

Oil Your Arteries: Good Fats, Bad Fats!



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Words to dine by:

“Let food be your medicine,
and let medicine be your food.”

Hippocrates

“Let nothing which can be treated by
diet be treated by other means.”

Maimonides

Food Synergy

- Fats, Carbs, Proteins, Vitamins, Minerals, Antioxidants, etc.
- Health benefits of foods likely don't come from single nutrient in the food
- Foods are COMBINATIONS of compounds
- Work better together than apart - synergy
- Every food much more complicated than any drug
- We try to break it down to SINGLE piece

What is FAT?

- Fat is composed of a glycerol molecule and three fatty acids (long chain fatty compounds). Some of these are essential (the body cannot manufacture them).
- Fat essential for assimilating fat-soluble vitamins (Vit. A, D, E & K)
- Fat is a flavor enhancer and carrier

How much fat should I eat?

- Approximately 25% of calories:
- www.bcm.edu/cnrc/caloriesneed.htm
- Calories needed per day
- Calculation used to maintain weight
- To lose weight subtract 500 calories per day
- To gain weight add 500 calories per day

Estimate Calorie Needs:

- Sedentary: Rarely get any physical activity. Sit most of the day. Body weight x 13
- Light: Walk 20-30 minutes/day 3-5 times a week or equivalent. Body weight x 15
- Moderate: Exercise 4-5 times a week for 50-60 minutes each. Body weight x 17
- Very active: Athletes; Exercise 4-5 times a week for 90+ minutes each. Body weight x 20
- Add or subtract 500 calories/day to gain/lose

Total Fat 25%
Saturated Fat 7% or less

■ 1300 calories	36 grams	10 grams
■ 1400 calories	39 grams	11 grams
■ 1500 calories	42 grams	12 grams
■ 1600 calories	45 grams	12 grams
■ 1700 calories	47 grams	13 grams
■ 1800 calories	50 grams	13 grams

Total Fat 25%
Saturated Fat 7% or less

■ 1900 calories	53 grams	14 grams
■ 2000 calories	56 grams	15 grams
■ 2100 calories	59 grams	16 grams
■ 2200 calories	62 grams	17 grams
■ 2300 calories	64 grams	18 grams
■ 2400 calories	67 grams	19 grams

Fat Calculator AHA

- www.americanheart.org/FaceTheFats
- My Fat Translator
- Used to MAINTAIN weight
- Tools and Tips

Fat-rich Foods

(9 calories per gram)

Oils	Fatty fish
Butter/Margarine	Nuts and seeds
Mayonnaise	Olives
Salad dressing	Chips & snacks
Red meat	Pastries
High-fat dairy	Desserts
Coconut	Hummus
Avocado	Fried foods
Dark meat poultry/skin	

FAT

- Necessary for health
- Needed to absorb fat soluble vitamins
 - A, D, E, K
 - Make sure you eat some fat when taking in foods with these vitamins
- Satisfies hunger – takes longer to leave stomach than carbohydrate and protein
- Flavor carrier
- Can play a major role in your health depending on the type chosen

Types of Fat

- Saturated Fat
- Monounsaturated Fat
- Polyunsaturated Fat
 - Omega 3 and Omega 6
- Trans Fats (partially hydrogenated)

Saturated Fat

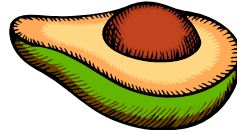
- Mostly animal sources: meat, butter, cheese, milk (dairy)
- Solid at room temperature
- Tends to elevate total and LDL cholesterol
- For every 1% increase in total energy (calories) from saturated fat, a 2 mg/dl increase in cholesterol is predicted
- Always choose the lowest animal fat content possible – skim or 1% vs. whole milk, lean meats and low-fat cheese

Stearic Acid in Chocolate



- The fat in chocolate comes from cocoa butter and is made up of equal amounts of oleic acid (a heart-healthy monounsaturated fat also found in olive oil), stearic and palmitic acids.
- Stearic and palmitic acids are forms of saturated fat.
- stearic acid appears to have a neutral effect on cholesterol, neither raising nor lowering it.
- Although palmitic acid does affect cholesterol levels, it only makes up one-third of the fat calories in chocolate.
- Small amounts of dark chocolate may be beneficial

Monounsaturated Fats



Vegetable sources: olives, olive oil, nuts, nut oils, canola oil, avocado, hummus

Can significantly lower risk of heart disease by lowering LDL and raising HDL cholesterol without raising total cholesterol

Substitute saturated fats for these

Polyunsaturated Fats

Omega 6 fats

Omega 3 fat

- Mostly vegetable sources (some fish)
- Typically liquid at room temperature

Omega 6 and Omega 3

- Omega 6 and Omega 3 fatty acids should be consumed in a ratio of 2:1
 - Typical American diet is more like 20:1
- For every 2 grams of Omega 6 fats consumed, 1 gram of Omega 3 should be consumed

Sources of Omega 6

- Widespread in foods (processed)
 - Cheaper
 - Shelf stable
- Found mostly in:
 - Vegetable oils (Safflower, sesame, soy, corn and sunflower seed oils, nuts and seeds)
 - Salad dressings made with above oils
 - Margarines made with above oils
- Too much acts as pro-inflammatory in the body -Some is necessary for normal inflammatory responses

Omega 3

- Increases HDL cholesterol
- Decreases triglyceride levels in blood
- Reduces blood clot formation
- Suppresses inflammation in the body
- Decreases risk/incidence of sudden death and MI
- Inhibits growth of plaque
- Promotes arterial relaxation; lowers BP
- Reduces susceptibility to arrhythmias

Sources of Omega 3

- Fatty fish
 - Salmon, sardines, mackerel, trout, herring, tuna
- Milled flaxseed / flax seed oil
- Walnuts, pumpkin seeds
- Green, leafy vegetables

Food sources of Omega 3 fats (see handout)

- 3.5 oz salmon filet – 1000 mg
- 3.5 oz white fish (flounder, cod, halibut, trout) – 200-500 mg
- 1 tsp canola oil – 550 mg
- 1 tbsp flaxseed oil – 2400 mg
- 2 Tbs. English Walnuts – 1000 mg
- 3.3 oz broccoli or spinach – 100 mg

Omega 3 Supplements

- Two omega-3 fatty acids – eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) found to help lower triglycerides, reduce blood clotting and decrease inflammation
- AHA: healthy people should get about 1 gram per day of EPA and DHA
- High triglycerides: 2-4 grams per day (under care of health care provider)
- Fish oil supplements – quality matters
- Omacor/Lovaza- prescription

Flaxseed (milled)

Health Benefits

- Acts as an antioxidant
- Stabilizes blood sugar
- Lowers cholesterol levels
- Anti-arrhythmic effects

Trans Fats

Raise LDL cholesterol AND
Lower HDL cholesterol

More damaging than saturated fats.

✓ Goal intake = 0 grams per day

Trans Fats

- Chemically processed vegetable oils
- “partially-hydrogenated”
- Animal foods – beef, butter, milk fats
- Stick margarine
- Baked goods: cookies, crackers, pastries
- “Trans Fat Free”
if less than 0.5 grams
PER SERVING

Fully Hydrogenated Oils

- Partially hydrogenated oils contain trans fat
- Liquid vegetable oil can also be fully hydrogenated: contains almost no trans fat but increases the amount of saturated fat, mostly in the form of stearic acid
- Stearic acid does not raise LDL

Interesterified Fats

- Fatty acids that have been chemically or enzymatically rearranged to alter their texture and/or nutritional profile
- Studies suggest these types of fats are similar to trans fats as far as health effects

Butter vs Margarine

Product (per 1T)	Calories	Total Fat (g)	Saturated Fat (g)	Trans Fat	Cholesterol (mg)
Butter	100	11	7	0.5	30
Margarine, Stick	80-100	9-11	1-2	1-3	0
Margarine, Soft	5-80	0-9	0-1.5	0-2.5	0
Margarine, Squeeze	5-100	0-11	0-2	0	0

Plant Sterols

- Occur naturally in parts of all plants
- Shown to lower cholesterol by up to 14%
- Block absorption of cholesterol in the intestine, leading to reduced levels in the blood
- Double the cholesterol-lowering power of statins – can take WITH statins
- Intake of 2 grams (or 2,000 mg) per day with meals

Plant Sterols in Foods

- Benecol, Take Control spreads
- Smart Balance Heart Right Light
- Kroger Active Lifestyles FF Milk
- Yoplait Healthy Heart Yogurt
- Orowheat Whole Grain and Oat bread
- www.corowise/wheretobuy.com

Plant Sterol Supplements

- Supplements taken with meals
- Nature Made Cholest-off
- Twin Labs Cholesterol Success
- ModuChol by Wakunaga
- Can also be taken *with* statin drugs for a synergistic effect
- Must take correct dose: 2,000 – 3,000 mg per day

For the sake of your heart

Don't deprive yourself, just REPLACE!

- Sour cream with non-fat or low-fat sour cream or yogurt
- Butter on toast with peanut or almond butter
- Full fat ice cream with low-fat ice cream or sorbet
- Butter with olive oil or plant sterol margarine

For the sake of your heart

Replace:

- Full-fat cheddar cheese with part-skim mozzarella or low-fat cheddar cheese
- Eggs with Eggbeaters or egg whites or omega 3 rich eggs

- Animal hamburgers with meatless version

- Full fat animal foods with lower fat version (milk, cheese, meat, etc.)

Oils

- All oils are a combination of
 - Monounsaturated
 - Polyunsaturated (Omega 3 and Omega 6)
 - Saturated
 - Trans

Smoke points of Oils

- Smoke point – oil decomposes, oxidizes, creates free radicals
- Carcinogenic compounds such as benzo(a)pyrene (BaP) have been found in fumes from cooking oil
- BaP linked to red blood cell damage, suppression of immune system, cancers, reproductive defects

Smoke points of oils

- Almond oil 495 degrees
- Sunflower 460
- Walnut 400
- Corn 320
- Olive 325
- Flax 225

Spectrum brand lists smoke point on the bottle of oil



**Let's get
Cooking!**

