

Nutritional Power of SUNFLOWER OIL

VOLUME 4.2

Trans-Free NuSun Sunflower Oil: The Research Shows the Benefits

A large body of scientific evidence supports including a higher proportion of good unsaturated fat and less bad saturated and trans fat in the diet in order to lower the risk of chronic diseases. A major new paper reviews research on the adverse effects of trans fatty acid intake and its relation to cardiovascular disease. The consumption of trans fatty acids results in “considerable potential harm but no apparent benefit” (1). The paper suggests that “a complete, or near complete avoidance of industrially produced trans fats... may be necessary to avoid adverse effects and would be prudent to minimize health risks (1).”

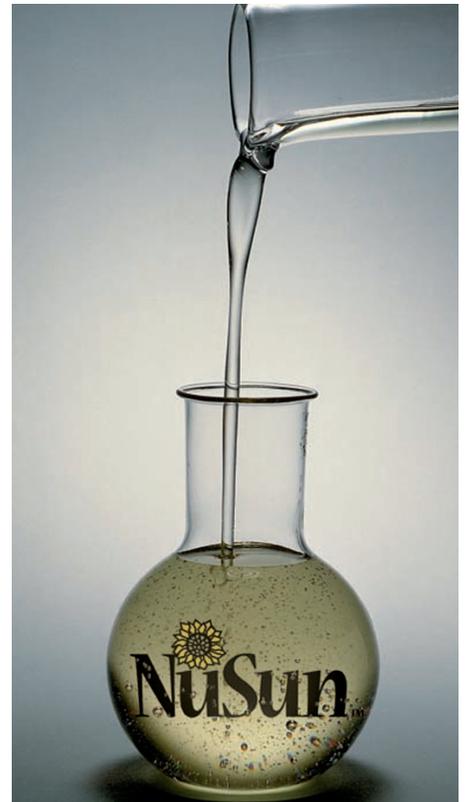
NuSun is sunflower oil that has an exceptional fat profile with less than 10% unhealthy saturated fat, no trans fat, and over 90% healthy unsaturated fats (mono- and polyunsaturated).

Trans fatty acids are bad fats that are formed during a process called partial hydrogenation. This process aids in the stability of oils so that they can be used in applications such as frying. NuSun sunflower oil is not partially hydrogenated and thus has no bad trans fats.

Researchers at the Harvard School of

Public Health estimate that replacement of 2 percent of calories from trans fats with good unsaturated fats would reduce the risk of coronary heart disease by 53 percent (2). In fact, substituting only 2 tablespoons per day of healthy NuSun sunflower oil for saturated fat significantly lowered total cholesterol and bad LDL cholesterol compared to the American diet (3).

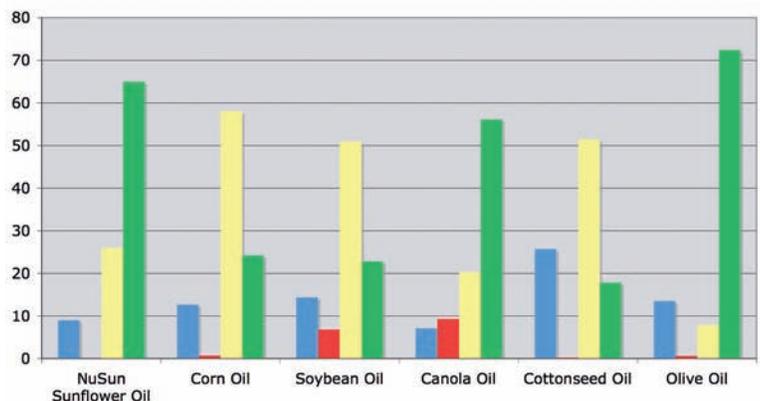
This NuSun oil substitution study, conducted at Penn State University was the first controlled clinical study show-



“...substituting only 2 tablespoons per day of healthy NuSun sunflower oil for saturated fat significantly lowered total cholesterol and bad LDL cholesterol compared to the American diet...”

Table 1
Fat Profile of
Commonly Used Oils

- Saturated Fat (%)
- Linoleic Acid % (Poly, Omega-6)
- Linolenic Acid % (Poly, Omega-3)
- Oleic Acid % (Mono)



ing the heart-healthy benefits of using NuSun sunflower oil. Thirty-one healthy men and women followed one of three different diets for four weeks each: an olive oil-based diet, a NuSun sunflower oil-based diet, or an average American diet. In the healthy oil diets, 2 tablespoons of oil low in saturated fat were substituted for saturated fats in foods such as salad dressings, granola, and sauces.

The NuSun oil diet had the best outcome on blood lipids, and there was no significant change with the olive oil diet (3). Dr. Penny Kris-Etherton, distinguished professor of nutrition who directed the study, said, “We expected the polyunsaturated fatty acids, which are higher in the sunflower oil than the olive oil, to produce a greater reduction in total and LDL cholesterol levels in the study participants – and they did.” She went on to say, “Within the context of a moderate fat diet, it is becoming clear that a mixture of unsaturated fatty acids provides the greatest health benefits.” Thus, the excellent balance of fatty acids in NuSun oil could explain the positive cholesterol-lowering effects of the NuSun diet.

This groundbreaking study has showed that even a small change in a person’s diet can produce major rewards, and that NuSun’s optimal balance of fat is consistent with current

NuSun^a Sunflower Oil Diet Sample Menu (1,800 kcal) from Controlled-Feeding Study Testing the Effect of Fatty-Acid Composition on Lipid & Lipoprotein Levels & Oxidative Stress.

Meal	Amount (g)
BREAKFAST —	
Yoplait ^b 99% fat-free original yogurt, fruit flavor	227
Blueberries, frozen	70
Skim milk	200
NuSun sunflower oil granola	30
All-Bran ^c cereal	20
LUNCH —	
Whole-wheat bread	50
Healthy Choice ^d deli smoked ham	53
NuSun sunflower oil honey mustard spread	20
Fig Newtons ^e cookies	15
Rold Gold ^f thin twist pretzels	30
DINNER —	
Turkey taco	100
Egg yolk	13
Butter	4
NuSun sunflower oil	20
Romaine lettuce	56
Tomato	60
Sweet corn	110
Old El Paso ^b chunky salsa dip	30
Cheddar cheese, shredded	12
Tostitos ^f baked tortilla chips	30
SNACK —	
Pear halves, canned in extra light syrup	130
JELL-O ^e gelatin snack	99

^a National Sunflower Assn., Bismarck, ND

^b General Mills, Inc., Minneapolis, MN

^c Kellogg Co., Battle Creek, MI

^d ConAgra Foods, Inc., Omaha, NE

^e Kraft Foods, Inc., Northfield, IL

^f PepsiCo, Purchase, NY

dietary fat recommendations. An example of how to make these small changes is shown at lower left in the form of a “real-world” meal plan that was used in the study.

“...Even a small change in a person’s diet can produce major rewards...”

NuSun sunflower oil performs optimally so that whether cooking or frying, a clean, light, great taste is maintained while enhancing the nutritional value of products. Since NuSun is trans-free and heart-healthy, it can be used in food service as a perfect ingredient, salad oil, or stable frying oil. NuSun’s natural stability allows for enhanced product shelf life and fry-life. Replacing some saturated fat with NuSun is easily achievable.

NuSun Sunflower Oil Contributes to an Optimal Diet

Additional research from the Harvard School of Public Health regarding the optimal diet for preventing coronary heart disease concluded, “evidence is now clear that diets including non-hydrogenated unsaturated fats as the predominant form of dietary fat...can offer significant protection against coronary heart disease (4).”

In addition, one clinical study compared a high-fat diet rich in good monounsaturated fats and low in bad saturated fats with a low-fat/high carbohydrate diet. Results showed that good HDL cholesterol stayed high on the high-fat diet, and triglycerides did not go up compared to the low-fat/high carbohydrate diet (5,6).

Epidemiological studies look at associations between diet and disease. Many cultures, including the Mediterranean culture, have a lower risk of heart disease. Because the Mediterranean diet gets a lot of good unsaturated fat from olive oil, seeds, nuts, and fish (7), this region was studied. It was found that when intake of monounsaturated fats was lower in this region, cholesterol levels and coronary heart disease were higher (8).

The Nurses’ Health Study at the Harvard School of Public Health showed similar results. They saw that with an increase in good monounsaturated fat, coronary heart disease risk was decreased; and in contrast, when bad saturated fat consumption was increased, coronary heart disease risk was increased (9).

NuSun Sunflower Oil Is In Line with the 2005 U.S. Dietary Guidelines and MyPyramid

NuSun sunflower oil meets the recommendations set by the 2005 U.S. Dietary Guidelines Committee. The 2005 U.S. Dietary Guidelines and MyPyramid plan recommend keeping total fat intake to between 20-35 percent of calories, with most fats coming from sources of healthy mono- and



polyunsaturated fatty acids, such as fish, nuts, and vegetable oils. The committee further recommends that saturated fat consumption be kept as low as possible and that trans fat intake be kept to less than 1 percent of calories.

Diets high in saturated fat have been shown to raise total and bad LDL cholesterol (2). Furthermore, research has shown that trans fats not only raise the bad cholesterol, but they decrease the good HDL cholesterol as well, making them even more harmful than saturated fats (10). The problem is, these fats are plentiful in the American diet. More than 80% of trans fat in the food supply is from partially hydrogenated oils in snack and fried foods.

Many manufacturers have made or are now working to make trans fat-free solutions for their products. As of January 2006, food manufacturers are required to list the amount of trans fat per serving on the Nutrition Facts Label

Nutrition Facts	
Serving Size 1 oz (28g)	
Amount Per Serving	
Calories 151	Calories from Fat 86
% Daily Value*	
Total Fat 10g	15%
Saturated Fat .06g	
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 169mg	7%

of food products. This ruling will enable consumers to choose foods free of trans fatty acids. “Trans fat intake could also be reduced if food manufacturers and restaurants choose to use alternatives to partially hydrogenated oils (1)”.

Switching to a trans fat-free, low saturated fat oil like NuSun sunflower oil offers a perfect solution to this problem.

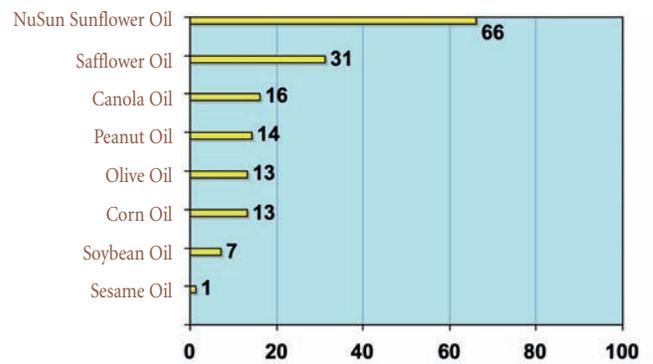
In the U.S., the current average consumption of industrially produced trans fatty acids is 2-3 percent of total calories consumed (11). To get the bad fat out, and to add in the good fat, NuSun sunflower oil provides a balance of optimal fats and is functionally stable for frying, cooking and for use as an ingredient.

NuSun Sunflower Oil Helps Meet the Recommended Daily Allowance for Vitamin E

The most recently published U.S. Dietary Reference Intakes increased the Recommended Daily Allowance for vitamin E to 15 mg of a-tocopherol per day for both men and women. However, with current dietary choices, most Americans fall short of this goal. Results from the National Health and Nutrition Examination Survey (NHANES), 2001-2002, showed that only 5% of men and 4% of women met the Recommended Daily Allowance for vitamin E (12).

Consumption of NuSun sunflower oil can help to improve these levels. NuSun sunflower oil supplies more vitamin E than any other vegetable oil. In one serving, 66% of the Recommended Daily Allowance is achieved (Table 2).

Vitamin E in Oils (% of RDA)**



**Recommended Dietary Allowance is 15 mg.

A recent study, designed to determine the maximal amount of vitamin E (a-tocopherol) intake obtained from the U.S. diet, stated, “to meet the RDA for vitamin E (15mg/d), at least 25% of total energy must come from fat. (12)”

“...to meet the RDA for vitamin E (15mg/d), at least 25% of total energy must come from fat...”

In observational studies, vitamin E (a-tocopherol) intake has been associated with a lower risk of chronic disease, including heart disease, type 2 diabetes and hypertension. Adverse effects of high-dose vitamin E supplement use have been suggested in recent studies, however, so an emphasis on optimal intake of foods containing vitamin E within the range of the Dietary Reference Intake recommendations is important (13,14).

Since the American Heart Association suggests that we replace saturated fat with unsaturated fat, and the National Academy of Sciences suggests that trans fat should be as low as possible in the diet, NuSun sunflower oil is the perfect solution for meeting these goals. Not only is NuSun trans fat-free and low in saturated fat with a beneficial balance of unsaturated fatty acids, but it also supplies more vitamin E than any other vegetable oil. The versatility and nutritional benefits of NuSun sunflower oil are recognized internationally as an excellent choice to food manufacturers and suppliers.

References:

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— KEY —

In Food:

Trans fat – BAD, eliminate if possible

Saturated fat – BAD, keep low

Unsaturated fats:

- Monounsaturated fat – GOOD, enjoy!

- Polyunsaturated fat – GOOD, enjoy!

Partial Hydrogenation — A process carried out on oils to make them more stable which causes trans fat formation.

In Blood:

HDL Cholesterol – GOOD, keep high

LDL Cholesterol – BAD, should be low

Triglycerides – BAD, should be low

2005 US Dietary Guidelines say to keep total fat between 20-35% of calories with most fats coming from sources of mono- and polyunsaturated fatty acids, such as fish, nuts and vegetable oils, like NuSun!



For more information on NuSun sunflower oil or sunflower seeds, contact:



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