FATS – The Good, the Bad, and the Ugly

Presented by
Donna Dodge, R.D., LDN
INTRODUCTION

**Fats and Oils** – Impact on Your Health

- Polyunsaturated Fats
- Monounsaturated Fats
- Saturated Fats
- Trans Fats / Interestereified

• **Recommendations** for *Optimal Health*

• Researching Fats/Oils for 30 years
Dietary Guidelines - Recipe for Illness?

- Natural fats such as butter, tallow, lard, and palm and coconut oils have been relegated to the garbage heap, and the man-made fats such as partially hydrogenated shortenings and margarines, canola and vegetable oils, have been promoted as if they were magic medicine.

- This is just the opposite of what we should be doing because natural fats and oils have components which are health-promoting, and their replacements are now known to be disease-causing.
U.S. DIETARY FAT SOURCES

<table>
<thead>
<tr>
<th></th>
<th>1909</th>
<th>1985</th>
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<tbody>
<tr>
<td>BUTTER</td>
<td></td>
<td></td>
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<tr>
<td>LARD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHORTENING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MARGARINE</td>
<td></td>
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<tr>
<td>OILS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1890</td>
<td>Vs.</td>
<td>1990</td>
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<tr>
<td>----------------------</td>
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</tr>
<tr>
<td>Lard</td>
<td>Tallow (suet)</td>
<td>Soybean Oil</td>
</tr>
<tr>
<td>Chicken Fat</td>
<td>Butter Fat</td>
<td>(70% hydrogenated)</td>
</tr>
<tr>
<td>Olive Oil</td>
<td>Palm Oil</td>
<td>Canola Oil</td>
</tr>
<tr>
<td>Coconut Oil</td>
<td>Peanut Oil</td>
<td>Cottonseed Oil</td>
</tr>
<tr>
<td>Peanut Oil</td>
<td>Corn Oil</td>
<td></td>
</tr>
<tr>
<td>Cottonseed Oil</td>
<td>Palm Oil</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coconut Oil</td>
<td></td>
</tr>
</tbody>
</table>

(In descending order of market share)

*Source*: Commerce Dept.
Disease Trends and Butter Consumption

![Chart showing the relationship between butter consumption and CHD and cancer prevalence over time.](chart.png)
18-CARBON FATTY ACIDS

- Saturated STEARIC
- Mono- Unsaturated OLEIC
- Poly- Unsaturated LINOLEIC (Essential Fatty Acid)
- Poly- Unsaturated LINOLENIC (Essential Fatty Acid)
Modern Edible Oil Processing
Free Radicals in Processed Polyunsaturated Oils

Linoleic

Linolenic
Arteries: The Good and the Pathological

Good artery - smooth, elastic and pink.
Saturated and mono-unsaturated fats do not react or harm arteries.

Damaged arteries - crusty and yellowish.
Damage caused by free radicals from rancid, processed vegetable oils.
Problems Associated with Consumption of Polyunsaturated Oils

- Increased cancer
- Increased heart disease
- Increased wrinkles and premature aging
- Disruption of hormone production
- Depressed brain function
- Liver damage
- Damage to reproductive organs (infertility)
- Damage to lungs (asthma)
- Digestive disorders
- Increased levels of uric acid
- Impaired growth
- Lowered cholesterol

Source: Pinckney, *The Cholesterol Controversy*
Hexane:

Food-grade gasoline is the solvent used in oilseed extraction.

Hexane is on the EPA’s list of toxic chemicals.

Material Safety Data Sheet: “Harmful or fatal if swallowed.” Ingestion may produce abdominal pain, nausea, lightheadedness, nausea, headache and blurred vision. Interestingly, one fact sheet lists high blood sugar as a toxic effect.

In 1997, researchers found higher-than-expected levels of hexane in ALL samples of cooking oils tested.

This means that humans may be ingesting greater amounts than previously thought.
NATURAL SOURCES of ESSENTIAL FATTY ACIDS

GRAINS
NUTS
ANIMAL FATS
VEGETABLES

LEGUMES
FISH
EGGS
FRUITS

Polyunsaturated fats are protected from damage when they are in whole foods.
Mono-Unsaturated Fats
Canola Oil
• HISTORY-

• Mid – 1980s – food industry in a bind

• Solution – embrace monounsaturated oils such as olive oil

• In Steps Rapeseed oil – 60% monounsaturated (2/3 erucic acid)

• Genetic Engineering – LEAR oil (Low Erucic Acid Oil)
• Unsafe for all the same reasons as vegetable oils (caustic refining, bleaching, high temperatures, rancid, damaged fats, hexane).

BUT….

With added danger of deodorization process – removes omega-3 by turning into trans fats.
University of Florida at Gainsville found trans fat levels as high as 4.6 percent.

"... resulted in considerable neuronal damage, decreased neural contacts, and memory impairment."

The researchers also noted that the mice fed canola oil also gained more weight than the group fed a normal diet.

“Even though canola oil is a vegetable oil, we need to be careful before we say that it is healthy. Based on the evidence from this study, canola oil should not be thought of as being equivalent to oils with proven health benefits,” said Dr. Praticò in a press statement.

The study was published in the journal *Scientific Reports.*
DON’T YOU SELL ANYTHING WITHOUT THE DREADED TRANS FATTY ACIDS?

SURE... WE SELL CIGARETTES!
MANUFACTURE of MARGARINE and SHORTENING

SOY BEANS, CORN, COTTONSEED OR CANOLA SEEDS → OILS EXTRACTED BY HIGH TEMPERATURE AND PRESSURE → REMAINING FRACTION OF OILS REMOVED WITH HEXANE AND OTHER SOLVENTS

OILS WITH CATALYST SUBJECTED TO HYDROGEN GAS IN A HIGH-PRESSURE, HIGH-TEMPERATURE REACTOR → OILS MIXED WITH A NICKEL CATALYST → OILS, NOW RANCID, STEAM CLEANED TO REMOVE ALL VITAMINS AND ANTI-OXIDANTS (BUT PESTICIDES AND SOLVENTS REMAIN)

SOAP-LIKE EMULSIFIERS MIXED IN → OIL STEAM CLEANED AGAIN TO REMOVE HORRIBLE ODOR → GRAY COLOR REMOVED BY BLEACHING

ADVERTISING PROMOTES MARGARINE AS A HEALTH FOOD → MIXTURE IS PACKAGED IN BLOCKS OR TUBS → ARTIFICIAL FLAVORS, SYNTHETIC VITAMINS AND NATURAL COLOR ADDED
Trans Fatty Acid

Stearic Acid

(Cis) Oleic Acid

(Trans) Elaidic Acid
Trans fats have very different characteristics from saturated fats.
Margarine
French Fries
Snack Foods
Partially Hydrogenated Vegetable Oils
Diseases Caused or Exacerbated by Hydrogenated (\textit{trans}) Fats

- Atherosclerosis
- Heart Disease
- Cancer
- Degeneration of Joints and Tendons
- Osteoporosis
- Diabetes
- Autoimmune Diseases
- Eczema
- Psoriasis
- Infertility
- Lowered testosterone, lowered sperm count
- Failure to Grow
- Learning Disabilities
- Low Birth Weight Babies
At What Cost?

Learning Disabilities

- Poor Memory???
- ADD/ADHD???
- LD???
- Convergence Issues???
- Dyslexia?
- Speech and/or Language Problem???
- Processing Issues???

Cancer Rates

- Worldwide cancer cases are projected to increase by 50% from 14 million to 21 million between 2012 and 2030.
- Worldwide cancer deaths are projected to increase by 60% from 8 million to 13 million between 2012 and 2030.
Interesterified Fats

Trans free but contain chemical residues, hexane, free radicals.

DO NOT exist in nature

Preliminary Health Effects
• Increase glucose levels
• Depress Insulin production
<table>
<thead>
<tr>
<th>Dietary Fiber</th>
<th>25g</th>
<th>30g</th>
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</thead>
</table>

Calories per gram:
- Fat 9
- Carbohydrate 4
- Protein 4

INGREDIENTS: ENRICHED UNBLEACHED FLOUR (WHEAT FLOUR, NIACIN, REDUCED IRON, THIAMINE MONONITRATE, [VITAMIN B1], RIBOFLAVIN [VITAMIN B2], FOLIC ACID), RAISINS, GRANULATED SUGAR, INTERESTERIFIED SOYBEAN OIL, OATS, WATER, CORN SYRUP, RAISIN PASTE, LIGHT BROWN SUGAR, POWDERED MILK, NATURAL OATMEAL FLAVOR, POWDERED EGGS, BAKING SODA, SALT, CINNAMON, AND ALLSPICE.
The only reason that we are eating this stuff is because we have been told that saturated fats i.e.: butter, lard, coconut oil, palm oil, etc are bad for us and cause disease.

Such assertions are nothing but industry propaganda.
OPEN YOUR EYES TO
SATURATED
FAT

WORLD HEART FEDERATION
badfats.eu
<table>
<thead>
<tr>
<th></th>
<th>Gay Lea Butter (Unsalted)</th>
<th>Becel (Regular)</th>
<th>I Can’t Believe It’s Not Butter (Regular)</th>
<th>Imperial (Regular)</th>
<th>Parkay (Quarters)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INGREDIENTS</strong></td>
<td>Cream</td>
<td>Canola and linola or sunflower oils, water, modified palm and palm kernel oils, salt, whey powder, soy lecithin, vegetable monoglycerides, potassium sorbate, vegetable colour, artificial flavour, citric acid, vitamin A palmitate, vitamin D3, alpha-tocopherol acetate.</td>
<td>Canola and/or soya oils, hydrogenated soya oil, water, salt, buttermilk powder, soy lecithin, vegetable monoglycerides, potassium sorbate, artificial flavour, vegetable colour, citric acid, vitamin A palmitate, vitamin D3.</td>
<td>Canola and/or soya oils, hydrogenated soya oil, water, salt, whey powder, soy lecithin, vegetable monoglycerides, potassium sorbate, artificial flavour, vegetable colour, citric acid, vitamin A palmitate, vitamin D3.</td>
<td>Not less than 80% hydrogenates soybean oil, and liquid soybean/canola oil, modified milk ingredients, salt, vegetable mono and diglycerides, sodium benzoate, vegetable lecithin, artificial flavour, beta carotene, vitamin A palmitate, vitamin D, bha-bht.</td>
</tr>
</tbody>
</table>
WHO’S AFRAID OF SATURATED FAT?

DON’T WORRY, LISA.

NONE OF THIS IS TRUE!

- CLOGS ARTERIES!
- CAUSES CANCER!
- INFLAMMATION!
- CAUSES MS!

- MAKES YOU FAT!
- BAD FOR THE LIVER!
- HEART ATTACK!
- DIABETES!
The Many Roles of Saturated Fat

CELL MEMBRANES – Should be 50% saturated fatty acids.

BONES – Help the body put calcium in the bones.

HEART DISEASE – Lowers Lp(a), a marker for heart disease.

HEART FUNCTION – Preferred food for the heart.

LIVER – Protect the liver from alcohol & other poisons.

LUNGS – Can’t function without saturated fats.

KIDNEYS – Can’t function without saturated fats.

IMMUNE SYSTEM – Enhanced by saturated fats.

ESSENTIAL FATTY ACIDS – Work together with saturated fats.

DETOXIFICATION – Supports body’s detox mechanisms
# Saturated Fats vs. *Trans* Fats

<table>
<thead>
<tr>
<th></th>
<th>SATURATED FATS</th>
<th>TRANS FATS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CELL MEMBRANES</td>
<td>Essential for healthy function</td>
<td>Interfere with healthy function</td>
</tr>
<tr>
<td>HORMONES</td>
<td>Enhance hormone production</td>
<td>Interfere with hormone production</td>
</tr>
<tr>
<td>INFLAMMATION</td>
<td>Suppress</td>
<td>Encourage</td>
</tr>
<tr>
<td>HEART</td>
<td>Raise “good” cholesterol</td>
<td>Lower “good” cholesterol</td>
</tr>
<tr>
<td>OMEGA-3 FATTY ACIDS</td>
<td>Put in tissues and conserve</td>
<td>Reduce levels in tissues</td>
</tr>
<tr>
<td>DIABETES</td>
<td>Do not inhibit insulin receptors</td>
<td>Inhibit insulin receptors</td>
</tr>
<tr>
<td>IMMUNE SYSTEM</td>
<td>Enhance</td>
<td>Depress</td>
</tr>
<tr>
<td>PROSTAGLANDINS</td>
<td>Encourage production and balance</td>
<td>Depress production; cause imbalances</td>
</tr>
</tbody>
</table>
GOOD THINGS IN BUTTER

HIGH LEVELS IN GRASS-FED BUTTER

Vitamin A
Vitamin D3
Vitamin E
Vitamin K2
Copper
Zinc
Chromium
Selenium
Iodine
Conjugated Linoleic Acid

IN ALL BUTTER

Shorter Chain Fatty Acids
Essential Fatty Acids
IN PERFECT BALANCE
Lecithin
Cholesterol
Glycosphingolipids
Wulzen Factor
DESTROYED BY PASTEURIZATION
HEALTH BENEFITS OF COCONUT OIL

- Helps in easy digestion
- Strengthens immune system
- Prevents & effectively cures candida
- Prevents wrinkles, sagging skin, skin dryness & flaking
- Rich in auric acid that helps maintain blood sugar & cholesterol
- Effective in healing damaged tissues & infections
- Treats pancreatitis & Alzheimer’s disease
- Prevents diseases affecting liver & kidney
- Reduces protein loss in hair & nourishes the hair
- Improves bone health
Coconut Oil
Nature’s Medicine

Rich in lauric acid, a powerful virus and gram-negative bacteria destroyer.

Lauric acid is converted in the body into monolaurin, which has anti-viral, anti-bacterial, and anti/protozoa properties. Monolaurin can actually destroy lipid coated viruses such as:

- HIV, herpes
- Measles
- Influenza virus
- Various pathogenic bacteria
- Protozoa such as giardia lamblia

Capric acid, another coconut fatty acid present in smaller amounts – has antimicrobial effects.
Vitamin D in lard helps the body make neurochemicals that protect against depression.
FATTY ACID PROFILE OF COMMON ANIMAL FATS
THE MANY ROLES OF FATS found in Butter, Lard and Coconut Oil

METABOLISM – Raise body temperature and give quick energy

WEIGHT LOSS – Never stored as fat; used for energy

IMMUNE SYSTEM – Stimulate the immune system

INTERCELLULAR COMMUNICATION – Help prevent cancer

ANTIMICROBIAL – Kill pathogens including candida in the gut
1965 Study on Fats

Patients who had already had a heart attack divided into 3 groups and told to consume either

- Polyunsaturated Corn Oil
- Monounsaturated Olive Oil
- Saturated Animal Fats

1. Corn Oil Group had 30% lower cholesterol but only 52% alive after 2 years
2. Olive Oil Group had 57% alive after 2 years
3. Animal fat Group had 75% alive after 2 years

(British Medical Journal 1965 1:1531-33)
A Few RECENT STUDIES...

Meta-analysis that looked at almost 350,000 subjects in 21 studies to assess the correlation between saturated fat consumption and cardiovascular disease. The conclusion: intake of saturated fat was not associated with an increased risk of heart disease or stroke (American Journal of Clinical Nutrition, January 13, 2010).

A prospective study from Australia, which looked at adults over a period of fifteen years, found that people who ate the most full-fat dairy products had a 69 percent lower risk of cardiovascular death than those who ate the least (European Journal of Clinical Nutrition, 7 April 2010).

The Japan Collaborative Cohort Study for Evaluation of Cancer Risk found that saturated fat intake was inversely associated with mortality from stroke (American Journal of Clinical Nutrition, August 4, 2010).
FATTY ACID COMPOSITION

The Cholesterol-CHD Theory
Who Profits?

Cholesterol Testing and Treatment $100 billion/yr

Hydrogenated Fats & Fabricated Foods $150 billion/yr

Cancer & Other Diseases Caused by Hydrogenated Fats $100 billion/yr

Growth Failure and Learning Disabilities in Children $70 billion/yr
GOOD FAT vs. BAD FAT

NATURE DOESN'T MAKE BAD FATS. FACTORIES DO.
HOW TO CHANGE YOUR DIET FOR THE BETTER
1. MAKE YOUR OWN SALAD DRESSING
RANCID OILS + BAD ADDITIVES = Nutritional Disaster
Salad Dressing

- Expressed Flax Oil
- Good Quality Mustard
- Raw Vinegar
- Cold-Pressed Olive Oil
- Expressed Flax Oil
# SALAD DRESSING COMPARISON

<table>
<thead>
<tr>
<th>HOMEMADE DRESSING</th>
<th>COMMERCIAL DRESSING</th>
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</thead>
<tbody>
<tr>
<td><strong>Extra Virgin Olive Oil</strong></td>
<td><strong>Processed Vegetable Oils</strong></td>
</tr>
<tr>
<td>• <em>Stable</em> Monounsaturat. fat</td>
<td>• Mostly <em>Rancid</em> Omega-6</td>
</tr>
<tr>
<td>• Vitamin E</td>
<td>• Trans Fatty Acids</td>
</tr>
<tr>
<td>• Antioxidants</td>
<td>• Free Radicals, Polymers</td>
</tr>
<tr>
<td>• Vanadium</td>
<td>• Cyclic Compounds</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Expeller Expressed Flax Seed Oil</strong></th>
<th><strong>Preservatives</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Omega-3 EFAs</td>
<td><strong>Additives</strong></td>
</tr>
<tr>
<td>• Vitamin E</td>
<td><strong>Flavorings</strong></td>
</tr>
<tr>
<td>• Antioxidants</td>
<td><strong>Cost about $1.50 per cup</strong></td>
</tr>
</tbody>
</table>

**Cost about $1.50 per cup**
2. SWITCH TO BUTTER
BUTTER IS BEST

TO GET THE MOST BENEFIT – GRASS FEEDING!

- **MORE FAT–SOLUBLE VITAMINS:** A, D₃, E, K₂ – in the fat
- **MORE CLA:** Anti-cancer/weight loss compound – in the fat
- **MORE MINERALS:** Mostly in the fat
3. Cooking Oils – What Can I Use?

**ELIMINATE** all commercial vegetable, cottonseed and canola oils from diet

**USE COCONUT OIL** for frying and sautéing
(high smoke point and will not break down)

**SWITCH to Lard and Palm Kernel Oil** for baking
(in place of Crisco)
4. Avoid Commercially Fried Foods
Know Your Fats
Mary G. Enig, PhD

Bethesdapress.com