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DIABETES IN CONTROL.com NEWSLETTER

The Newsletter for Professionals in Diabetes Care

July 2, 2003 Issue #162

From the Editor's Desk:

Quite often our patients tell us – I do okay on my food choices at home but I eat out every day at work, or – If I had more time I wouldn't have to go by the drive-thru to get dinner 3 days a week!

We tend to scold these patients and they get frustrated. Since we at DIABETES IN CONTROL work with patients on a daily basis we know exactly how you feel. So we have decided to help.

Each week we will bring you nutritional information on your patients **favorite "fast foods"**.

To see this weeks selections [click here](#).

Paul Chous, M.A., O.D. Doctor of Optometry, continues his series The Many Faces of Diabetic Eye Disease: Glaucoma

While at ADA, I had the chance to catch up with **Vijaya Juturu, Ph.D., Nutrition Scientist** with Nutrition 21, Inc. Dr. Juturu had just presented his work as a researcher and developer of a new nutritional product for people with diabetes called Diachrome™ [Click here to read the interview](#).

This week's overview:

Item#4: Inactivity Increases Risk for Progression of Macular Degeneration

Item:#7: Consumption of Tea Products Lowers Cholesterol Levels

Item #14: Simple Meal Plan Effective For Diabetes Control

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

Dave Joffe, Editor-in-Chief

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New Product: The "Glucon Monitor"



Glucon is a start up company developing non-invasive glucose monitoring devices for the diabetic market. The Glucon devices will provide continuous, accurate, and real-time glucose monitoring, for clinical and personal use. It attains blood glucose measurements **directly from inside the blood vessels.** [More Info](#)

NEWS FLASH!

Aventis Announces Regulatory Submission For Rapid-Acting Analogue Insulin Glulisine in the European Union and the United States.

Insulin glulisine is a recombinant human insulin analogue that has a more rapid onset and a shorter duration of action than human regular insulin. It is designed to be injected shortly before or soon after meals. It is intended to be used in regimens that include a longer acting insulin or basal insulin analogue, and in some countries, with oral hypoglycemic agents to control prandial glucose. It is intended to be given by subcutaneous injection or by continuous subcutaneous pump infusion.

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Tools for your Practice: Diabetes: Know the Heart Part"

A great new resource is now available to Diabetes Educators and Medical Professionals. Diabetes: Know the Heart Part, is a kit designed to help you educate people with diabetes about the link between diabetes and heart disease. Use it as a stand-alone presentation or integrated into an existing resource.

The Diabetes: Know the Heart Part kit includes a PowerPoint presentation and CD-Rom, Discussion Guide and 25 Diabetes: Know the Heart Part patient brochures.

To get your Free Kit: [Click Here](#)

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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/Issue162index.htm>

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This Week's Items:

1. **'Polypill' Proposed for All Older Persons to Prevent Cardiovascular Disease***
[Click Here](#)
2. **Breathing Disorder Sleep Apnoea 'Linked To Diabetes'***
[Click Here](#)
3. **FDA Clears Bristol-Myers to Co-Package Statin With Aspirin Called "Pravigard PAC"**
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4. **Inactivity Increases Risk for Progression of Macular Degeneration**
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[Click Here](#)

ITEMS For The Week:

Item 1

'Polypill' Proposed for All Older Persons to Prevent Cardiovascular Disease

A combination pill targeted at four risk factors for cardiovascular disease (CVD) would dramatically reduce heart attacks and strokes by 80 percent if administered to everyone 55 or older or with known occlusive vascular disease.

The polypill, as the scientists called it in the British medical journal BMJ, has yet to be created. It would contain six drugs: a cholesterol-lowering statin; three blood-pressure medications; folic acid, which is thought to reduce homocysteine, a risk factor for heart disease; and aspirin, which can prevent heart attacks.

Taking the pill would lower the risk of heart attack by 88 percent and of stroke by 80 percent, the scientists said. They did not estimate a cost, but said the pill would be inexpensive because the ingredients are generic.

Because many people stand little risk of cardiovascular disease, the pill would not help everyone. Still, the scientists said, a third of those taking it would benefit, gaining an average of 11 years free of cardiovascular disease.

"What you're trying to do with this pill is reduce all the risk factors for cardiovascular disease at once," said Dr. Nicholas Wald, an epidemiologist at the University of London who wrote the paper with Dr. Malcolm Law, another epidemiologist at the university. "And you want the maximum reduction that is consistent with safety."

Eight percent to 15 percent of those who taking the pill could be expected to suffer effects from the ingredients, like fatigue, vivid dreams or a cough, Dr. Wald said.

Called the "polypill," it would contain aspirin to reduce the stickiness of blood cells involved in clotting, a statin drug to lower cholesterol and folic acid to reduce levels of homocysteine, an amino acid that promotes hardening of the arteries.

Three types of blood pressure drugs — an ACE inhibitor, a beta-blocker and a diuretic — would be included at half the standard dose — enough, the doctors say, to lower blood pressure without causing as many side effects as when the drugs are used individually at higher doses.

The scientists based their finding on evidence from more than 750 existing studies involving 400,000 participants taking heart medications. By multiplying risk reductions for individual drugs, they estimated the pill would prevent about 88 percent of heart attacks and 80 percent of strokes if taken by people over 55, as well as many people with high blood pressure, heart disease or diabetes.

For example, Wald and Law calculated that if 100 people would have had a heart attack without treatment, cholesterol drugs would prevent 61 of the 100 attacks, leaving 39. About 46 percent of those would be prevented with blood pressure drugs, leaving 21 heart attacks. About 16 percent of these would be prevented with folic acid, leaving 18, and 34 percent of the remaining attacks would be averted with aspirin, leaving 12 heart attacks out of the original 100.

They estimated that one-third of people over 55 taking the pill would benefit, gaining on average about 11 years of life free from a heart attack or stroke. Side effects, mostly from aspirin, would occur in between 8 and 15 percent of people who take the pill, depending on the formulation, the scientists estimated.

"The magic pill I would really like to see is one that would motivate our patients to diet, exercise and stop smoking," Dr. Ridker said. "You would get far greater reductions in heart disease than we can get from any of these medications."

The concept, outlined Thursday on the Web site of the British Medical Journal, is the brainchild of two University of London doctors, Nicholas Wald and Malcolm Law.

Studies of the "Polypill" are planned to see if the combination is safe and effective. Results are not expected for a few years. Law and Wald have filed a patent application on the formulation of the combined pill they described.

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FACT: Statin treatment reduces major coronary events, revascularisations, and stroke by nearly a quarter in people with diabetes regardless of whether they have occlusive arterial disease or raised cholesterol. This was the finding from a major study published last week.

Diabetic Medicine Volume 20 Issue 7 Page 545 - July 2003

We have upgraded our [Tools for Your Practice](http://www.diabetesincontrol.com/tools.shtml) page. Check out how easy it is to get all the tools you will ever need. <http://www.diabetesincontrol.com/tools.shtml>

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Item 2
Breathing Disorder Sleep Apnoea 'Linked To Diabetes'

People with a common breathing disorder which strikes while they are asleep could be at increased risk of getting diabetes later in life.

Scientists have found a link between obstructive sleep apnoea and early signs of diabetes.

They say it is possible the side-effects of apnoea could be causing permanent damage to their metabolism. Sleep apnoea leads an interruption of breathing during sleep - and affects one in ten middle-aged men. Being obese makes the condition much more likely, BBC reported.

Sleep apnoea is potentially damaging because it not only reduces the oxygen concentration in the blood stream, but also disturbs sleep patterns and causes daytime fatigue.

Researchers from Angers University of Hospital in France noticed the group of men diagnosed with sleep apnoea were also those apparently more prone to early signs of diabetes.

They wanted to find out whether there was a connection between the two. Almost 700 men with suspected sleep apnoea also had blood tests before and after a "meal" of glucose to see how well their body dealt with the sugar.

Diabetic shock: They were surprised by the findings - half of the apnoea patients seemed to have signs of a diabetes-related metabolic disorder.

Almost a third of those with confirmed apnoea could actually be defined as diabetic - and two-fifths of these cases were previously undiagnosed.

Dr Nicole Meslier, one of the researchers, said: "The degree of insulin resistance correlated with the severity of the sleep apnoea.

"This relationship cannot be explained by the known risk factors, such as age and weight, which we factored into our statistical analysis, even though our apneic patients were, on average, heavier than the ordinary snorers."

Oxygen lacking: The precise reasons for the connection cannot be proven, although there is some evidence that the oxygen deprivation caused by sleep apnoea might be harmful. Treatments are available for the worst sufferers, who are given supplemental oxygen through a mask at night to compensate for their condition.

However, the researchers, writing the *European Respiratory Journal*, strongly recommend anyone with sleep apnoea gets tested for diabetes.

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Did you know: Nektar Therapeutics announced last Monday a clinical trial showed its inhaled insulin product did not significantly hurt patients' ability to breathe, a safety concern that had delayed the drug's progress toward regulatory review. Shares of Nektar, which is developing the medicine with large drugmakers Pfizer Inc. and Aventis, jumped as much as 23 percent on hopes the new data would help the drug win approval.

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Item 3

FDA Clears Bristol-Myers to Co-Package Statin With Aspirin Called "Pravigard PAC"

Bristol-Myers Squibb Company announced on Thursday that it received approval from the U.S. Food and Drug Administration (FDA) to market Pravachol (pravastatin) in combination with low-dose aspirin under a new brand name, Pravigard PAC.

The co-packaged product will be marketed to patients needing both a statin and buffered aspirin and will be priced at the same wholesale price as Pravachol.

Advisors to the FDA had endorsed approval of the co-packaged product in July 2002 for the prevention of various cardiovascular events, including acute heart attacks, in at risk-patients, provided that the drugmaker market several separate doses.

The FDA panel said it was unlikely to support a fixed dose tablet, which may have enjoyed separate patent protection, due to potential unforeseen complications such as excessive bleeding during surgery.

Bristol Myers said the co-packaged product would be distributed in different dosage combinations, ranging from 20 mg to 80 mg of Pravachol combined with either 81 mg or 325 mg of buffered aspirin. But Keenan said a fixed-dose combination was also still under development.

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The 10,000 STEP STUDY: "The Results" A simple answer to a difficult problem. [CLICK HERE](#)

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Item 4

Inactivity Increases Risk for Progression of Macular Degeneration

In patients with early or intermediate stages of age-related macular degeneration (AMD), being overweight or obese appears to increase the risk for disease progression, while physical activity may decrease that risk, investigators at Harvard Medical School report.

In their report in the Archives of Ophthalmology for June, Dr. Johanna M. Seddon and colleagues point out that previous epidemiological studies looked at the onset or diagnosis of AMD, but not progression. Therefore, they conducted their prospective cohort study to evaluate the relationship between obesity, physical activity, cigarette smoking and cardiovascular disease (CVD) and development of geographic atrophy and exudative neovascular disease.

The 261 subjects were at least 60 years old when they enrolled between 1989 and 1998. Average follow-up time was 4.6 years, with 22% followed for 7 years or longer. During the course of the study, 101 patients progressed to advanced AMD, as documented by standardized ophthalmologic examination and fundus photography.

The risk for progression was more than doubled by having a body mass index > 25 compared with leaner counterparts (p = 0.007 for trend), after adjusting for age, gender, carotenoid intake, initial AMD grade and education. Higher waist circumference and higher waist/hip ratio -- measures of abdominal adiposity -- were also significantly associated with progression.

There was a relative risk of progression of approximately 0.75 associated with vigorous activity - "enough to work up a sweat" - 3 times per week compared with no activity (p = 0.05 to p = 0.07). Although there was also a trend toward increased risk with smoking, the relationship did not reach statistical significance. Hypertension and history of CVD were not related to progression.

"Results provide new information regarding modifiable factors for individuals with the early or intermediate stages of this disease," Dr. Seddon's group concludes. *Arch Ophthalmol 2003;121:785-792.*

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Purchase your own pedometers and receive the 10,000 Step Program at no charge with **free shipping.** [Click Here](#)

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DID YOU KNOW:

In a recent study, diabetes education received over the telephone was just as effective in improving blood-glucose control as diabetes education received in person. Patient satisfaction was high in both the telemedicine and in-person groups. *Diabetes Care, April 2003*

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Item 5

Walking Increases Longevity in Diabetics, Even When Comorbidities Are Present

Walking at least a few hours per week appears to decrease mortality across a wide spectrum of adults with diabetes, researchers at the Centers for Disease Control Announced.

Previous studies of physical activity among persons with diabetes included subjects who were "younger and likely healthier than the general diabetic population," Dr. Edward W. Gregg and associates point out in the Archives of Internal Medicine for June 23. To address a more representative cohort, they examined data from the National Health Interview Survey.

The 2896-member cohort was interviewed in 1990 and 1991 and mortality was assessed during the next 8 years. Persons considered disabled were not included in the analysis. Ages ranged from 18 to 95 years with an average time since diabetes diagnosis of 11.0 years. Nearly a third reported a history of heart disease, and almost half had a limitation in daily function.

Compared with subjects who reported no walking, those who walked at least 2 hours per week had a 39% lower all-cause mortality rate and a 34% reduced cardiovascular disease mortality risk, after controlling for age, gender, ethnicity, body mass index, smoking and comorbid conditions.

"Thus, among diabetic adults, one death per year may be preventable for every 61 people who could be persuaded to walk at least 2 hours/week," Dr. Gregg's team estimates. Risk reduction was greatest among those who reported moderate increases in heart rate or breathing while walking.

"Because of the high prevalence of underlying ischemic heart disease and the augmented risk of joint-related injuries, adoption of a moderate, rather than a vigorous, activity program may be more suitable for diabetic patients," Drs. Frank B. Hu and JoAnn E. Manson note in an accompanying editorial, and precautions should be taken to minimize exercise-induced hypoglycemia.

"Walking is probably the 'best medicine' for both prevention and treatment of diabetes mellitus," conclude the physicians from the Harvard School of Public Health in Boston. *Arch Intern Med 2003;163:1397-1398,1440-1447. See the Results of the Diabetes In Control STEPS TO HEALTH STUDY!*

[Step Program](#)

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Item 6

Physicians Urged to Promote Exercise to Patients, and to Set Example

Physicians need to walk a mile in their patient's shoes!

As well as recommending regular physical exercise to their patients to prevent and treat cardiovascular disease, physicians should "personally engage in an active lifestyle," according to a new report from the American Heart Association.

Writing in the June 23 rapid access issue of *Circulation*, a group of experts led by Dr. Paul D. Thompson of the Hartford Hospital in Connecticut note that people who get a lot of regular exercise appear to have half the risk of atherosclerosis as sedentary people.

In addition, regular exercise appears to lower the chances of a host of other chronic conditions, such as diabetes, depression and certain types of cancer.

Consequently, Dr. Thompson and his team suggest that doctors follow recommendations issued by the U.S. Centers for Disease Control and Prevention, which support at least 30 minutes of moderate exercise, such as a brisk walk, on most or all days of the week.

Co-author Dr. Barry Franklin of William Beaumont Hospital in Royal Oak, Michigan, stated that although that, despite the obvious benefits of exercise, he suspected that its value in protecting the heart and blood vessels has been "woefully underestimated," even among doctors.

"I think the medical community needs further education about the value of physical exercise," Dr. Franklin said.

Citing some of the evidence in favor of regular activity, he said that a lack of physical exercise probably predicts whether a person is at risk of dying just as well as other "big name" risk factors, such as high blood pressure and cholesterol.

In addition, Dr. Franklin described recent research that found that regular exercise appeared to reduce the risk of death as much as commonly used drugs, such as beta-blockers and aspirin.

In the report, the authors **also recommend that doctors themselves get regular exercise**, to "set a positive example" for their patients and the outside world. Doctors can also counsel schools and local businesses to encourage physical activity within their communities, the report notes. *Circulation 2003. DOI:10.1161/01.CIR.0000075572.40158.77*

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Item 7

Consumption of Tea Products Lowers Cholesterol Levels

Daily use of capsules containing flavonoids found in green and black tea appears to produce a significant drop in total and LDL cholesterol levels, according to a report published in the June 23rd issue of the Archives of Internal Medicine.

Flavonoid use has been shown to lower cholesterol levels in animal studies. There is also evidence from epidemiologic studies that tea consumption can lower such levels and protect against myocardial infarction. Still, the current study is the first human trial to show a cholesterol-lowering effect for tea products.

Lead author Dr. David J. Maron, from Vanderbilt University in Nashville, Tennessee, said that he expected, if anything, a very slight cholesterol-lowering effect. But what we saw was a 16% reduction in LDL cholesterol.

The findings are based on a study of 240 subjects with mild to moderate hypercholesterolemia who were randomized to receive a daily capsule containing theaflavins and catechins or placebo for 12 weeks. All of the subjects were on a low-fat diet.

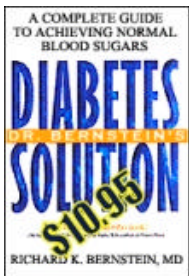
Treatment with the tea extracts was tied to a 11.3% and 16.4% drop in total and LDL cholesterol levels, respectively, compared with baseline values ($p = 0.01$ for both). Tea extract use was also associated with a nonsignificant rise in HDL cholesterol levels and triglyceride levels. No significant change in any of these levels was noted in the placebo group.

The incidence of adverse events was comparable in each group and no serious adverse events occurred in either group, the researchers point out.

"Based on these results, we recommend larger and longer-term randomized controlled trials to confirm our findings in a more diverse population and to study the effect of this extract on other risk factors for atherosclerosis," the authors conclude.

Arch Intern Med 2003;163:1448-1453

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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

Weight Loss Tied to Decrease in Inflammatory Proteins, Improved Insulin Resistance

Weight loss in morbidly obese patients leads to significant decreases in C-reactive protein (CRP) and interleukin-6 (IL-6) concentrations.

That, according to a report in the June issue of *Arteriosclerosis, Thrombosis, and Vascular Biology*. This is associated with an improvement of the insulin resistance syndrome.

"Obesity is closely linked to the insulin resistance syndrome (IRS), type-2 diabetes, and cardiovascular disease," Dr. Hans-Peter Kopp, of Rudolfstiftung Hospital, Vienna, Austria, and colleagues note, adding that "elevated levels of CRP and IL-6, indicating chronic subclinical inflammation, have been associated with features of the IRS and incident cardiovascular disease."

Thus, the team sought to investigate the potential clinical implications of changes in circulating levels of inflammatory proteins after weight loss.

In a cross-sectional, longitudinal study, the researchers examined the association between IRS and CRP, IL-6, and tumor necrosis factor-alpha (TNF-alpha) in 37 morbidly obese patients before and after gastric surgery.

Weight loss after gastric surgery led to a significant shift from diabetes (37% to 3%) to impaired glucose tolerance (40% versus 33%), and to normal glucose tolerance (23% versus 64%). Concentrations of CRP and IL-6 were reduced significantly, whereas levels of TNF-alpha remained unchanged.

Further analysis revealed an independent and significant correlation between a decrease in insulin resistance and a decrease in IL-6 concentrations ($p < 0.01$). In addition, a decrease in body mass index was independently and significantly correlated with a decrease in CRP ($p < 0.05$).

The authors speculate that "a significant reduction in CRP and IL-6 levels associated with weight loss could also reduce the cardiovascular risk in morbidly obese patients." However, they conclude that "long-term studies are needed to show whether this improvement in cardiovascular risk factors will eventually translate into a significant clinical benefit in regard to cardiovascular morbidity and mortality."

Arterioscler Thromb Vasc Biol 2003; 23: 1042-1047.

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FACT: In ASCOT-LLS Trial, with more than 19,000 people, they found that a statin drug was responsible for a 36% reduction in fatal coronary events and nonfatal heart attacks, 27% reduction in fatal and nonfatal strokes and a 21% reduction in cardiovascular events. *The Lancet April 5, 2003*

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Item 9

Repaglinide Vs. Nateglinide in Type 2 Diabetes

Administration of the oral antidiabetic drug (OAD) repaglinide (called Prandin® in the United States, NovoNorm® in Europe, and Gluconorm® in Canada) in people with type 2 diabetes resulted in significantly greater reductions in blood glucose markers than nateglinide when taken in combination with metformin.

Although both agents are designed for people with type 2 diabetes to take with meals to control the rise in blood glucose following food consumption, the new report shows that repaglinide therapy results in greater improvement in levels of A1C. The study is the first head-to-head comparison of repaglinide and nateglinide in combination with metformin.

"Improving glycemic control is one of the main goals in diabetes therapy," said lead investigator Philip Raskin, M.D., professor of medicine and Clifton and Betsy Robinson Chair in Biomedical Research at the University of Texas Southwestern Medical Center in Dallas, Texas. "Our findings suggest that repaglinide, when compared with nateglinide, in combination with metformin, offers healthcare professionals greater control over both A1C, and FPG in type 2 diabetes -- and controlling both of these parameters is necessary for optimal glycemic control," he said.

The open-label, randomized, multicenter trial enrolled 192 participants with type 2 diabetes who had inadequate glycemic control, as determined by A1C levels (>7% < 12%). Prior to the study, the participants had been treated with other OADs: a sulfonylurea, or low-dose combination therapy with metformin and the sulfonylurea glyburide.

At the beginning of the study, participants discontinued their previous therapy and, during a four-week run-in period, started dose escalation with metformin (to 1000 mg twice daily). Participants were then randomly assigned to additional therapy with either repaglinide (1-4 mg/meal, n=96) or nateglinide (120 mg/meal [dose could be reduced to 60 mg/meal if hypoglycemic events made it necessary], n=96) for 16 weeks. During the study, participants self-monitored blood glucose (SMBG) levels before and two hours after each meal, and at bedtime and 2 am. Blood levels of glucose, insulin and glucagon were assessed after participants consumed a standard liquid test meal at the beginning and end of the study.

Findings showed participants taking repaglinide achieved better glycemic control than did those taking nateglinide. From the fourth week of the study on, the repaglinide group had significantly lower A1C values than the nateglinide group. By the end of the study, the change in A1C from baseline was significantly greater for the repaglinide group (-1.28% vs. -0.67%, respectively, p < 0.001). From the first week of the study on, the repaglinide group also had significantly lower FPG levels than the nateglinide group. By the end of the study, the change in FPG from baseline was significantly greater for the repaglinide group (-39 vs. -21 mg/dL, respectively, p=0.002). Mean SMBG values were consistently lower for repaglinide vs. nateglinide, and were significantly lower for measurements taken before breakfast, before lunch, and at 2:00 am. Baseline-adjusted blood levels of glucose, insulin and glucagon following the liquid test meal were not significantly different for the two treatment groups at the end of the study.(1)

"Reductions in A1C and FPG with repaglinide were significantly greater than with nateglinide," said Dr. Raskin. He added that the larger effect of repaglinide was not due to dosing differences, since the median final dosage of repaglinide was only 31 percent of the recommended maximum vs. 100 percent of the recommended maximum for nateglinide.

Minor hypoglycemic episodes occurred in 7 percent of the patients in the repaglinide/metformin group vs. 2 percent of patients in the nateglinide/metformin group. Both repaglinide and nateglinide were associated with small weight changes (+0.6 kg vs -0.5 kg, respectively).

Diabetes Care 2003 July; 26(2):2063-2068 SOURCE: Novo Nordisk

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Breakthrough in Diabetes Education for Children

dbaza inc. has created a product can help you use your education time more effectively, allowing you to spend your time on the more difficult issues. [More Information](#)

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Item 10

A1c Results Directly Related to Education

New study results show a direct relationship between the diabetes knowledge of the patient and their A1c results.

Diabetes has reached epidemic proportions. Most of the morbidity, mortality, and cost of type 2 diabetes is related to cardiovascular complications. These complications can be decreased by improving glycemic control. However, one problem in diabetes care is the poor translation of knowledge derived from research to clinical practice. A lack of patients understanding the long-term ramifications of poor glycemic control may play a role in this. To further test this hypothesis, we performed the following study to determine whether patient diabetes knowledge was related to glycemic control.

Diabetes knowledge was measured using the Michigan Diabetes Knowledge Test (J.T. Fitzgerald, University of Michigan, Ann Arbor, MI). Only questions pertaining to type 2 diabetes were used. HbA_{1c} values were determined. Data were analyzed using SAS software version 6.1 (SAS, Cary, NC). Logistic regression analysis was done using Pearson's correlation coefficient.

Seventy-seven subjects completed the study. The average number of questions answered correctly was 8.5 ± 2.3. The mean HbA_{1c} value was 8.05 ± 1.6%. Regression analysis demonstrated an inverse correlation between the number of correct responses and HbA_{1c} values. For each increase in the number of questions answered correctly, HbA_{1c} decreased by 0.239 (*r* = -0.337, *P* < 0.003).

These results suggest that improved diabetes knowledge improves glycemic control. Other studies have shown that patient educational interventions lower HbA_{1c} values. Patient education should be part of the diabetes treatment plan as this provides another modality for reaching glycemic targets. Patient empowerment is a strong tool that can be attained through knowledge of disease processes.

In conclusion, we have shown that improved diabetes knowledge is associated with better glycemic control. Empowering diabetic patients with knowledge of their disease may help combat this financially draining epidemic. *Diabetes Care 26:2220-2221, 2003*

"Diabetes in Control 10,000 Step Study 30 Million Steps and 15,000 Miles Later"

Because of the Diabetes In Control Study, more than 3000 patients have started the Step Program. Have a program for your office. [More Information](#)

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Item 11

Treating Pre-Diabetes with Increased Fiber Consumption To Prevent Diabetes

High intake of dietary fiber is associated with enhanced insulin sensitivity.

The purpose of the study was to examine cross-sectional associations of dietary fiber intake with insulin resistance, insulin secretion, and glucose tolerance in a population at high risk for type 2 diabetes.

The subjects consisted of 248 male and 304 female adult nondiabetic relatives of patients with type 2 diabetes. Dietary intake was measured by means of two 3-day food records. Associations of total, water-insoluble, and water-soluble fiber with measures of glucose metabolism based on an oral glucose tolerance test, were analyzed by multiple linear regression analysis adjusting for sex, age, length of education, physical activity, BMI, waist-to-hip ratio, systolic blood pressure, and serum triglyceride and HDL cholesterol concentrations. The homeostasis model assessment insulin resistance index, the incremental 30-min serum insulin concentration divided by the incremental 30-min glucose concentration, and fasting and 2-h glucose concentrations were the outcome variables.

The results showed that the dietary intake of total as well as water-insoluble and water-soluble fiber was inversely associated with insulin resistance: -0.17 (0.07), *P* = 0.012; -0.15 (0.07), *P* = 0.024; and -0.14 (0.07), *P* = 0.049 [regression coefficients (SE)]. Fiber variables were unrelated to insulin secretion and plasma glucose concentrations.

In conclusion, the results support evidence that a high intake of dietary fiber is associated with enhanced insulin sensitivity and therefore may have a role in the prevention of type 2 diabetes.

Associations of Dietary Fiber With Glucose Metabolism in Nondiabetic Relatives of Subjects With Type 2 Diabetes The Botnia Dietary Study : Diabetes Care 26:1979-1985, 2003

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Did YOU KNOW: Medicare spends %13,243 on each recipient with diabetes, compared to \$2,560 for people without diabetes. It represents 27% of the Medicare Budget. The JDRF rep[orts that one in four Medicare dollars is spent on diabetes. On top of this, the expenses a person with diabetes faces are 2.4 times higher than medical expenses for people without diabetes. *Diabetes Care March 2003*

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Item 12

Heart Rate Recovery Following Exercise as a Predictor of Cardiovascular Disease and Mortality in Men With Diabetes

Attenuated heart rate recovery (HRR) following maximal exercise test is a predictor of mortality in healthy adults and in those referred for diagnostic testing

Regular exercise training may improve HRR in healthy individuals and in patients with congestive heart failure or diabetes. Regular exercise also improves markers of glucose metabolism. We have previously described a strong, inverse association between cardiorespiratory fitness and 12-year mortality in a cohort of 1,263 men with documented type 2 diabetes. The purpose of the current research was to evaluate whether slow HRR after maximal exercise predicts cardiovascular disease (CVD) and all-cause mortality among these diabetic men.

Heart rate recovery (HRR) is an independent prognostic indicator for cardiovascular disease (CVD) and all-cause mortality in healthy men. We examined the association of HRR to CVD-related and all-cause mortality in men with diabetes.

In this cohort study we examined 2,333 men with documented diabetes (mean age 49.4 years) that had baseline 5-min HRR measurement following maximal exercise (heart rate_{peak} - heart rate_{5 min of recovery}) at The Cooper Clinic, Dallas, TX.

The results showed that during a median of 14.9 years follow-up, there were 142 deaths that were considered CVD related and 287 total deaths.

We found that lower HRR measured even as long as 5 min following maximal exercise was independently associated with higher CVD and all-cause mortality in men with diabetes. This association persisted even after accounting for age, cardiorespiratory fitness, prior CVD, and other possible confounders. Our findings have shown strong associations between mortality and impaired HRR in adults referred for symptom-limited exercise testing and thallium scintigraphy for diagnostic purposes, but to our knowledge our results are the first to show this association in patients with diabetes. It is important to note, however, that HRR was not the strongest predictor of risk. Therefore, when assessing risk in men with diabetes, it should not be used alone but rather in conjunction with other strong predictors, such as cardiorespiratory fitness.

Evidence from this study suggests that HRR is an independent predictor of CVD and all-cause mortality from cardiorespiratory fitness.

In conclusion, men with diabetes who had slow HRR at 5 min following a maximal exercise test had a higher risk of CVD and all-cause mortality when compared with similar men who had more rapid HRR. The high risk in men with slow HRR persisted after adjustment for cardiorespiratory fitness, baseline prevalence of CVD, and other potential confounding variables. The results of our study suggest that the exercise test, which is simple, safe, and inexpensive, can be used as a powerful tool for clinical risk stratification in diabetic men by noting both HRR and cardiorespiratory fitness.

Among men with diabetes, a decreased HRR, even measured as long as 5 min after recovery, was independently predictive of cardiovascular and all-cause death. *Diabetes Care 26:2052-2057, 2003*

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Item 13

Homocysteine A Risk Factor For Nephropathy & Retinopathy in Type 2

Increased homocysteine concentrations are associated with an increased risk for incidence of nephropathy and proliferative retinopathy.

The aim of this study was to examine the relation between serum total homocysteine concentrations and microvascular complications in Pima Indians with Type 2 diabetes.

Homocysteine concentrations were measured in frozen sera of 396 diabetic participants in a longitudinal study who were 40 years of age or older and who had attended one or more examinations between 1982 and 1985. Retinopathy was assessed by fundoscopy and nephropathy by an albumin:creatinine ratio greater than 300 mg/g. The incidence rate ratio for a 5 µmol/l difference in homocysteine was calculated using proportional hazard regression.

The incidence of each complication was assessed in subjects without that complication at baseline and with more than one follow-up examination: 229 for nephropathy, 212 for retinopathy and 266 for proliferative retinopathy. There were 101 incident cases of nephropathy, 113 of retinopathy and 40 of proliferative retinopathy during a mean follow-up of 8.6, 7.5 and 8.9 years, respectively. Incidence of nephropathy was associated with homocysteine concentrations: IRR=1.42 (95% CI, 1.09–1.84, $p=0.01$); this remained statistically significant controlled for age, sex and duration of diabetes ($p=0.03$), but not when controlled for baseline renal function ($p=0.4$). Homocysteine concentrations were not associated with the incidence of any retinopathy IRR=1.14 (95%CI 0.89–1.46, $p=0.3$) but were associated with the incidence of proliferative retinopathy IRR=1.62 (95% CI 1.16–2.28, $p=0.005$); this association remained statistically significant when controlled for baseline renal function and diabetes duration ($p=0.02$).

In conclusion the results showed increased homocysteine concentrations are associated with an increased risk for incidence of nephropathy and proliferative retinopathy; the relation with incidence of nephropathy seems to be explained by an association with baseline albuminuria status concentrations, whereas the relation with incidence of proliferative retinopathy does not.

Diabetologia (2003) 46: 766-772

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FACT: In a national study, women lost more weight on a lower-carb diet than on a lower-fat diet, even when the calorie load was the same. The lower-carb diet group lost more weight (18 pounds) and more body fat (10.5 pounds) than the lower-fat diet group (8.5 pounds and 4.4 pounds, respectively). *Journal of Clinical Endocrinology and Metabolism, April 2003*

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Item 14

Simple Meal Plan Effective For Diabetes Control

Choosing healthy, low-fat foods is just as effective for type 2 diabetes patients to control glucose levels as more complex meal plans that emphasize weight loss, Emory researchers said.

A simple meal plan encouraging diabetes patients to make good food choices by eating less sugary and fatty foods may be easier for health workers to teach to patients, especially those who have low literacy levels, according to a study in the June issue of Diabetes Care.

"The bottom line is that you can teach diet in a simpler manner and still get good results," study author Dr. David Ziemer of the Emory University School of Medicine said in a statement.

More complex meal plans currently used require diabetes patients to compute and classify foods and to keep track of the classifications from food lists.

Under the simple plan, researchers modified the Food and Drug Administration's Food Guide Pyramid to emphasize high-starch and high-protein foods recommended for those with diabetes. Patients were told to limit sweets and fats, especially saturated fats. Unlike the complex diabetes plans, portion sizes weren't discussed and weight loss wasn't emphasized.

The study was conducted with 648 patients at the Grady Health System Diabetes Clinic.

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Diagnostic Tests for Home or Office: Total Cholesterol, Cholesterol Panel, TSH (Thyroid Test), PSA, and A1c. [More Info:](#)

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Item 15

ADA: Disease Management Program Cuts Lower Extremity Amputation Rate in Diabetes Patients

Population-based lower extremity screening combined with a treatment program leads to a progressive decrease in the rate of amputation in patients with diabetes.

Dr. Robert Wunderlich, from the Diabetes Research Group, in San Antonio, Texas, presented 4-year results in 2,700 diabetes patients who participated in such a program.

The screening evaluation focused on identifying factors that would put patients at risk of subsequent diabetic foot pathology. These factors included a history of ulceration or amputation, peripheral sensory neuropathy, peripheral vascular disease, and musculoskeletal deformities of the foot.

After screening, patients were placed into a low-risk or high-risk group. Low-risk patients had no history of ulceration or amputation, had intact protective sensation, and had no evidence of peripheral arterial occlusive disease. High-risk patients had one or more of the following: a history of foot ulceration or amputation, loss of protective sensation, or evidence of peripheral arterial occlusive disease.

Patients in the low-risk group were referred to a patient education program supervised by a certified diabetes nurse educator, and foot care was provided on an as-needed basis. Screening evaluations were repeated annually.

Patients in the high-risk group were evaluated by a staff podiatrist and referred to a certified pedorthist for fitting of therapeutic shoes and insoles. Most patients were prescribed extra-depth shoes with dual density bi-laminar accommodative insoles. These patients were seen at 8- to 12-week intervals for infrared dermal temperature testing and palliative foot care. Acute foot problems were treated immediately by a staff podiatrist. Patients with acute peripheral arterial occlusive disease were promptly referred to a vascular surgeon.

All patients in the high-risk group were also referred to a patient education program.

The investigators identified an amputation incidence of 70.4 per 10,000 patients during the first year of intervention (1999). After continued implementation of the screening and prevention program, the amputation incidence was reduced to 48.4 per 10,000 patients during the most recent year of intervention (2002) -- a 31.3% reduction.

There was a 47.3% reduction in above-knee and below-knee amputation incidence compared to the first year of the study.

"From a financial standpoint, traditional health care spending models focus only on the most acute cases," Dr. Wunderlich said. "Our approach focuses on the entire population. This effectively shifts the spending mean to a lower value, thus reducing health care costs for the entire diabetic population."

Researchers reported at the 63rd Scientific Sessions of the American Diabetes Association.
[Study title: *Progressive Reduction in Diabetes-Related Lower Extremity Amputation Incidence in a Disease Management Model. Abstract 1042*]

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Quote of the Week-----

"Love doesn't make the world go round; love is what makes the ride worthwhile."

-----Franklin P. Jones

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