

Nutrition SPOTLight

July/August 2001



Where Are We At With Trans Fat?

If we are tuned in to nutrition news, we know about trans fat. We have heard the concerns, and we may even be awaiting the proposed change in food labels to allow us to recognize just where the trans fats are in our food. What's the latest news in trans fat?

Trans fat is formed when vegetable oils are processed to make them more stable and solid. They are found in margarine, ready-made baked goods and snack foods, as well as fried foods such as most french fries. Trans fats became popular in the late 1960s, when they were originally believed to provide a healthier alternative to saturated fats. Today it is not clear which type of fat is more harmful.

A study released in the July issue of *Atherosclerosis, Thrombosis and Vascular Biology* suggests that trans fatty acids increase the risk of heart disease more than the intake of saturated fats. In the study, researchers from the Netherlands discover that a diet liberal in trans fat reduced blood vessel function by 29% and lowered HDL, the "good" cholesterol by about one fifth, compared to a diet centered on the same proportion of saturated fat.

The researchers suggested that companies manufacturing foods

such as doughnuts, chips and cookies should report on the label just how much trans fat is found in their product. At this time, the consumer cannot know how much trans fat he is eating.

A public health group has recently petitioned the Food and Drug Administration to put trans fat info on the labels. Dr. Michael Jacobson, executive director of The Center for Science in the Public Interest reminded the FDA that based on the FDA's own figures, the inclusion of trans fat on food labels could prevent 2,100 to 5,600 deaths from heart disease annually. Dr. Kathleen Koehler, an epidemiologist for the FDA, pointed out in June 2000 that removing all trans fat from margarine

and just three percent from baked items could prevent more than 17,000 heart attacks and more than 5,000 deaths per year. She also estimated a monetary benefit of \$2.9 billion to \$7.9 billion each year from prevented heart attacks if trans fat were less prevalent in foods.

What can consumers do until trans fat info shows up on the label? The American Heart Association recommends that oils such as canola or olive be used in cooking, and that low fat tub margarine is eaten instead of butter or stick margarine.

Reference: ABCNEWS.com, 7/13/2001 and www.nytimes.com 7/3/ 2001

In the Limelight

Where Are We At With Trans Fat?	1
Fat to Grow On	2
An interview with Dr. Sung Koo, Professor	3
Fat Replacers Aren't New	4
Put Omega-3 Fats in Your Diet	5
New Cholesterol and Management Guidelines Issued May, 2001	6
Salmon Loaf	7

Fat to Grow On

Parents desire their children to be a healthy weight and to avoid chronic disease associated with obesity. Unfortunately, some well-meaning parents actually sabotage their good intentions by managing their child's eating practices too tightly. Fat is particularly important for young children. Human breast milk, which the American Academy of Pediatrics recommends as infants' sole food for the first four to six months of life, is approximately 50% fat. Because of the rapid growth during the first two years of life, it is recommended that fat intake not be restricted during this period. Breast milk or formula should be offered the first year, and whole milk, which also has a high fat content, is recommended for the second year of life.

Feeding low fat foods to a child this age may result in less than adequate growth. After age two, a child may be offered lower fat foods such as 2% milk, gradually moving toward the low-fat recommendations found in the *Dietary Guidelines for Americans* to help achieve good health for a life time.

For a young child, fat is essential for other reasons. It offers protection during the inevitable falls that occur while learning to walk, insulates from extremes in outside temperatures and provides a concentrated form of energy for rapid growth. It is necessary for making cholesterol, which is essential for brain development. Fat plays a vital role in the absorption of fat soluble vitamins. Examples of these are: vitamin A (promotes healthy tissue growth and helps prevent infections), vitamin D (fosters stronger bones and teeth by helping deposit calcium and phosphorus), vitamin E (contributes

to healthy nervous and cardiovascular systems) and vitamin K (promotes proper blood clotting and strong bones).

One important thing fat provides is taste. Children will eat something only if it tastes good. A young child's stomach is small and his energy needs are high. Fat in the diet offers staying power under those conditions. Parents and caregivers can see that a child gets enough fat, but not too much, by providing meals and snacks with a balance of low, moderate, and high-fat foods. The next step is to allow the child's innate self-regulatory mechanism to adapt his fat intake to his hunger and appetite.

A child loses that natural ability to follow his internal cues when adults decide for him how much he should eat. Making matters worse, parents who are over-conscious about their fat intake can inadvertently pass that habit on to their child. He may tend to overeat when he is given free access to forbidden high fat foods (cookies, cakes, etc.) setting the stage for weight issues late on. An effective means of avoiding this pitfall is to incorporate occasional high fat foods into the family menu. It is preferable to allow a child to eat as much as he wants *during* structured meal times and not single out any food as a "bad" or special food. Enjoying a variety of foods at mealtime (some of which may be high in fat) is a healthy approach to help a child develop appropriate eating patterns for a lifetime. This seems to be good advice for any age.

Source: American Academy of Pediatrics, Pediatric Nutrition Handbook, 4th ed. 1998. Elynn Satter, Child of Mine-Feeding With Love and Good Sense. Bull Pub. 2000. Dietary Guidance for Healthy Children Aged 2 -11 Years-Position of ADA. J AM Diet Assoc. 1999; 99:93-101.

Contributors

Shelly Burklund

Spotlight Producer

Sandy Procter, MS, RD, LD

Spotlight Editor and Coordinator, Expanded Food and Nutrition Education Program (EFNEP)

Barbara L. Knous, PhD, RD, LD

Extension Specialist, Nutrition

Mary L. Higgins, PhD, RD, LD

Extension Specialist, Nutrition Education

Karen Hudson, MEd, RD, LD

Coordinator, Family Nutrition Program (FNP)

Kathy Walsten

Nutrition Educator, FNP and EFNEP

Karen Fitzgerald, MS, RD

Coordinator, Kansas Nutrition Network, (KNN)

Judy Speer

Graphic Design and Layout

Shannon Eastburn- Intern

Questions or concerns about this publication? Contact Shelly Burklund, 207 Justin Hall, Manhattan, KS 66506, Phone: (785) 532-1670, FAX: (785) 532-1678

Visit our website at:
http://www.oz.oznet.ksu.edu/ext_f&n



Kansas State University

Research and Extension

Cooperative Extension Service

K-State Research and Extension
Department of Human Nutrition
207 Justin Hall
Manhattan, Kansas 66506-1422

K-State, County Extension Councils, Extension Districts, and U.S. Department of Agriculture Cooperating.

All educational programs and materials available without discrimination on the basis of race, color, religion, national origin, sex, age, or disability.

Spotlight on K-State's Human Nutrition (HN) faculty: An interview with Dr. Sung Koo, Professor

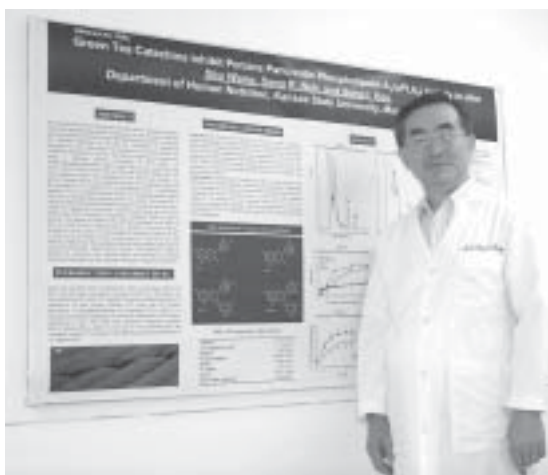
What do vitamins A and E, zinc, carnitine, cholesterol, and green tea have in common? The answer: they are the current research interests of Professor Sung I. Koo in K-State's Dept. of Human Nutrition. Koo joined the K-State faculty in 1990. His research focuses on the nutrition and metabolism of lipids and lipid-soluble vitamins as influenced by various dietary factors, using animal models. He has published about 50 research papers in peer-reviewed journals, and currently advises a postdoctoral research associate and four graduate students.

Many pre-term infants and growing children have zinc deficiency. One of Koo's research projects is to investigate how zinc deficiency leads to manifestation of clinical symptoms of vitamins A and E. His recent research provides evidence that zinc is critical to the normal absorption of these two fat-soluble vitamins, and is needed for the optimal activity of an enzyme in the pancreas that helps with the absorption of fat-soluble vitamins.

The metabolism of fat, cholesterol, and fat-soluble vitamins changes in aging women. Using animal models, Koo and his students have found that hormone replacement therapy helps slow down the rate of weight gain, enhances the body status of certain essential minerals, increases blood levels of high-density lipoprotein

(HDL) cholesterol known as "good cholesterol", and increases blood and tissue levels of vitamin E. Vitamin E plays an important role in the antioxidant defense system, which generally weakens with age.

Other antioxidants, such as phytoestrogens present in soy foods, and catechins found in green



tea and other fruits and vegetables, affect the metabolism of cholesterol and fat-soluble vitamins. Koo and his team recently reported that green tea and catechins from green tea dramatically reduce absorption of cholesterol. Their findings suggest that green tea and catechins in the tea inhibit certain enzymes, thereby interfering with cholesterol uptake by intestinal cells. He plans to continue this project to determine how green tea might reduce blood cholesterol levels and other risks for coronary heart disease.

Koo's current projects are supported by grants from USDA National Research Initiative Program, Hills Pet Nutrition Inc., the American Heart Association, and the K-State Agricultural

Experiment Station. Koo serves as Coordinator of Graduate Studies and Research for the department of Human Nutrition. He teaches HN 620, Nutrient Metabolism, a required course for all undergraduates majoring in Human Nutrition or in Dietetics. He also teaches HN 810, Advanced Macronutrient Metabolism, which is a graduate level course offered in the spring semester.

For the past two years, Koo has served as the panel manager for the USDA National Research Initiative Competitive Grants Programs in Human Nutrition, and currently serves on the National Institutes of Health's National Center for Complementary and Alternative Medicine Special Emphasis Panel.

Koo is originally from South Korea. He moved to Manhattan after spending 11 years on the faculty of the Oral Roberts University School of Medicine in Tulsa, Oklahoma. He received his Ph.D. from Clemson University, and did postdoctoral work at Cornell University College of Veterinary Medicine.

Koo and his wife are proud of their three daughters, all graduates of K-State. The youngest is entering KU Medical School this fall, while the oldest is a graduate of that school and is a medical resident in a hospital affiliated with Harvard Medical School in Boston. Their middle daughter is in her third year of an M.D./Ph.D. program at the University of California, San Diego.

Fat Replacers Aren't New

The American Dietetic Association (ADA) has issued a position statement on fat replacers which concludes that “the fat content of foods may be safely reduced or replaced using approved processing methods and constituents. Individuals who choose such foods should do so within the content of a diet consistent with the Dietary Guidelines for Americans.”

The term “fat replacers” refers to a variety of ingredients to replicate the functional or sensory properties of fat but which provide less energy. Food manufacturers use different types of fat replacers - some are carbohydrate-based, some are protein-based and others are fat-based.

Familiar names on labels of carbohydrate-based fat replacers include modified starches, dextrans, cellulose and gums. Foods that may contain these are baked goods, gravies, yogurt or sour cream. Fat-free salad dressings contain carbohydrate-based substitutes.

Protein-based fat replacers are made with protein from egg whites or skim milk. Low-fat cheese made with a protein-based substitute gives an appearance and texture that comes close to full-fat cheese. Simplese® is a trade name recognized on frozen dairy dessert products.

Fat-based replacers are made with fats that have been chemically altered and provide few or no calories. They may be used in baked foods, some fried foods, cake mixes and dairy foods. Olestra (Olean®) is a calorie-free fat replacer made from vegetable oils and sugar. It contributes no calories because it passes through the body without being digested and absorbed. Consuming foods with olestra has caused digestive discomfort for some.

Fat replacers aren't new. In fact, water is the oldest fat replacer. Health-conscious bakers have been using applesauce and fruit purees instead of oil in brownies, cakes, quick breads, muffins and cookies for years.

In baked goods, half the fat can be substituted with applesauce, up to ½ cup. One-third cup of applesauce can be substituted for the oil in regular boxed cake mixes. Some boxed mixes list low fat baking ingredients and instructions using applesauce in place of oil in the regular fat version.

Prune puree or fruit puree is another substitute for fat in baking. Prune puree can be made at home by combining 8 ounces of pitted prunes and 6 tablespoons hot water in a food processor. This makes 1 cup and should be stored in the refrigerator. Puree can also be purchased in the form of baby food labeled “first stage” or by brand name “Lighter Bake.” The fat in a recipe can be omitted and replace with ½ that amount of puree. It may take some experimentation to get the most desirable product.

The ADA cautions that the use of fat replacers in the diets of small children, especially those under two years of age, may not be compatible with their energy needs.

Put Omega-3 Fats in Your Diet

What do walnuts, spinach, tuna, flaxseed, and salmon have in common? *They are all sources of a special type of fat shown to have some benefits for our health.*

Called omega-3 fat for its special structure of the third carbon atom, this type of fat has unique effects in the body. Here are some of the conditions that may be helped by a diet with increased levels of omega-3 fats.

Arthritis Omega-3 fat produces substances that do not cause inflammation, resulting in improvements for persons with rheumatoid, psoriatic, or osteoarthritis arthritis.

Cancer Tumor growth is slowed, chemotherapy is more effective and leads to less weight loss.

Mental disorders/Depression Depression, schizophrenia, bipolar or manic-depression disorder have shown improvement with omega-3s.

Heart disease/Stroke Blood clots decrease, bad cholesterol levels are lowered, and the heart beat is stabilized by omega-3s.

Many other diseases may be helped by omega-3s. Following more research we'll know if the preliminary findings showing improvements for Attention Deficit Hyperactivity Disorder (ADHD), bone development. Systemic Lupus, and kidney function can be taken seriously.

How can your diet get more of these special fat molecules? As you decrease use of fats such as butter and corn oil based products, increase sources of omega-3s. Add the following items to your diet every day:

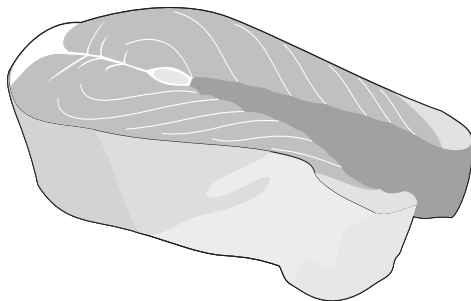
- Flaxseed meal
- Flaxseed oil
- Oat germ
- Cereals such as Uncle Sams's or Red River cereal
- Walnuts, butternuts, brazil nuts
- Salmon
- Anchovies
- Tuna
- Sardines
- Herring
- Halibut/whitefish
- Leeks
- Spinach, cauliflower, broccoli, leafy greens

In addition, watch for food of animal origin made higher in omega-3s by feeding the animals marine sources of these fats. Some foods that have been modified include eggs, milk, and meat.

Omega-3 supplements may be needed if no high omega-3 foods are eaten. However, note that cod liver oil is not a good source of omega-3 fat because it may contain harmful levels of vitamin A. If you use aspirin or medication to reduce blood clotting you will want to check with your physician before starting or increasing the omega-3 supplement.

Flaxseed meal and flaxseed oil should be stored in the refrigerator. Flaxseed oil should never be heated.

For more information, please visit the KSU extension web page on omega-3s at:
<http://www.oznet.ksu.edu/humannutrition/Omega3.htm>



New Cholesterol Testing and Management Guidelines Issued May, 2001

In May, 2001, the U.S. National Cholesterol Education Program (NCEP) issued clinical guidelines for cholesterol testing and management in adults. NCEP is coordinated by the National Heart, Lung, and Blood Institute, and develops new guidelines as warranted by research advances. Earlier guidelines were issued in 1988 and 1993. The newest guidelines are also known as the Adult Treatment Panel (ATP) III.

Americans need to act now to prevent a future heart attack, or heart disease itself. Every risk factor needs to be treated. People should check with their doctor to learn their overall risk for a heart attack and what, if any, treatment is needed.

ATP III recommends more intensive cholesterol-lowering therapy in certain groups of people, and better identification of those with multiple risk factors for a heart attack, in addition to intensive treatment of people with established coronary heart disease. Although intensive therapy to reduce high levels of low-density lipoprotein (LDL) cholesterol continues to be a focus of the new guidelines, ATP III also emphasizes other risk factors, such as cigarette smoking, hypertension or being on high blood pressure medication, low high-density lipoprotein (HDL) cholesterol, family history of premature heart disease, and advancing age. Diabetes and arterial disease involving the legs or carotids in the neck are also high on the risk list. ATP III guidelines include risk assessment tools that predict a man's or a woman's chance of having a heart attack within 10 years, based on clinical conditions and lifestyle factors. ATP III also focuses on persons with

“metabolic syndrome,” which are multiple heart disease risk factors linked to insulin resistance that often occur together. The syndrome includes factors such as abdominal obesity (indicated by too large a waist measurement), elevated triglyceride, low HDL, elevated blood pressure, and elevated fasting glucose.

Use of a fasting lipoprotein profile as the initial test for high cholesterol is now recommended. All adults age 20 years or older are advised to have the analysis once every five years. (A lipoprotein profile measures levels of LDL, total cholesterol, HDL and triglycerides.) The new guidelines still recommend total cholesterol levels be under 200 mg/dL, but now recommend optimal LDL-cholesterol levels as under 100 mg/dL. ATP III guidelines raise the categorical level for low HDL cholesterol from less than 35 mg/dL to less than 40 mg/dL. The guidelines also redefine and give more attention to aggressive treatment of elevated triglyceride levels.

A diet- and lifestyle-based approach to clinical treatment is recommended prior to, or with, cholesterol-lowering drugs. The guidelines recommend a new “Therapeutic Lifestyle Changes (TLC)” treatment plan, which is the intensified use of nutrition, physical activity and weight control in the treatment of elevated blood cholesterol and reduction of risk factors. The guidelines emphasize the importance of physician referrals to registered dietitians or other qualified nutritionists for medical nutrition therapy in facilitating the behavior changes that people will need to make in order to follow the recommended

diet and lifestyle changes. The TLC plan calls for daily intakes of less than 7% of total calories from saturated fat, less than 200 mg dietary cholesterol, 20-30 g fiber per day, 50-60% of total calories from carbohydrates, approx. 15% of total calories from protein, and up to 35 percent of daily calories from total fat, with up to 10% of total calories from polyunsaturated fat, and up to 20% of total calories from monounsaturated fat. (A higher fat intake, mostly in the form of unsaturated fat, may be needed by people with high triglycerides and/or a low HDL.) ATP III encourages the consumption of foods containing 2 g/day of plant stanols and sterols, and 10-25 g/day of soluble fiber, to enhance lowering LDL-cholesterol. Plant stanols and sterols are found in certain margarines and salad dressings; and foods high in soluble fiber include grains, beans, peas, legumes and many fruits and vegetables.

ATP III advises against the use of hormone replacement therapy (HRT) to reduce heart disease risk. Cholesterol-lowering drugs are preferable to HRT for heart disease risk reduction.

ATP III guidelines are not without controversy. For instance, while heart disease death rates have fallen, the new guidelines are expected to substantially expand the number of Americans being treated for high cholesterol, including raising the number on dietary treatment from about 52 million to about 65 million, and increasing the number of people receiving prescribed cholesterol-lowering drug from about 13 million to about 36 million.

ATP III and cholesterol-related materials can be found at: www.nhlbi.nih.gov/guidelines/cholesterol/index.htm

This tasty entree' offers fiber plus omega-3 fatty acids. Enjoy!

Salmon Loaf

5 portions

- 3/4 cup bulgur
- 1 1/2 cups very hot water
- 1/2 cup chopped onion
- 1/2 cup chopped celery
- 1/4 cup chopped green pepper
- 1 tablespoon margarine
- 1 egg or egg substitute
- 3 tablespoons lemon juice
- 1 tablespoon Dijon mustard
- 2 tablespoons fresh chopped parsley
- 1/4 teaspoon dried tarragon, crushed
- 1 16 ounce can salmon, drained and flaked
- 1/2 cup liquid (salmon water plus skim milk)

In a large bowl, combine bulgur and hot water. Let stand until water is absorbed and bulgur is tender (about 30 minutes).

Saute onion, celery and green pepper in margarine. Thoroughly mix sauted vegetables, lemon juice, mustard, parsley, tarragon and reserved salmon liquid with bulgur.

Add salmon and mix lightly. Place in a non-stick sprayed 9 x 5-inch loaf pan. Bake at 350 degrees for one hour.

Recipe from Cooking a'la Heart ISBN 0-9620471-3-9

Nutrition Facts			
Serving Size 1 portion 198g			
Servings Per Container 5			
Amount Per Serving			
Calories 260	Calories from Fat 80		
% Daily Value *			
Total Fat 9g			13%
Saturated Fat 2g			11%
Cholesterol 80mg			26%
Sodium 580mg			24%
Total Carbohydrate 21g			7%
Dietary Fiber 5g			
Sugars 3g			
Protein 25g			
Vitamin A 8%		Vitamin C 20%	
Calcium 30%		Iron 10%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs. If your calorie needs are much different, you adjust the amounts recommended for calories, fats, carbohydrate, and fiber.			
	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400 mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9	Carbohydrate 4		Protein 4

COOPERATIVE EXTENSION SERVICE
U.S. DEPARTMENT OF AGRICULTURE
KANSAS STATE UNIVERSITY
MANHATTAN, KANSAS 66506

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

This issue of *Nutrition Spotlight* focuses on fat – fat in research, fat in the news, necessary fat in our diets and in the diets of our children. As nutrition educators, we are challenged to balance the scale. It is our role on one hand to temper the “fat frenzy” when we find it, and to let our public know that fat is not an evil anti-health plot but an important part of a nutritious, satisfying, varied diet. On the other hand, we must spread the word that consumers have control of how much and what kinds of fat they choose to include in their diet. We want them to know what those choices are, and that their choices have a profound effect on their health and well-being.