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Thank you to **TheraSense** sponsor of the Florida West Coast Diabetes Educators at [www.fwcade.org](http://www.fwcade.org)  
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**DIABETES IN CONTROL.com NEWSLETTER**  
*The Newsletter for Professionals in Diabetes Care*

November 9, 2002 Issue 125

**From the Editors Desk:**

The Warm Foot study has started and we have educators and doctors participating from all over the world including, Barbados, West Indies, George East, South Africa and Jabalpur, INDIA. There is still room for you to participate, click on Warm Foot Study below.

I recently had a hard time explaining to a patient with a "high normal A1c" [why blood glucose swings are dangerous](#). I asked **Dr Bernstein** how he would explain this to my patient. [Click here to find out his response](#).

Exercise has been shown to, help lower blood glucose, decrease insulin resistance, and improve your heart, now a new study shows [Exercise Improves Endothelial Function in Patients with Type 1 Diabetes](#)  
[See item #6](#).

Are Vegetarians at a greater risk for diabetes?? **Sherri Shafer, R.D., Certified Diabetes Educator** answers that question. [Click here](#)

We have some more winners from the Survey contest. If you filled out our DIABETES IN CONTROL survey please click here to see if you won.

Dave Joffe  
Editor-in-Chief

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**News Flash - News Flash**

**UPDATE:**

**User's of the TheraSense Tracker** who also use an insulin pump are advised to download a free software update from the TheraSense Tracker website to remedy a potential problem related to basal rate profiles. If you are using more than 7 basal rates in a 24 hour period, the system may not track the basal rates correctly. This FreeStyle Tracker System software update will upgrade your FreeStyle Tracker System with PDA version 1.23. This update will:

- ?? provide a correction to the basal rate tracking capability of the System and more than double the insulin sensitivity selections for the Insulin Adjustment Table

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**New Product**

**New Insulin Analog NovoLog® Mix 70/30 FlexPen® is Now Available**

Novo Nordisk announced that NovoLog® Mix 70/30 (70% insulin aspart [rDNA origin] protamine suspension and 30% insulin aspart [rDNA origin] injection), a new dual-action insulin analog, along with the new NovoLog Mix 70/30 FlexPen® prefilled syringe, is now available nationwide for the treatment of diabetes. [Click here for more information](#).

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**Tools for your Practice: Coming Next Week**

Diabetes in Control has teamed up with Biosafe to offer Free A1c tests for your patients.

BIOSAFE Kids, a tax exempt 501(c) (3) charitable organization created by BIOSAFE Medical Technologies, Inc., a leader in at-home, diagnostic medical testing, will distribute free and low-cost BIOSAFE Hemoglobin A1c tests to assist adults and children affected with diabetes who are in the greatest financial need, and also to raise public awareness of the necessity for regular Hemoglobin A1c testing. Tests will be distributed through diabetes educators, pharmacists, clinics and doctor's offices. Information will be available in next weeks Diabetes In Control Newsletter.

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**Product Update: A1cNow is Less Than 9 Dollars!**

*Now less than 9 dollars for the first and only NGSP A1c test that is instant and disposable.*

*For more info on how you can now use it in your office practice [click HERE!](#)*

**75% of patients with diabetes are not getting the recommended A1c testing.**

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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/Issue124index.htm>

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**OPEN STUDIES: For Your Participation** *(Educators have said that just by participating in a study, they can get better outcomes)*

1. [The FIBER Study \(Click Here\)](#)
2. RELAXATION – WarmFeet® study Version II [Click Here](#)

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**This Weeks Items:**

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[Click Here](#)

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**ITEMS For The Week:**

Item #1

**Soy and HRT Improves Risk Factors for Heart Disease in Women with Diabetes**

*Patients with diabetes taking soy had improved control of blood-sugar levels and a significant drop in LDL or "bad" cholesterol and insulin resistance, suggesting a reduced risk of heart disease*

Two articles out last week say Thursday say both soy supplements and hormone replacement therapy appear to improve risk factors for heart disease in women with diabetes. But neither study examines whether the treatments prevent heart attacks.

Studies in the journal Diabetes Care add to the debate over how postmenopausal women can best reduce their risks for heart disease. "This is an area where we have a great deal of data, none of it perfect, and people are trying to make decisions based on it, which is not easy," says Eugene Barrett, professor of medicine at the University of Virginia in Charlottesville and president-elect of the American Diabetes Association.

In one study, researchers at the University at Buffalo examined data on 2,786 postmenopausal women enrolled in the Third National Health and Nutrition Examination Survey and found that those with diabetes and currently on hormone replacement therapy had lower cholesterol and blood-sugar levels than those who previously used or never used hormone supplements. Levels of certain blood proteins associated with heart health also appeared better in women on hormone therapy, the researchers report.

The finding seems to conflict with data from large clinical trials suspended this summer after hormone replacement therapy was found not to improve heart health and might even increase the risk of heart disease and stroke.

Carlos Crespo, lead author of the Buffalo study, says his study suggests that women with diabetes who were not included in the halted trial might be among a "segment of women who would be better off using" hormone therapy.

Barrett says that is not clear. "It may be that women on (hormones) see their doctors more, take better care of themselves," he says. "It may not be because they're on hormone therapy that their cholesterol is a bit lower."

In the soy study, researchers at the Michael White Centre for Diabetes and Endocrinology in Hull, England, gave 32 women with diabetes soy supplements or a placebo for 12 weeks and found those taking soy had improved control of blood-sugar levels and a significant drop in LDL or "bad" cholesterol and insulin resistance, suggesting a reduced risk of heart disease.

Neither study looks at long-term outcomes, Barrett says. "The best you could say is the soy didn't have deleterious effects, as far as we could tell, but whether that's going to translate into clinical benefits is not known." Of the hormone study, he says, "Biochemically, it looked favorable." But other studies designed to isolate the effect of hormone supplements from other factors "would suggest it's not so favorable."

The best advice, he says, is to talk to doctors about dietary changes or medications to control blood pressure and blood sugars to lower the risk of heart disease.

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(Public Service)

If your patients are having a problem paying for their medications go to [www.diabetesmeds.org](http://www.diabetesmeds.org) and download the application that will allow them to get all of their medications for 10 dollars or less for a 90 day supply.

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Item #2

**Repaglinide Versus Metformin in Combination With Bedtime NPH**

*Combined with bedtime NPH insulin, metformin provides superior glycemic control to repaglinide.*

The study compared the effect on glycemic control and weight gain of repaglinide versus metformin combined with bedtime NPH insulin in patients with type 2 diabetes.

A total of 80 subjects treated with 850 or 1,000 mg t.i.d. metformin combined with bedtime NPH insulin were randomized to 13 weeks of open-label treatment with 4 mg t.i.d. repaglinide ( $n = 39$ ) or metformin (dose unchanged) ( $n = 41$ ). Insulin dose was titrated at the clinician's discretion, aiming for a fasting blood glucose (FBG)  $\leq 6.0$  mmol/l.

The study showed that baseline age, diabetes duration, insulin requirement, weight, BMI, FBG, and HbA<sub>1c</sub> (Diabetes Control and Complications Trial-aligned assay, normal range 4.6–6.2%) were similar. Glycemic control improved (nonsignificantly) with insulin/metformin by (mean) 0.4%, from 8.4 to 8.1% but deteriorated with insulin/repaglinide by (mean) 0.4%, from 8.1 to 8.6%. Weight gain was less with insulin/metformin:  $0.9 \pm 0.4$  kg (means  $\pm$  SE) versus  $2.7 \pm 0.4$  kg ( $P < 0.0001$ ).

From the results, it was concluded that, combined with bedtime NPH insulin, metformin provides superior glycemic control to repaglinide with less weight gain and improved diabetes treatment satisfaction. *Diabetes Care* 25:1685-1690, 2002

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**FACT**

***Americans are eating an average of 400 calories more than they did decades ago -- at that rate an average person can expect to gain 41.7 pounds a year.***  
**NIH**

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**Let your Patients Enjoy low carb chocolates with no sugar and 1gm of carbohydrate:**  
[http://www.rx4betterhealth.com/catalog10\\_0.html](http://www.rx4betterhealth.com/catalog10_0.html)

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Item #3

**Older Women With Diabetes Have a Higher Risk of Falls**

*Can improving diabetes treatment reduce the risk for falls?*

The object of the study was to determine whether older women with diabetes have an increased risk of falls and whether known risk factors for falls account for any increased risk.

This prospective cohort study included 9,249 women  $\geq 67$  years of age enrolled in the Study of Osteoporotic Fractures. Diabetes was determined by questionnaire at baseline. Physical performance was measured at the second examination. Subsequently, falls were ascertained every 4 months by postcard.

The results showed a total of 629 (6.8%) women had diabetes, including 99 who used insulin. During an average of 7.2 years, 1,640 women (18%) fell more than once a year. Diabetes, stratified by insulin use, was associated with an increased risk of falling more than once a year (age-adjusted odds ratio [OR] 1.68 [95% CI 1.37–2.07] for non-insulin-treated diabetes; age-adjusted OR 2.78 [1.82–4.24] for insulin-treated diabetes). In the first 2 years of follow-up, women with diabetes were not more likely to fall than women without diabetes (44 vs. 42%;  $P = 0.26$ ), but they had more falls (3.1 vs. 2.4;  $P < 0.01$ ). Women with diabetes were more likely to have other risk factors for falls, which appeared to

account for the increased risk of falls associated with non-insulin-treated diabetes (adjusted OR 1.18 [0.87–1.60]) but not insulin-treated diabetes (adjusted OR 2.76 [1.52–5.01]).

It was concluded that older women with diabetes have an increased risk of falling, partly because of the increased rates of known fall risk factors, and may benefit from interventions to prevent falls. Further research is needed to determine whether diabetes treatment reduces fall risk. *Diabetes Care* 25: 1749-1754, 2002

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Item #4

**Type 1's with Elevated BP at Night More Likely to Progress to ESRD**

*Might also hold true for Type 2 Diabetes!*

Blood pressure that doesn't drop at night is an ominous indication that juvenile diabetes patients may develop kidney disease, a new study concluded.

The study looked at "type 1" diabetics, whose bodies make no insulin and who make up 5 percent to 10 percent of the nation's 17 million diabetics.

The lead author, Dr. Daniel Batlle of Northwestern University, said it is likely the results could apply to "type 2" diabetes, a form that used to be called adult-onset diabetes but which is becoming increasingly common in children.

"There are enough similarities in the two conditions, in terms of kidney involvement, that it is very likely it will apply to type 2 diabetes as well," said Batlle, whose article is in last weeks edition of the New England Journal of Medicine.

"The study is very exciting, said Dr. Nathaniel Clark, VP for clinical affairs of the ADA. I think it has a lot of potential areas of importance," though more studies are needed to confirm the results, Clark said.

Diabetes is the underlying cause of about 40 percent of all kidney failure, which affects about 380,000 Americans. Most are on dialysis, with about 80,000 living with transplanted kidneys.

High levels of the protein albumin are an early sign of kidney disease. It shows up years before any symptom the patient would notice. Type 2 diabetics usually have high blood pressure when their diabetes is diagnosed, but type 1 diabetics often have normal blood pressure. While most people's blood pressure drops during sleep, it often stays near daytime levels in those type 1 diabetics who also have high albumin levels in their urine.

But do both symptoms develop at the same time?

To answer that question, Batlle and doctors at the University of Valencia and the Hospital de Sagunto in Spain looked at 75 adolescents and young adults. All had type 1 diabetes but normal urine and daytime blood pressure, 32 of them did not show the normal nighttime drop in blood pressure.

After about five years, 14 of the patients had high urinary albumin. Only four of those patients were among 43 with normal nighttime blood pressure.

Clark said the findings support the idea that higher than normal blood pressure over any period of time is significant, and 24-hour checks can give vital information.

Dr. Julie R. Ingelfinger, editor of the journal, said that if the findings are confirmed, it might be worth treating type 1 diabetes patients with nighttime hypertension with a drug to reduce blood pressure.

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Item #5

**Blood Pressure Drugs Slow Ageing**

*Reduce AGE's and you improve circulation*

Common blood-pressure drugs that help prevent the life-threatening complications of diabetes may do so by slowing the accelerated ageing from which diabetics suffer. The discovery could one day lead to drugs that delay some of the symptoms of ageing in everyone.

People with diabetes tend to age rapidly, particularly if they have type 1 diabetes, which strikes in childhood. Those with the condition often go blind, and they suffer from heart and kidney disease and high blood pressure far earlier than normal. Their skin can wrinkle in their twenties.

"The rule of thumb is that people look as old as their chronological age plus the duration of their diabetes," says team member Merlin Thomas of the Baker Medical Research Institute in Melbourne.

That ageing occurs partly because high blood-sugar levels encourage the body to produce gluey sugar-protein complexes called advanced glycation end products. AGEs interfere with some cell functions and make tissues such as blood vessels stiffer. In healthy people, AGEs form far more slowly.

The Australian team, led by Mark Cooper of the Baker Institute, has found that a common blood-pressure drug called ramipril stops the build-up of AGEs in rats with diabetes. Those rats also had far less damage to their kidneys. "There was complete prevention," says team member Josephine Forbes. The results will appear in November's issue of the journal *Diabetes*.

Ramipril is a type of blood-pressure drug called an ACE inhibitor, and diabetic patients who take ACE inhibitors are known to suffer less kidney and heart disease than those taking other types of blood-pressure drugs. But until now the reason has not been clear.

ACE inhibitors reduce blood pressure by blocking the formation of angiotensin II, a protein that makes blood vessels constrict. Evidence is building that angiotensin II also increases oxidative stress, creating free radicals that in turn stimulate production of AGEs.

Cooper's team is now measuring AGEs in the blood of people with diabetes who take ACE inhibitors to find out whether their AGE levels are lower. The team is also testing different types of AGEs to see which ones cause the problems. The next step will be to find inhibitors that target these AGEs.

And it is not just people with diabetes who may reap the benefits of drugs designed to cut AGE levels. Many experts believe the build-up of AGEs helps cause kidney disease and glaucoma as well as the narrowing of the blood vessels in cardiovascular disease and the formation of brain plaques in Alzheimer's. AGEs also accumulate in the skin, helping make it wrinkly.

ACE inhibitors are unlikely to become an elixir of youth because they cause unpleasant side effects such as coughing and irregular heartbeat. But future drugs designed to block AGEs might have fewer side effects. *New Scientist* 10: 45 03 October 02

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Item #6

### **Exercise Improves Endothelial Function in Patients with Type 1 Diabetes**

*Aerobic exercise training can improve endothelial function.*

The object of the study was to determine whether a persistent improvement of endothelial function can be achieved by regular physical training.

The study included 26 patients with type 1 diabetes of  $20 \pm 10$  years' duration and no overt angiopathy; 18 patients ( $42 \pm 10$  years old) participated in a bicycle exercise training program, and 8 patients with type 1 diabetes ( $33 \pm 11$  years old) served as control subjects. Vascular function of conduit arteries was assessed by flow-mediated and endothelium-independent dilation of the brachial artery and of resistance vessels by the response of ocular fundus pulsation amplitudes to intravenous  $N^G$ -monomethyl-L-arginine (L-NMMA) at baseline, after 2 and 4 months of training, and 8 months after cessation of regular exercise.

The results showed that training increased peak oxygen uptake ( $VO_{2max}$ ) by 13% after 2 months and by 27% after 4 months ( $P = 0.04$ ). Flow-mediated dilation (FMD) of the brachial artery increased from  $6.5 \pm 1.1$  to  $9.8 \pm 1.1\%$  ( $P = 0.04$ ) by training. L-NMMA administration decreased fundus pulsation amplitude (FPA) by  $9.1 \pm 0.9\%$  before training and by  $13.4 \pm 1.5\%$  after 4 months of training ( $P = 0.02$ ).  $VO_{2max}$ , FMD, and FPA were unchanged in the control group. Vascular effects from training were abrogated 8 months after cessation of exercise.

The study demonstrates that aerobic exercise training can improve endothelial function in different vascular beds in patients with long-standing type 1 diabetes, who are at considerable risk for diabetic angiopathy. However, the beneficial effect on vascular function is not maintained in the absence of exercise *Diabetes Care* 25: 1795-1801, 2002

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**DID YOU KNOW:**

***The UKPDS found that in patients with type 2 diabetes, glycemic control will eventually deteriorate due to pancreatic beta-cell failure. In time, these patients will find that using multiple oral agents will not allow them to maintain the targeted hemoglobin A1c level of less than 7%. Currently, only 40% of patients with type 2 diabetes use insulin therapy. A greater number could certainly benefit from intensive insulin management to ameliorate symptoms and decrease the frequency and severity of long-term diabetes complications.***

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**Coming Soon: A1cNow Monitors will be available without a prescription very shortly, Stay tuned. [www.a1cnow.net](http://www.a1cnow.net)**

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Item 7

**Insulin Transport Delayed in The Obese**

*Obese individuals have delayed transcapillary transport of insulin to muscle tissue, 25 minutes slower, Swedish researchers report in the September issue of Diabetes.*

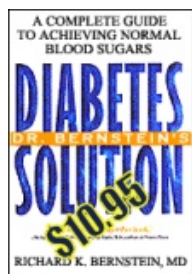
Dr. Mikaela Sjostrand of Sahlgrenska University Hospital, Goteborg, and colleagues note that insulin-resistant subjects have a slow onset of insulin action. To determine whether delayed transcapillary action might be involved, the researchers investigated the kinetics of infused insulin and insulin in plasma and muscle interstitial fluid. A total of 10 insulin-resistant obese subjects and 10 lean controls were evaluated.

The obese subjects had a significantly lower steady-state glucose infusion rate. They also showed a delayed appearance of insulin. The time to reach half-maximal plasma concentration was 72 minutes versus 46 minutes for controls. In interstitial fluid, the corresponding figures were 83 versus 53 minutes.

Onset of insulin action was 70 minutes in obese subjects and 45 minutes in controls. Furthermore, the forearm blood flow rate in obese subjects was significantly lower than that in controls.

Dr. Sjostrand feels that "the impaired vasodilative effect of insulin may result in the sluggish insulin transport to the muscle tissue in the obese group. Therefore, it would be interesting to study the effect of vasodilating agents on transcapillary insulin transport and muscle glucose uptake in insulin resistant obese and type 2 diabetes subjects. *Diabetes* 2002;51:2742-2748.

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**Dr. Richard Bernsteins book the Diabetes Solution is on sale for \$10.95 [Click Here.](#)**

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

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Item 8

**International Congress on Obesity Announces Key Diabetes Discovery**

Victorian scientists reveal strong evidence for a new therapeutic target in the fight against Type 2 Diabetes.

Professor Greg Collier, CEO and Managing Director of the Victorian biotech company, Autogen Limited, announced that the company has recently discovered a protein in human liver cells that appears to be intimately related to the development of diabetes. Recent experiments have shown that the gene, which the researchers have named Tanis, and its receptor are markedly increased in diabetes.

However the announcement reveals that - when the gene is put into human liver cells - the cells develop diabetes. This major discovery provides a strong model and mechanism for pharmaceutical and therapeutic intervention in a disease that costs millions of dollars annually to treat and control.

Autogen researchers have isolated the gene that produces this protein. A provisional patent has been granted for this gene.

Autogen researchers went on to show a direct relationship between levels of Beacon in the brain and the probability of developing increased body weight, indicating the gene may be responsible for causing obesity. Treating animals with the Beacon protein led directly to the accumulation of fat, a further sign that the Beacon gene is critical in the development of obesity.

The protein that is encoded for by the rat "Beacon" gene is 100% identical to that encoded for by the human "Beacon" gene. Interestingly, the human "Beacon" gene on chromosome 19 is in a position known to contain a gene (or genes) linked to energy regulation and body fat mass.

Recent studies on human DNA identified two novel genetic sequence variations in the beacon gene. Autogen funded researchers in the International Diabetes Institute and the Southwestern Foundation for Biomedical Research in San Antonio, Texas, showed that these genetic sequence variations were strongly associated with percentage body fat, total fat mass and waist-to-hip ratio, all measures of obesity in humans. These measures are also important risk factors for cardiovascular disease, and further analysis of the genetic variations in the human beacon gene found associations with circulating levels of triglycerides, total cholesterol and LDL-("bad")-cholesterol. Therefore it appears that beacon contributes not only to obesity in humans, but is also associated with some of the adverse consequences of obesity including cardiovascular disease.

Autogen Limited works in collaboration with Deakin University and the International Diabetes Institute in Melbourne, developing one of the world's largest databases of human serum and DNA samples from isolated population including Tasmanians, Mauritians and Nauruans and combining this with their unique animal models of disease

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## **FACT**

***Birth Control Pills help to prevent diabetes: Women who took oral contraceptives have lower fasting blood-glucose levels, higher levels of insulin and lower odds of diabetes compared with those who do not take oral contraceptives. Diabetes Care June 2002***

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Item 9

### **Weight loss with Detemir Insulin Gives Added Therapeutic Value to Treatment**

*The weight gain experienced by thousands of people with diabetes who rely upon multiple injections of insulin may soon be a thing of the past*

In three clinical trials reported at the EASD conference in September– conducted with a total of more than 1,300 people with diabetes – the weight loss achieved with once-daily administration of insulin Detemir represented a significant therapeutic benefit, according to the lead author of one of the studies, Dr Eberhard Standl.

Insulin Detemir is a soluble basal insulin analogue with neutral pH and a unique mechanism of protraction providing a smooth and predictable action profile.

Dr Standl, from Munich Diabetes Research Institute, Germany, commented: " The fact that insulin Detemir is associated with such favorable effects on body weight represents a significant clinical benefit, in addition to the many other advantages this new agent offers over other forms of insulin."

The showed a very favorable outcome on weight with a significant weight loss for insulin Detemir(2). These findings were supported by a third study in which the authors observed a decrease in body weight for the insulin Detemir group and an increase for the standard Neutral Protamine Hagedorn (NPH) insulin group after 6 months treatment(3).

All three studies show that at the same level of glycemic control as measured by HbA1C, insulin Detemir provides a significant reduction in body weight and reduced risk of nocturnal hypoglycemia. Highlights of these studies are summarized in [this PDF chart](#) Insulin Detemir is now undergoing further Phase 3 clinical trials in people with both Type 1 and Type 2 diabetes and actively regulate how our bodies process and use fats. Future drug discovery may depend on the role of fat itself." *Nature Med 2002 University Of Pennsylvania Medical Center*

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### **Special News Bulletin**

### **Sankyo Pharma Announce Availability of the GlucoWatch® G2™ Biographer**

**See item #15**

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Item 10

### **Pupil Test Detects Future Autonomic Neuropathy in Diabetic Patients**

*Pupil tests may be one way of diagnosing [autonomic dysfunction] as early a possible.*

Diabetic patients, especially those with related complications, exhibit sympathetic denervation in the pupil, according to a report in the September issue of Diabetes Care. The cocaine eye-drop test can be used to rapidly assess sympathetic denervation.

Dr. Hendrik Lehnert, of Otto-von-Guericke-Universit t Magdeburg, Germany, and colleagues examined sympathetic pupillary responses in 47 type 1 diabetics with and without long-term complications and in 20 healthy controls. Long-term complications were defined as cardiac autonomic neuropathy (CAN), peripheral sensomotor neuropathy, retinopathy, and nephropathy.

The researchers measured horizontal pupil diameter at baseline and at defined time points after instilling eye drops containing 4% cocaine, 1% epinephrine, and 5% pholedrine.

Compared with controls, diabetic patients had significantly smaller pupil diameters ( $p = 0.011$ ) before installation of the eye drops. Even in diabetic patients without CAN, initial horizontal pupil diameter was significantly smaller (3.43 mm) than in healthy subjects (3.98 mm,  $p = 0.004$ ).

Maximal cocaine reaction was significantly diminished in patients with long-term complications (2.29 mm) compared with those without complications (3.13 mm;  $p < 0.001$ ). Compared with healthy controls, diabetic patients without long-term complications showed no significant differences in pupillary responses.

No significant differences were observed in the epinephrine test, visual acuity, ocular pressure, and HbA1c between those with and without long-term complications.

The findings "suggest a mixed pre- and postganglionic dysfunction of the sympathetic plexus," Dr. Lehnert and colleagues surmise. "The significantly smaller horizontal pupil diameter in patients without CAN compared with that of healthy subjects could be a sign for early involvement of the pupil function before cardiac manifestation of systemic autonomic diabetic neuropathy."

As the researchers note, early neuropathy is reversible with intensive glycemic control. "Pupil tests may be one way of diagnosing [autonomic dysfunction] as early a possible." *Diabetes Care 2002; 25: 1545-1550.*

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**73% of graduating students have some type of guaranteed student loan. You can refinance those loans at a much lower rate. [Click here to get more info](#)**

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Item 11

**Hemoglobin Glycation Phenotype May Be Important For Clinical Assessment Of Diabetics**

*The hemoglobin glycation phenotype of diabetics may be important for assessing their blood glucose control.*

Researchers at the Louisiana State University Health Sciences Center, in New Orleans, Louisiana, United States, have determined that there are consistent individual differences in the relationship between glycated hemoglobin (HbA1c) and mean blood glucose levels in individuals with similar preceding blood glucose levels.

James M. Hempe, PhD, and his colleagues collected blood glucose data for up to 2.3 years from 128 children and adolescents with type I diabetes. The patients' HbA1c values were date-matched with mean blood glucose levels calculated from an average of 85 self-monitored blood glucose measurements collected over the previous 30 days.

The researchers found a significant linear correlation between mean blood glucose and HbA1c levels, but also noted a wide variability in the population HbA1c response to mean blood glucose.

They calculated a hemoglobin glycation index (HGI=observed HbA1c-predicted HbA1c) to quantify the magnitude and direction of the difference between each patient's set of observed and predicted HbA1c results.

Likelihood ratio tests and t statistics showed that the mean hemoglobin glycation index were significantly different among individuals, and that 29 percent of the patients had HbA1c levels that were statistically significantly higher or lower than predicted by the regression equation, the researchers reported.

The observed individual differences in the relationship between mean blood glucose and HbA1c were not related to erythrocyte age and there was no evidence of analytical artifact.

"We interpret these results as possible evidence of high and low hemoglobin glycation phenotypes within the population," the investigators wrote. "We conclude that mean blood glucose and HbA1c are not necessarily interchangeable estimates of glycemic control and that hemoglobin glycation phenotype may be important for the clinical assessment of diabetic patients."

*J Diabetes Complications 2002; 16: 313-320*

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**DID YOU KNOW**

***Almost any patient on insulin therapy is an insulin pump candidate. More than 120,000 patients in the United States are now on insulin pump therapy. Approximately 90% of all patients with diabetes are managed by primary care physicians, many of whom are becoming adept at intensive insulin management using pump therapy.***

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Item 12

**Type 2 Diabetes Is Associated With Myocardial Insulin Resistance**

*Type 2 diabetes is specifically associated with myocardial insulin resistance.*

Type 2 diabetes is specifically associated with myocardial insulin resistance that is independent of coronary artery disease and proportional to skeletal muscle and whole-body insulin resistance.

Dr. Patricia Iozzo, at the Imperial College of Science, Technology and Medicine, in London, England, and colleagues studied a case-control series of 55 male non-diabetics and type 1 or type 2 diabetics, with or without angiographically documented coronary artery disease.

Using positron emission tomography, the researchers measured baseline blood flow and insulin-stimulated glucose uptake during euglycemic and physiological hyperinsulinemia in skeletal muscle and normally contracting myocardium of the subjects.

They found that skeletal muscle glucose uptake was reduced in association with both coronary artery disease and type 2 diabetes.

In regions with normal baseline perfusion, insulin-mediated myocardial glucose uptake was reduced in both type 2 diabetics, who were free of coronary artery disease, and in coronary artery disease patients, who were free of diabetes - as compared with healthy control subjects or type 1 diabetics without coronary artery disease, the investigators reported.

Neither basal skeletal muscle nor basal myocardial blood flow differed across the groups. Both skeletal muscle and myocardial insulin resistance were found directly related to whole-body insulin resistance.

"We conclude that type 2 diabetes is specifically associated with myocardial insulin resistance that is independent of and non-additive with angiographic coronary artery disease and proportional to skeletal muscle and whole-body insulin resistance," the researchers wrote. *Diabetes* 2002; 51: 3020-3024

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Advertisement

### **Diabetes Cannot Wait! Not Even 8 Minutes! Now Less Than 9 Dollars!**

If you are not using an A1c test, which is now **NGSP certified**, that gives results while the patient is in front of you, you are missing a great opportunity to motivate. You can now have your patients check their HbA1c when they come in for their appointments.

Learn how to purchase the A1cNow for less than 9 dollars for your office or clinic. go to

[www.A1cNow.net](http://www.A1cNow.net)

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Item 13

### **Antibiotics Reduce CHD Risk in Patients With Type 2 Diabetes**

*Patients with type 2 diabetes who are given fluoroquinolones in commonly prescribed doses apparently have a reduced risk of developing coronary heart disease.*

That according to Dutch researchers who reported in the October 15th issue of the European Heart Journal.

Using a national database covering 450,000 subjects, Dr. J. A. Erkens from the Utrecht Institute for Pharmaceutical Sciences, and colleagues, conducted a nested case-control analysis of prior antibiotic use by 244 type 2 diabetics hospitalized for CHD and 686 type 2 diabetics without CHD.

There was a reduced risk of CHD among those who used fluoroquinolones for more than 14 days over the 3 prior years compared with those who had not used fluoroquinolones (adjusted odds ratio 0.30), the researchers found.

Dr. Erkens' team notes that tetracyclines, macrolides, and lincosamides, or any other antibiotics were not associated with reduced risk for CHD in this diabetic population.

Dr. Erkens and colleagues conclude that "our results suggest that treatment with fluoroquinolones in doses commonly prescribed in routine clinical practice is associated with a reduction in the risk of CHD among diabetes mellitus type 2 patients."

The benefit of antibiotics in reducing the risk of CHD remains unclear and awaits the results of several large clinical trials, Dr. F. Delahaye and colleagues from Hopital Cardiovasculaire et Pneumologique, Lyon, France, note in a journal editorial.

However, "Erkens' work suggests that studies in primary prevention, perhaps in patients without CHD, but with cardiovascular risk factors, such as diabetes mellitus may also be worthwhile," they add. *Eur Heart J* 2002; 23: 1557-1559, 1575-1579.

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**FACT**

**According to the [Centers for Disease Control and Prevention \(CDC\)](#), somewhere near 75 percent of the U.S. population fails to get 30 minutes of daily exercise, whether that's walking or some more strenuous form of sport or recreation. Approximately one-third live a life officially defined as sedentary.**

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Item # 14

**Counting Carbs Improves Glycemic Control**

*Fitting diabetes into their lives, rather than their lives into diabetes" could allow more people with diabetes to adopt intensive insulin treatment*

A week-long course (DAFNE) that teaches diabetics to adjust their insulin intake to match their normal food consumption improves glycemic control and reduces the impact of the disease on their lives, British researchers said on Friday.

The technique "provides patients with the ability to fit diabetes into their lives, rather than their lives into diabetes" and could allow more people with type I diabetes to adopt intensive insulin treatment, according to Dr. Simon Heller, from Northern General Hospital in Sheffield, and colleagues.

The researchers studied 140 type I diabetics who had moderate or poor glycemic control. Half were immediately assigned to a 5-day "dose adjustment for normal eating" (DAFNE) course that taught the skills to replace insulin by matching it to desired carbohydrate intake on a meal-by-meal basis.

The other half of the group continued as usual for 6 months before taking the training course.

After 6 months, glycated hemoglobin levels were significantly better in the immediate DAFNE group (mean 8.4%) than in the delayed group (9.4%,  $p < 0.0001$ ), the researchers report in the *British Medical Journal* for October 5.

Questionnaires revealed that people who took the course reported feeling a significant improvement in the impact of diabetes on their dietary freedom and quality of life. They also told researchers their overall well-being was higher than did those who had not yet taken the course.

Not everyone with type I diabetes will want to undertake intensive insulin treatment, and some will prefer a simpler routine with fewer injections, the researchers note.

"Nevertheless, as the only way of reducing microvascular disease is by maintaining tight glycemic control, we need better ways of enabling patients to intensify their insulin treatment," they write.

The DAFNE approach has the potential to reduce the incidence of complications and improve quality of life for people with type I diabetes, and deserves further investigation, they conclude. *BMJ* 2002; 325: 746-749.

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Item #15

**Sankyo Pharma Announce Availability of the GlucoWatch® G2™ Biographer**

*Sankyo Pharma and Cygnus announced that the GlucoWatch® G2™ Biographer is now available.*

he GlucoWatch G2 Biographer is the second-generation model of the GlucoWatch® Biographer, the first and only monitoring system that provides glucose readings continuously, automatically and non-invasively.

"The GlucoWatch G2 Biographer represents a significant technological advancement that provides even greater convenience and efficiency to physicians and patients with diabetes, helping them to make better-informed decisions on how to manage the disease," said Joseph P. Pieroni, President of Sankyo Pharma.

As an added value to customers, Sankyo will give a rebate of up to \$200 through the end of this year to purchasers of the Biographer who meet certain eligibility requirements.

The GlucoWatch G2 Biographer has a number of enhanced features over the first-generation GlucoWatch Biographer include the following:

- ?? It measures and displays glucose levels automatically and stores readings up to every 10 minutes - twice as frequently as the first-generation product.
- ?? It provides automatic non-invasive readings for up to 13 hours a day - up from 12 hours in the first version.
- ?? It also creates an "electronic diary," storing up to 8,500 glucose values - compared to 4,000 in the first version - that can be reviewed at the touch of a button, or uploaded into a software program, helping detect trends and track patterns in glucose levels.

Additional information about the GlucoWatch G2 Biographer can be obtained by calling the toll-free number 1-866-GLWATCH or by visiting <http://www.glucowatch.com>.

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**Quote of the Week-----**

**To avoid criticism, do nothing, say nothing.**

-----Elbert

Hubbard

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