

More Joy for Soy

Type 2 Tofu, edamame, soy burgers—yes, they're trendy good-for-you foods, but if you've got type 2 they're particularly good for your heart and kidneys, says a new small study. Researchers looked at 41 people, average age 62, with type 2 and mild nephropathy, a complication in which the kidneys function poorly. For four years, about half of them followed diets in which the protein they ate was 35 percent animal protein, 35 percent textured soy protein, and 30 percent vegetable protein. The other half ate 70 percent animal protein and 30 percent vegetable protein. All were taking comparable types and doses of lipid-lowering and blood pressure-stabilizing medication.

After four years, the soy-protein eaters **scored better on blood testing** than the other group: They reduced their fasting plasma glucose by 20 mg/dl; their LDL, or "bad," cholesterol by 21 mg/dl; and their overall serum triglycerides by 25 mg/dl—compared with minimal reductions (and even gains) for the other participants.

They also leaked significantly less protein into their urine, a sign that their kidneys were functioning better than those of other people in the study. Lead researcher Leila Azadbakht, PhD, a nutrition professor at Isfahan University of Medical



Sciences in Iran, credits the lipid changes for the kidney improvements. She and her research team note, however, that their findings need to be verified in larger studies. Also, this study looked only at soy

protein benefits. Other types of soy, such as soy nuts, could be an even bigger boon to people with diabetes.

The findings appear in the Apr. 2008 issue of *Diabetes Care*.—Bridget Murray Law

The Real Power of Positive Thinking

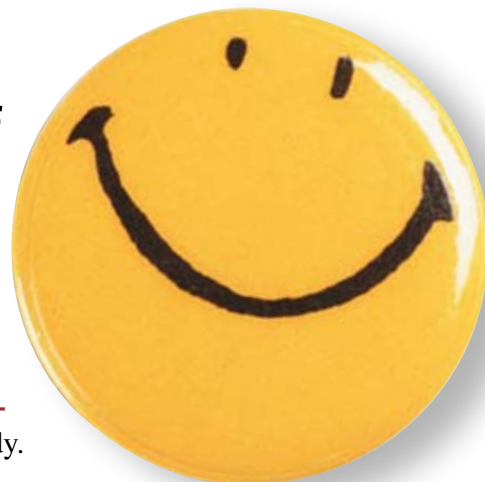
Type 1 & Type 2

Smile: People with diabetes who are more emotionally upbeat **have a greater chance of living longer**, according to a recent study.

In the study, published in Jan. 2008 in the journal *Health Psychology*, roughly 3,500 participants—about a fifth of whom had diabetes—supplied information about their health and emotional state at two points 10 years apart. Results revealed a strong association between positive emotion and longevity among people with diabetes. For every one point increase in positive emotion, their risk of dying sooner decreased 13 percent, with those who reported enjoying life showing the biggest longevity boost.

The researchers found no such relationship in those without diabetes—until they looked at results for people over 65. In that subsample, being hopeful and enjoying life appeared to help prolong life.

Speculating on why happiness might boost longevity in diabetes, lead researcher Judith Tedlie Moskowitz, PhD, MPH, says it could positively affect



the body's neuroendocrine response, buffering the effects of diabetes-related stress. Or it could make people more apt to take their meds and stick to their diet.

But Moskowitz emphasizes that people with diabetes should not interpret the results to mean “they should just buck up and be happy.”

“When you have a chronic disease like diabetes, it's normal to feel depressed or down sometimes,” explains Moskowitz, of the University of California, San Francisco. “These results suggest it's worth focusing on bringing more positive experiences into your everyday life. Notice a beautiful sunrise. Set aside moments of gratitude for what you have. Set small, attainable goals, like testing your blood sugar more often. Then get a hit of positive emotion from accomplishing them.”

—B.M.L.

MASTERFILE

The **Research Shorts** section features articles about cutting-edge research relating to diabetes. The studies presented in this section involve products, technologies, and theories that are in the early stages of testing and development. Because there's no way to know which studies will pass the test of time, it's important that readers not base any treatment decisions on these results.



A Common Complication Combo

Type 2 People with diabetes who develop kidney disease are more likely to also have another diabetes complication: peripheral arterial disease (PAD), in which fatty deposits restrict blood flow to vessels serving the legs and feet. The finding comes from a recent study of about 900 people with type 2, aged 50 to 85.

The study also found that the association works in reverse: People with PAD have higher rates of kidney disease.

PAD often creeps in slowly, showing no symptoms but posing a growing threat to a person's cardiovascular health. Often, by the time symptoms like leg pain (experienced while walking but ceasing at rest) become noticeable, the disease has set in with a vengeance, quadrupling the risk of heart attack, stroke, or loss of a limb.

Luckily, measurement of the leg-to-arm blood pressure ratio—the ankle-brachial index (ABI)—has proven effective at detecting the disease even in its early, presymptomatic phases, which is why researchers in the current study used the index to detect early PAD signs among their type 2 participants.

Their analyses revealed that people with PAD who did not yet have symptoms were more likely to also have other diabetes complications like neuropathy and retinopathy—and the rates went up with high LDL cholesterol, smoking, and longer diabetes duration. But presymptomatic PAD most commonly co-occurred with kidney disease: Its prevalence increased by over 60 percent in the presence of kidney disease.

The researchers aren't sure

why PAD and kidney disease appear together so often. One might help spur the other, or there could be no such relationship. "It's possible that people with PAD also have problems in their [kidney] arteries," says lead author Jose Mostaza, MD, PhD, of Hospital Carlos III in Madrid, Spain. "Or it could be that [kidney] disease favors the development of PAD."

What is certain, says Mostaza, is **testing with the ABI can detect a stealthy, potentially deadly diabetes complication** before it's too late. And, he adds, this study suggests that people with diabetes and kidney disease should make ABI testing a priority.

The study was published online in Feb. 2008 in the *European Journal of Internal Medicine*.—B.M.L

High Blood Pressure: If It Starts Early, It Stays

Type 1 Young kids with type 1 diabetes are at greater risk for high blood pressure than their nondiabetic peers are. And when they get it, it persists, finds a recent study.

Researchers looked at about 850 children, ranging in age from 6 to 19, all with type 1. Almost 4 percent of those under the age of 16 had blood pressure levels higher than the 97th percentile for children their age. For those 16 or older, 13.9 percent were above the 97th percentile. Those with higher blood pressure also had higher blood glucose and body mass

index levels. And those who registered high blood pressure in childhood continued to show high blood pressure in young adulthood.

Given that high blood pressure is a risk factor for cardiovascular disease (CVD)—a major cause of death for people with type 1—these study results point to a need for early detection and treatment of high blood pressure in this group, the researchers say.

And key to reducing blood pressure and CVD risk is controlling blood glucose and weight, says lead author Ina Knerr, MD, PhD, of the Children's and Adolescents' Hospital at the University of Erlangen-Nuremberg in Germany. And, she adds, "all patients should be tested for hypercholesterolemia and ... smoking must be prevented."

—Katie Bunker



Good Fats, Bad Fats, and Diabetes Risk

Type 2 Being carb smart helps keep diabetes at bay, but so does being fat savvy, new research suggests. The key is to stay away from bad fats and embrace the good (unsaturated, vegetable-based) ones. When combined with low carbs, these friendly fats appear to slightly reduce the odds of developing type 2 diabetes.

"Nuts, avocados, olive oil, canola oil, peanuts: all of these have nice effects on lowering risk of type 2," says study lead author Thomas Halton, PhD. "But high animal fats—in fatty meats, chicken skin, burgers, steaks, and cold cuts—do not." Halton and his colleagues examined 20 years of dietary survey data from more than 85,000 women. Those who developed type 2 tended to eat more carbohydrates than the other women did. In fact, over two decades, women had a 250 percent higher risk of developing type 2 if they consistently ate foods high in glycemic load, like sugar-sweetened fruit juice, refined sugary cereal, and white bread.

Halton, a Boston nutrition and fitness counselor who conducted the research at the Harvard School of Public Health, speculates that some people resort to these carb-spike foods for an energy boost when they're trying to cut down on fat. They should instead be swapping one type of fat for another, he says. His research—published in the Feb. 2008 *American Journal of Clinical Nutrition*—found a protective effect of unsaturated, vegetable-based fats: Women who reported eating the highest amount of these fats were 25 percent less likely to develop type 2 diabetes than women who ate the least.

Previous research by Halton shows that low carbs and the right fats provide similar protection against heart disease. Does this mean people should cut out meat? Not necessarily, says Halton. "Chicken breast and other lean meats are fine, and good sources of protein," he says.—B.M.L.





Shock Therapy—For Your Feet?

Type 1 & Type 2

When people with diabetes get foot ulcers, they can often avoid infection and surgery by staying off the foot completely, or by using protective devices like casts or braces. But there's a lesser known aid that a growing body of research suggests may also speed healing: shockwave therapy.

The most recent study on the subject indicates that **shock waves do better than hyperbaric oxygen therapy**, which is also sometimes used for foot ulcers. Both of these treatments are meant to increase oxygen delivery to speed healing. Shockwave therapy sends

high-energy sound waves directly to an affected area to encourage blood flow, while hyperbaric therapy delivers pure oxygen to the entire body at higher-than-normal atmospheric pressures in a sealed chamber.

In a small study conducted by researchers at the Chang Gung University College of Medicine in Taiwan, 34 people with diabetes and foot ulcers—ages 33 to 79—underwent shockwave therapy three times over six weeks. Meanwhile, 36 similar people with foot ulcers received 20 90-minute treatments with hyperbaric therapy over four weeks. All participants cleaned the ulcers at home with saline, applied

silver sulfadiazine cream, and were told to stay off the foot between treatments.

Ulcers healed or improved in close to 90 percent of patients treated with shockwave therapy, compared with just over 70 percent of patients treated with hyperbaric oxygen therapy.

A couple of caveats: Other research has found higher rates of complete healing than with shockwave and hyperbaric oxygen therapy, when using non-removable casts that ensure users take pressure off ulcerated feet. And previous studies indicate that hyperbaric therapy may only help foot ulcers in patients with peripheral arterial disease. In the Taiwanese study, people had little or no peripheral arterial disease. Speculating on why shockwave therapy had the edge in this study, the researchers suggest it more successfully aided regeneration of ulcerous tissue. They caution, though, that this was a small study sample, so more research on larger samples is needed.

Shockwave therapy is approved for treating heel spurs, tennis elbow, and plantar fasciitis, but not foot ulcers, in the United States. But the researchers anticipate more research will point to benefits of shockwave therapy, possibly changing its status.

This research was published online, Mar. 7, 2008, in the *Journal of Surgical Research*.

—B.M.L.

The Heartbreak of Gender Inequity

Type 2 Over the last couple of decades, men with diabetes have cut their rate of death from cardiovascular disease (CVD) by half. But women? Their prognosis is unchanged. And that could be due to gender bias among doctors—and even among the patients themselves.

“This especially high-risk group is not being treated as well as men,” says Ioanna Gouni-Berthold, MD, a professor at the University of Cologne in Germany and lead author of a new study that compared 45,000 men and women with and without preexisting CVD. The study team found that both sexes in the group without CVD had similar levels of A1C and blood pressure, but that the women’s LDL cholesterol levels were high—above 130 mg/dl—25 percent more often than men. (The recommended LDL level for people with diabetes and without CVD is below 100 mg/dl.)

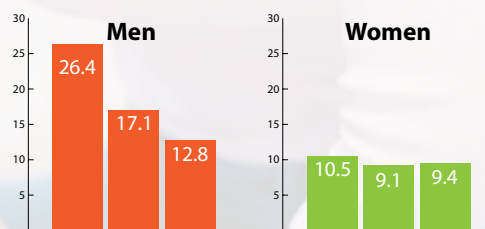
The picture is even bleaker for women *with* CVD, who were under worse control than men with CVD in all three measures.

Women with CVD received LDL-lowering medications, such as statins, significantly less often than men did.



Cardiovascular Disease Fatalities
per 1000 people with diabetes, 1971–2000

Since 1971, women with diabetes have continued to die from CVD at a steady rate, about 10 per 1,000 annually, while the rate in men with diabetes has shrunk by half.



Source: *Annals of Internal Medicine*, Aug. 2007.

These women were 15 percent more likely to have an uncontrolled A1C (over 8 percent), 19 percent more likely to have uncontrolled systolic blood pressure (over 140 mmHg), and 44 percent more likely to have uncontrolled LDL cholesterol levels

(over 130 mg/dl) compared to men. (The recommended LDL level for people with diabetes and CVD is below 70 mg/dl.)

Furthermore, Gouni-Berthold and colleagues found that while both sexes got comparable prescriptions for blood pressure

and blood glucose medications, women with CVD received LDL-lowering medications, such as statins, significantly less often than men did. “These are the most important drugs,” says Gouni-Berthold, for reducing the risk of CVD death.

Could part of the problem be a perception in the medical community that CVD is a man’s disease? “Absolutely,” says Gouni-Berthold. But there is another possible factor, given that women with CVD are also not doing as well on A1C and blood pressure, despite comparable prescription rates: Perhaps women themselves are part of the problem, underestimating their CVD risk and, as a result, not taking needed medications. “Compliance is directly related to the belief that the medication they are taking would be of benefit,” says Gouni-Berthold. But in fact, heart disease is the number one cause of death in women—and diabetes makes one especially vulnerable.

To ensure that your CVD risk factors are being managed well, ask your doctor whether your LDL cholesterol is at the recommended level. “If the doctor says no,” suggests Gouni-Berthold, “ask if maybe they should add another medication.” And, of course, take it, as well as your other meds.

The study was published online, Mar. 28, 2008, in *Diabetes Care*.

—Erika Gebel, PhD

How Hard to Hit Heart Health?

Type 2 These days, preventing heart problems can seem like a game of limbo—except the question isn’t how low can you go, but how low *should* you go. A recent cardiovascular disease prevention trial, the Stop Atherosclerosis in Native Diabetics Study, or SANDS, pitted standard cholesterol- and blood pressure-lowering therapies against a more aggressive regimen in 500 Native Americans, 40 years or older, with type 2 diabetes and no previous cardiovascular events. The victor? Well, it may be a draw.

Researchers found that aggressive therapy caused the lining of neck and heart blood vessels to thin out, an indicator that atherosclerotic plaques may be going away. Based on these measures, the aggressive group appeared healthier. But when the researchers looked at numbers of cardiovascular events like heart attacks and strokes in the two groups, the results were the same. So, says lead author Barbara Howard, PhD, president of the MedStar Research Institute in Hyattsville, Md., **“the standard targets may do pretty darn well.”**

But what about the vessel improvements? “You may get a small benefit if you go lower,” says Howard, “but would it be worth the extra money for



drugs and the risk of side effects?”

Because this trial included only Native Americans, questions remain about whether these findings would extend to other populations. Howard and other researchers are looking to findings from a larger, more diverse trial to help settle these issues. The results of that study, the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial, will be announced in 2010.

The SANDS study was published Apr. 9, 2008, in the *Journal of the American Medical Association*.

—E.G.