double-booked' and stressed and giving the same talk over and over. My hope is that when they graduate, they'll have an appetite for innovation."

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**FACT:**

**Cardiovascular disease is the most costly complication of diabetes, accounting for more than \$17.6 billion of the \$91.8 billion annual direct medical costs for diabetes in 2002.**

*Item [Cost of Diabetes](#)*

**Diabetes In Control Choice Award Update:**

The winner of the Diabetes in Control Choice Award for the best new product for the new millennium is.... [Click Here to find out](#)

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Item 9

### **Short Thighs of 15.1 Inches Linked to Greater Risk of Diabetes**

*People with short upper legs are more likely to have glucose intolerance or diabetes,*

That was reported at the American Heart Association's 43<sup>rd</sup> Annual Conference on Cardiovascular Disease Epidemiology and Prevention.

Average thigh length was 15.4 inches for those with insulin resistance and 15.1 for those with diabetes. The average thigh length of men and women with normal glucose tolerance was 15.8 inches

The study seems to support the hypothesis that factors influencing growth in the womb and during childhood may contribute to the development of impaired glucose tolerance and diabetes, says Keiko Asao, M.D., M.P.H., and a Ph.D. candidate at Johns Hopkins University in Baltimore, Md. Impaired glucose tolerance is also called insulin resistance. It's a metabolic disorder in which the body cannot efficiently turn blood sugar (glucose) into energy.

"Leg length is not the issue. Some factor that affects leg length may also affect the development of diabetes," Asao says. "The issue is how good a marker is upper leg length? Our findings suggest a possible relationship between early growth and chronic disease later in life."

Researchers used data on 8,738 black, white and Hispanic men and women from the Centers for Disease Control's Third National Health and Nutrition Examination Survey (NHANES III). The participants were grouped by race and gender, then compared based on their upper leg length (ULL) and glucose tolerance: normal glucose tolerance, impaired glucose tolerance and whether they had diabetes.

"We found an inverse relationship between upper leg length and having either diabetes or insulin resistance, meaning shorter ULL was associated with the two metabolic conditions," Asao says. The average ULL for men and women with normal glucose tolerance was 40.2 centimeters (cm), compared to 39.1 cm for those with impaired glucose tolerance and 38.3 cm for the diabetic group.

After adjusting for other risk factors, the inverse association remained for white women and Mexican-American women, but not for blacks or men. For each centimeter less of ULL, white women were 19 percent more likely to have diabetes, and Mexican-American women were 13 percent more likely to have it.

Body stature is determined by both environmental and genetic factors. Upper leg length is considered a marker for growth in childhood, especially before puberty, says Asao.

While standing height is correlated with upper leg length, it is not linked to higher risk for diabetes or insulin resistance once other factors are considered, she says. "We did investigate the ratio of upper leg length to standing height and found that it is significantly associated with diabetes and insulin resistance. Upper leg length, more so than standing height, is a marker of growth specific to a certain time period of life."

From gestation through childhood, bodies grow in a somewhat predictable fashion in the order of head, trunk and legs. "Newborn babies have a larger proportion of head to the total length of their body. Along the path of development and growth, that proportion gets smaller. Much of the increase in leg length occurs after birth, during childhood," she explains.

Two previous studies in Europe that looked at overall leg length and stature found an association between shortness and a higher risk of developing diabetes and insulin resistance. "This is the first study to examine this question in the U.S. population, and the first to concentrate on upper leg length (ULL)," she says.

The researchers adjusted for age, body weight, and family history of diabetes, education, income, physical activity levels and lung function.

*Co-authors are WH Linda Kao, Ph.D., M.H.S.; Keshia Baptiste-Roberts, Ph.D., M.P.H.; Karen Bandeen-Roche, Ph.D.; Thomas Erlinger, M.D., M.P.H.; and Frederick Brancati, M.D., M.H.S. American Heart Association Conference 7th March 2003*

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## **Special Feature:**

### **The Results of the Diabetes In Control 10,000 Step Study:**

***30 MILLION STEPS & 15,000 Miles LATER!***

Find out how to start your own STEP Program in your office.

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Item 10

### **New Study Shows Fast Food and TV, Triple Obesity Risk, Except for Blacks?**

Eating fast food and sitting hours on end in front of the TV are really terrible for the waistline.

As obvious as this might sound, there actually is little firm scientific data to prove the point, especially against fast food. But now a large study released Saturday shows just how bad super-sized burgers and nonstop tube time can be for one's health.

"Fast food emphasizes primordial preferences for salt and fat," said researcher Mark Pereira. "This may promote overeating."

The project did turn up one surprise: While a lot of fast food is clearly bad for white people, it seems to make no difference at all for blacks.

The reason for this is unclear, but the researchers said the data suggest that black people's diets are often just as unhealthy at home as they are at the drive-through window. So a lot of fast food doesn't make matters any worse than they already are.

The analysis, conducted by Pereira of Boston's Children's Hospital, was based on a 15-year follow up of 2,027 whites and 1,726 blacks between ages 18 and 30 in Chicago, Minneapolis, Birmingham, Ala. and Oakland, Calif. He presented the data at a meeting in Miami Beach of the American Heart Association.

The key findings:

Whites who eat fast food twice or more a week have a 50 percent greater risk of obesity than do those who eat this way once or less.

Their risk of abnormal glucose control, an inability to break down sugar efficiently that often foreshadows diabetes, is double.

Whites who eat fast food more than twice a week and also spend at least 2 1/2 hours a day watching television have triple the risk of both obesity and abnormal glucose control, compared to those who eat out once or less and watch no more than an hour and a half of TV.

"It's clearly the composition of fast food meals that we feel plays a role, with a lot of saturated fat and low quality carbohydrates, white bread and lots of soda," said Pereira. "And what you are not getting is also critical, including fiber and more healthful types of fats. It's a dietary pattern that is the opposite of what's recommended for health."

And of course, there are all those calories. A super size fast food meal may exceed 1,600 calories, more than many people should eat in an entire day.

Many of the men and women in the study had fast food more than three times a week. Exactly what they ate didn't seem to matter much. Fries, burgers, breakfast sandwiches and nuggets all meant a greater risk of obesity.

Dr. Robert Eckel, director of clinical research at the University of Colorado, noted that the people studied are at unusually high risk of weight gain, since people pile up the most pounds between ages 25 and 34.

While the hazards of hyper-caloric meals and vegging out in front of the tube are clear, people who do these things probably have other bad habits, as well. "I suspect it relates to an overall lifestyle that is not conducive to good health," Eckel said.

Pereira said the lack of ill effect of fast food on young blacks was "very surprising." The reason may be that "blacks have a much poorer diet than whites, with less fiber and greater intake of soda," when they eat at home, "so blacks who don't eat much fast food still have a much poorer diet."

On the other hand, whites eating at home often appear to get reasonably healthy food, more like the menus recommended by the heart association and other health organizations.

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**Having the results of your patients A1c while you are with them can motivate them to better self-control.**

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Item 11

**Global Report Urges Less Sugar to Stem the Epidemic of Obesity-Linked Diseases**

*People should get no more than 10 percent of their calories from sugar.*

That from experts says in a major new report last week on how to stem the global epidemic of obesity-linked diseases.

The study is the most significant in more than a decade on what the world should be doing about its diet. Although concerns about sugar intake are not new, very few experts have recommended a specific limit.

The food industry immediately decried the document, insisting more exercise is the key to ending obesity. The report was commissioned by two U.N. agencies, the World Health Organization and the Food and Agriculture Organization, and compiled by a panel of 30 international experts.

The experts say heart disease, diabetes and other diseases that can be caused by poor diet and lack of exercise are no longer just the preserve of the Western world.

The report underlines what doctors have been saying for years - that along with regular exercise, a diet low in fatty, sugary and salty food is key to staying healthy.

The experts recommend one hour of daily exercise, double the amount recommended by the U.S. government but the same as that endorsed by other establishments.

And their recommendations on how much fat, grains, protein, salt and fruits and vegetables people should eat also were in line with prevailing opinion.

But when it came to sugar, their advice was some of the boldest yet.

The experts said people should restrict their consumption of added sugar - meaning sugar not naturally present in honey, syrups and fruit juices - to below 10 percent of calories.

In the United States, which leads the world in obesity, the government's Dietary Guidelines for Americans advise only that sugar should be used in moderation. The Institute of Medicine, part of the U.S. National Academy of Sciences, recommended in September that sugar could make up to 25 percent of calories.

"There are very few international recommendations on sugar. There are countries that are trying to develop recommendations on sugar, but every time they introduce them, the pressure from industry-led groups is very high," said Derek Yach, chief of non-communicable diseases at the World Health Organization.

Philip James, chairman of the International Obesity Task Force and one of the scientists on the panel, said the report presents the food industry with one of its biggest challenges.

"Despite all the attempts so far to increase the provision of healthier choices over the last 10 or more years, obesity rates have accelerated," he said. "The food industry must now sit down with WHO and others to work out how to seriously address this issue and become part of the solution rather than remaining part of the problem."

Rapid changes in diets and lifestyles resulting from industrialization, urbanization, economic development and global food trade have accelerated during the last decade, the report said.

That has meant improved standards of living in poorer countries, but also has led to inappropriate shifts in eating and exercise patterns and a corresponding increase in diet-related chronic diseases, the experts found.

Scientists predict that heart disease will be the leading cause of death in developing countries by the end of the decade. Obesity rates are also increasing more rapidly in developing countries than in rich nations, and two-thirds of the people with type 2 diabetes - the type related to bad eating and exercise habits - live in the developing world.

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**DO YOU KNOW**

**Indirect costs resulting from lost workdays, restricted activity days, mortality and permanent disabilities due to diabetes totaled \$39.8 billion. *Item [Cost of Diabetes](#)***

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Item 12

**Study: Can Science Lower Heart Disease Risk of Diabetes**

*A 70 clinic, 10,000 patient study will see what can be done to lower the risk of Heart Disease in patients with diabetes.*

Doctors have long known Type 2 diabetes increases the risk of heart disease and stroke. Now, researchers in 70 clinics in the United States and Canada will test what they believe are three promising approaches to lowering the heart disease risk from Type 2 diabetes.

Dr. Hertzell Gerstein, a professor of medicine at McMaster University in Hamilton, is the lead investigator for the 11 Canadian university, hospital and community-based diabetes clinics that will be participating.

"Type 2 diabetes accounts for a large proportion of all heart attacks, strokes, deaths and other health problems in Canada," Gerstein said.

"This large comprehensive study of 10,000 people, including 1,440 people in Canada alone, will clearly determine the role of intensive glucose, blood pressure and lipid control as a way to safely reduce these serious consequences."

The study will try to determine whether lowering blood sugars to a level closer to normal than called for in current diabetes guidelines reduces the risk of cardiovascular disease.

The second arm will look at what impact lowering blood pressure has on blood sugar controls and therefore diabetes. Many people with Type 2 diabetes also have high blood pressure.

The third will look at whether improving blood fat levels has an impact on heart disease in diabetes. People with Type 2 diabetes often have high levels of bad cholesterol and low levels of good cholesterol.

"The . . . trial will tell us whether, through a combination of intensive treatment of not just blood sugar but also blood pressure and cholesterol levels, we can prevent the heart disease associated with diabetes."

The study will be funded by the National Heart, Lung and Blood Institute and the National Institute on Diabetes and Digestive and Kidney Diseases - both part of the U.S. National Institutes of Health.

People with Type 2 diabetes die of cardiovascular diseases at rates two to four times higher than those who do not have diabetes and experience more non-fatal heart attacks and strokes.

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Item 13

## Diagnosing Diabetes in the Dentists Office

*Certain symptoms of undiagnosed diabetes show up in the mouth, dry mouth, gum disease and recurring mouth sores.*

The first indication can be a pesky mouth sore that will not go away, or an unusual oral dryness. Diabetes, which frequently shows signs in a person's mouth, is something that your dentist wants you to be aware of. The Nova Scotia Dental Association is making efforts to educate the public that diabetes can be diagnosed and treated early and that changes in oral health should be brought to the attention of your family dentist.

"Certain symptoms of undiagnosed diabetes show up in the mouth," said Dr. Paul Downing, president of the Nova Scotia Dental Association. "Anything that's out of the ordinary can be a cause for concern." Xerostomia, or 'dry mouth' as it is often called, is an early diabetes symptom. People with diabetes are also more likely to contract gum disease and often have recurring mouth sores. "Early diagnosis and good diabetes control are key to preventing or delaying the onset of diabetes complications," said Sandra Backman, Executive Director, Atlantic area Canadian Diabetes Association.

To help educate patients about the warning signs of diabetes, the Nova Scotia Dental Association and the Canadian Diabetes Association (Nova Scotia region) have teamed up to produce a poster and to distribute pamphlets for dental offices. And for those Nova Scotians who've been diagnosed with diabetes, the dental association and the Dalhousie University Faculty of Dentistry are organizing a Diabetes Oral Consultation Clinic where people with diabetes can book an appointment to discuss the oral implications of the disease with a dentist.

Some of the oral effects of diabetes can go unnoticed by the patient, thereby making routine examinations by a dentist important for early detection. Dentists need to be made more aware of the signs and symptoms of diabetes. Undiagnosed patients are probably seeing their dentist more often than their doctor.

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### **FACT:**

***The annual cost of the condition, which affects an estimated 17 million Americans, climbed from \$98 billion in 1997 to \$132 billion in 2002, according to report by the American Diabetes Association. See [Cost of Diabetes](#)***

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Item 14

## Vitamins May Help Prevent Infections in Diabetics

*People with diabetes may be able to ward off colds and other minor infections by taking a daily multivitamin, according to a new study.*

Taking a vitamin and mineral supplement did not prevent infections in people without diabetes, but the study's lead author did not rule out that some people without diabetes might see a drop in infections if they take a supplement.

Dr. Thomas A. Barringer, of Carolinas Medical Center in Charlotte, North Carolina stated that, "If the benefit seen in diabetics is due to the fact that their nutrition was more marginal, then any population at risk of having marginally inadequate nutrition, such as the elderly in general, might also benefit."

Noting that most of the people in the study were overweight or obese, Barringer said that "if obesity was a factor in why they benefited, then all obese people might benefit."

Forty percent of US adults take some sort of vitamin or mineral supplement on a regular basis, but there is little scientific evidence showing that supplements actually boost health.

But some research does suggest that a multivitamin enhances immune function.

The elderly and people with diabetes often do not consume adequate amounts of nutrients and they also have a slightly higher risk of infection, so Barringer's team studied whether a vitamin and mineral supplement would prevent minor infections.

A multivitamin did seem to ward off infections, at least in people with diabetes, the researchers report in the March 4th issue of the journal *Annals of Internal Medicine*. All the diabetic patients had type 2 diabetes, the most common form of the disease.

Only 17% of diabetics taking a multivitamin reported having an infection, such as an upper respiratory infection, the flu or a gastrointestinal infection, compared with 93% of diabetics who were taking a dummy pill. In addition, 89% of people with diabetes who took a placebo pill reported missing at least one day of work during the one-year study compared with none of the diabetics taking a multivitamin.

The reduction in infections was found almost exclusively in people with diabetes, according to the report. Participants with diabetes were more likely to be deficient in at least one vitamin or mineral at the start of the study, which could explain the beneficial effect of a multivitamin, Barringer's team points out. The researchers are uncertain, however, whether these small differences fully explain the effect.

The study included 130 adults' ages 45 and older. Roughly two out of three participants were overweight or obese and about 30% had type 2 diabetes. Although the researchers originally wanted to measure the effect of multivitamins in the elderly, too few older people enrolled in the study for them to make a conclusion. Only 33 patients were over 65.

Even though Barringer cautioned that the study is not the final word on the effect of multivitamins on the immune system, he pointed out that supplements are safe and relatively inexpensive, so taking a daily multivitamin is "a reasonable option" for people who are overweight, who have any type of diabetes, who may not receive adequate nutrition or whose immune system is weak.

"The potential impact of supplements merits further rigorous study, especially among diabetic persons and other vulnerable populations," they conclude in an editorial that accompanies the study. *Annals of Internal Medicine* 2003; 138: 365-371, 430-431.

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Item 15

### **Lipid Soluble Thiamine May Benefit Diabetes Patients**

*Lipid soluble Thiamine helps to prevent diabetic retinopathy damage.*

New research results point to a possible role for lipid soluble thiamine in preventing some of the most common side effects of diabetes. Researchers reported that diabetic retinopathy damage may be avoided through the use of high doses of lipid soluble thiamine.

High levels of glucose are responsible for microvascular damage and the resulting blindness, nerve damage, kidney failure and atherosclerosis often associated with diabetes.

Researchers at Albert Einstein College of Medicine in New York and their colleagues in Germany recently reported that this damage may be avoided through the use of high doses of lipid soluble thiamine.

The scientists looked at the development of diabetic retinopathy in a rat model of diabetes. Treating the animals with high doses of lipid soluble thiamine for 36 weeks completely blocked the development of retinal damage. They were also able to show that the lipid soluble thiamine worked by activating the enzyme transketolase, a key thiamine-dependent enzyme involved in carbohydrate metabolism.

The data indicates that treatment of diabetic patients with benfotiamine or other lipid-soluble thiamine derivatives might prevent or delay the development of diabetic complications." The key function that they believe is important is the increase in the transketolase activity. As the researchers reported, *standard water soluble thiamine* does not stay around in the body long enough to provide the increase in activity needed to make a difference. The lipid soluble forms of thiamine are much more bioavailable, thus significantly increasing the transketolase activity.

Although these results have not yet been confirmed in humans, they point to exciting new therapeutic opportunities for diabetes patients, 20,000 of whom now go blind every year as a direct result of diabetic retinopathy. There are lipid soluble forms of thiamine available without a prescription.

Hammes HP, Du X, Edelstein D, Taguchi T, Matsumura T, Ju O, Lin J, Bierhaus A, Nawroth P, Hannak D, Neumaier M, Bergfeld R, Giardino I, Brownlee M. Benfotiamine blocks three major pathways of hyperglycemic damage and prevents experimental diabetic retinopathy. *Nat Med.* 2003 Mar; 9(3):294-9.

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Quote of the Week-----

**“If I am not for myself, who will be for me, and if not now, then when”?**

*----- Hillel, in the times of the Talmud*

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