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(Last updated 3/21/11)

New Research Blog Available Here!!



NOTE TO PRODUCERS: Ohio State University has opened a new broadcast studio with Vyvx and ISDN technology, allowing us to provide quick connectivity to university researchers. To schedule an expert, please call Joe Camoriano, (614) 378-6478, camoriano.1@osu.edu.

Previous stories pertaining to Professor Belury's research:

["Muscle Wasting In Cancer Does Not Spare The Heart,"](#)
9/8/10.

["Diabetes Drug Shows Promise In Fighting Lethal Cancer Complication,"](#)

A DOSE OF SAFFLOWER OIL EACH DAY MIGHT HELP KEEP HEART DISEASE AT BAY

COLUMBUS, Ohio – A daily dose of [safflower oil](#), a common cooking oil, for 16 weeks can improve such health measures as good cholesterol, blood sugar, insulin sensitivity and inflammation in obese postmenopausal women who have Type 2 diabetes, according to new research.

This finding comes about 18 months after the same researchers discovered that safflower oil reduced abdominal fat and increased muscle tissue in this group of women after 16 weeks of daily supplementation.

This combination of health measures that are improved by the safflower oil is associated with [metabolic syndrome](#), a cluster of symptoms that can increase risk for cardiovascular disease and diabetes.

These new findings have led the chief researcher to suggest that a daily dose of safflower oil in the diet – about 1 2/3 teaspoons – is a safe way to help reduce cardiovascular disease risk.

“The women in the study didn’t replace what was in their diet with safflower oil. They added it to what they were already doing. And that says to me that certain people need a little more of this type of good fat – particularly when they’re obese women who already have diabetes,” said [Martha Belury](#), professor of [human nutrition at Ohio State University](#) and lead author of the study.

“I believe these findings suggest that people consciously make sure they get a serving of healthy oil in their diets each day— maybe an oil and vinegar dressing on a salad, or some oil for cooking. And this recommendation can be extended to everyone.”

The research appears online and is scheduled for future print publication in the journal [Clinical Nutrition](#).



Martha Belury

9/22/09.

["Two Dietary Oils, Two Sets Of Benefits For Older Women With Diabetes."](#)

7/6/09.

["Dietary Oil May Need Help In Avoiding Any Side Effects Of Weight Loss."](#) 4/9/08.

["Weight-Loss Supplement Shows Good And Bad Traits."](#) 1/30/07.

["Fat That May Benefit Diabetics Reduces Weight, Blood Sugar."](#) 1/24/03.

["Scientists Suspect Omega-3 Fatty Acids Could Slow Acute Wound Healing."](#) 7/23/08.

["Omega-3 Fatty Acids Affect Risk Of Depression, Inflammation."](#) 3/28/07.

Safflower oil contains linoleic acid, which is a [PUFA -- a polyunsaturated fatty acid](#). Research dating back to the 1960s has suggested that these dietary oils from plant sources can help prevent heart disease, said Belury, who holds the Carol S. Kennedy professorship in nutrition. But attention to these fats has declined as omega-3 fish oils have gained popularity among consumers, she said.

“The health benefits of omega-3 PUFAs seem convincing, but I think there’s also a place for omega-6 PUFAs. We’ve known for a long time that polyunsaturated oils are very beneficial for cardiovascular disease prevention, and these data we are adding now show that these oils can also help with other aspects of metabolic syndrome, including even glycemic control,” Belury said. “We suspect it could be through a mechanism that is not yet identified.”

In the first study, published in September 2009, Belury and colleagues had compared the effects of safflower oil and [conjugated linoleic acid \(CLA\)](#), a compound naturally found in some meat and dairy products, on obese postmenopausal women with Type 2 diabetes. CLA had a reputation from previous studies for contributing to weight loss. Safflower oil’s association with reduced abdominal fat took the researchers by surprise.

For this current research, the scientists performed a secondary analysis of data collected from that clinical trial, applying a powerful statistical analysis to the results and also checking to see how long it took for any effects of the oils to appear in the women’s health profiles. The scientists had taken blood samples every four weeks during the study to obtain these measures.

In almost all cases in this analysis, safflower oil supplementation improved metabolic measures while CLA did not show any effects for glycemic or lipid control. Sixteen weeks of CLA

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“A small change in eating behavior to alter the fatty acid content of the diet might improve metabolic measures in people already consuming what is considered to be an adequate amount of dietary linoleic acid. What is needed in our diet is PUFAs to help with cardiovascular disease, the No. 1 killer of men and women in this country.”

supplementation did reduce _____
total body fat and lowered the
women's body mass index (BMI), a common health measure of
weight relative to height.

Several of the beneficial effects of safflower oil were evident after
16 weeks of supplementation. On average among all of the women
tested, these included:

- An increase in insulin sensitivity of about 2.7 percent as measured by a formula known as the [quantitative insulin-sensitivity check index](#). Higher insulin sensitivity is important for the transfer of sugar, or glucose, from the blood into the tissues, where it is used for energy. Insulin resistance, or lowered insulin sensitivity, is the hallmark of Type 2 diabetes.
- A small, but significant, .64 percent decrease in a blood protein called [HbA1C](#), which is a marker of long-term presence of excess glucose in the blood.
- A roughly 17.5 percent decrease in [C-reactive protein](#), a protein in the blood that rises in the presence of inflammation. A growing body of research suggests that high levels of this protein increase the risk for a heart attack.
- The researchers had documented in the previous study that safflower oil also lowered fasting blood sugar levels by between 11 and 19 points on average. Blood sugar is considered normal if it falls below 110 milligrams per deciliter; the women's average blood sugar levels ranged from 129 to 148 after 16 weeks of safflower oil supplementation.

Within 12 weeks, the safflower oil led to a 14 percent increase in HDL, or "good," cholesterol, as well as an increase in [adiponectin](#), a hormone that regulates levels of blood sugar and fats and which influences insulin levels. Higher levels of adiponectin could be expected to increase the efficiency of dietary fat burning, Belury said.

People with metabolic syndrome generally have three or more of the following conditions: excess fat in the abdominal area, borderline or high blood pressure, cholesterol problems that foster plaque buildup in arteries, insulin resistance or glucose intolerance and a high level of triglycerides, a form of fat in the blood.

At the start of the study, the women were obese and had Type 2 diabetes, low HDL cholesterol and high levels of C-reactive protein and the HbA1c protein. Though in many cases their health measures were still high or low enough at the end of the study to

leave them at increased risk for heart disease, Belury said the safflower oil could function as a complementary intervention in combination with medications used to control their disorders.

“We don’t know the long-term effects of safflower oil from this study alone, but I certainly think it’s possible that the risk for cardiovascular problems could be significantly decreased in this high-risk group if supplementation were continued,” Belury said.

She noted that the total dose of dietary oils the women took between their normal diets and the safflower oil supplementation amounted to 9.8 percent of their daily calories – a level that falls within federal guidelines for vegetable oil consumption. The women had been instructed not to change their diets during the study, and self-reports of their food intake showed that their eating habits did not change while they were taking the supplements.

“A small change in eating behavior to alter the fatty acid content of the diet might improve metabolic measures in people already consuming what is considered to be an adequate amount of dietary linoleic acid,” Belury said. “What is needed in our diet is PUFAs to help with cardiovascular disease, the No. 1 killer of men and women in this country.”

Belury is an investigator with the [Ohio Agricultural Research and Development Center](#). This research was also supported by an unrestricted gift from the [Cognis Corp.](#), which also provided the supplements; the [National Center for Research Resources](#); the [Clinical Research Center at Ohio State](#); and the [National Institutes of Health](#).

Co-authors of the study include Michelle Asp, Angela Collene, Leigh Norris, Rachel Cole and Michael Stout of the Department of Human Nutrition and Szu-Yu Tang and Jason Hsu of the [Department of Statistics](#), all at Ohio State.

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