

Live the Anti-Inflammatory Lifestyle.™


FUNDAMENTALS



LIVE
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YOUR
BODY
IS YOUR MOST
PRICELESS
POSSESSION...
SO GO TAKE
CARE OF IT!
JACK LALANNE

Source: Relatably.com



Welcome To Class 5

- Fat in Your Body
- Fat in Your Diet
– From Healing To Killer Fats
- [Home] Environment



Review Week 4

- Protein
 - Protein in the Body
 - Protein in the Diet
- Relationships & Community
 - Inner Circle
 - Social Circle





Remember

- Diet and Lifestyle practices are always a work in progress
- Influenced by
 - Your State of Health
 - Your Awareness
- You Keep Circling Back



Fat in the Body

arachidic 20:0
stearic 18:0
palmitic 16:0
erucic 22:1
oleic 18:1
arachidonic 20:4
linoleic 18:2
linolenic 18:3

The diagram illustrates the chemical structures of eight different fatty acids. Each structure is represented by a ball-and-stick model where black spheres represent carbon atoms and red spheres represent hydrogen atoms. The chains are arranged in two columns. The left column shows saturated fatty acids: arachidic (20:0), stearic (18:0), and palmitic (16:0). The right column shows monounsaturated and polyunsaturated fatty acids: erucic (22:1), oleic (18:1), arachidonic (20:4), linoleic (18:2), and linolenic (18:3). A small green circular logo is in the bottom left corner.

Fats in the Body

- Fatty Acids
 - Saturated Fats
 - Monounsaturated Fats
 - Polyunsaturated Fats
- Triglycerides
- Cholesterol

CONFUSING!
FAT PHOBIA!
OPPOSING INFO!
OUTDATED BELIEFS!

The slide lists categories of fats and includes four red, slanted text boxes with bold, all-caps text. A small green circular logo is in the bottom left corner.

Fat in Food \neq Fat on Body

- The Body is a Bio-Chemical Master

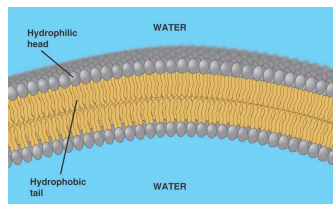
A cartoon illustration shows a man in a tank top and shorts running on a treadmill. A scale is positioned above him, and a large chocolate cake is being weighed on it. A small green circular logo is in the bottom left corner.

Fat Facts

- Brain is 60% Fat
- Cell Membranes Contain Fat
 - Transport Nutrients In and Waste Out
- All Cells Need Fat for
 - Growth, Maintenance and Repair
- Fats are Solid, Oils are Liquid
- Fats and Oils are Lipids
- Fats Do Not Dissolve in Water



Cell Membrane – Hydro Lipid Bilayer



Source: <http://bio1151.nicerweb.com/Locked/media/ch05/bilayer.html>



• Hydro = Water | Lipid = Fat

The Role of Fat

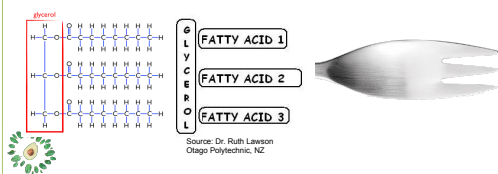
- Store and Carry Nutrients
 - Fat Soluble Vitamins A, D, E, K
- Physical Insulation of Organs
- Maintain Body Temperature
- Many Roles in Metabolism
- Essential to Health of Brain and Nervous System



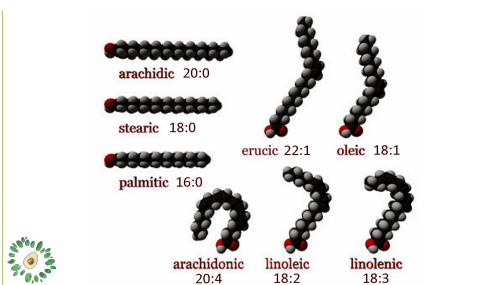
And much more...

Fatty Acids – Chem Class

- Fats and Oils are called Triglycerides
 - 3 Fatty Acids Connected to 1 Glycerol
 - Like a Fork with 3 Prongs



Fat Chemistry is About Shapes



Fat Basics

- Fatty Acids
 - Saturated Fats
 - Always Solid
 - Monounsaturated Fats
 - Liquid at Room Temp, Solid when Cold
 - Polyunsaturated Fats
 - Always Liquid



Role Of Saturated Fats

- Provide Energy
- Building Blocks for Hormones
- Slow Absorption of Food
 - Go longer between meals with balanced blood sugar
- Carriers of Fat Soluble Vitamins
 - Vitamin A, D, E, K
 - Help Conversion of Beta Carotene to Vit A



Fat Sizes- S, M or L?

- Fatty Acid Molecule is shaped liked a Caterpillar and come in 3 sizes
 - Short 4-6 C – Ex. Butter (butyric acid)
 - Medium 8-12 C – Ex. Coconut oil and Palm Oil
 - Long 14-24 C – Ex. Meat, Cocoa Butter, Dairy
- Different Size = Different Job in the Body



Short Chain Fatty Acids

- Always Solid and Saturated
- Easy to digest, don't need bile
 - beneficial if liver or digestive disorders
- Provide Quick Energy
- Feed Friendly Bacteria in Colon
- Anti-Microbial
- Ex. Butter Fat from Cows and Goats



Medium Chain Fatty Acids


- Solid at Room Temp
- Anti-Microbial
 - Inhibit growth of Yeasts like Candida
- Not Stored in the Body as Fat
- Boost Metabolism
- Create Heat (thermogenesis)
- Boost Immunity
- Help Maximize Benefit of Essential Fats
- Ex. Coconut Oil and Palm Oil

Long Chain Fatty Acids

- Saturated
 - Transported across gut lining in a Lipoprotein
 - Need to be part of a Balanced Diet
 - Ex. Beef, Lamb, Cocoa Butter, Dairy
- Monounsaturated
 - Heart Healthy
 - Anti-Oxidant Properties
- Ex. Olive Oil


Long Chain Fatty Acids

- Polyunsaturated
 - Unstable, Oxidize and become Rancid Easily, Needs Refrigeration
 - Essential Fatty Acids
 - Omega-3 and Omega-6
 - Processed Oils and Fats
 - Damaging




Essential Fatty Acids

- Cannot be Made in the Body
 - Must Come from Food or Supplements
- Omega-3 anti-inflammatory
- Omega-6 pro-inflammatory
- We need both, all inflammation is not bad




Essential Fatty Acids

- Ratio of Omega 6:Omega 3 Essential For Good Health
- Goal is 1:2.5 – 1:1
- Traditional Diets
 - Traditional Eskimo Diet 1:2.5
 - Traditional Japanese Diet 3:1
 - Traditional European Diet 6:1
 - Regular North American Diet 20:1 – 40:1
- How did this happen?



Essential Fatty Acids

- Less Omega-3 More Omega-6 recent decades
- Grains are High in Omega-6
- Livestock from **Grass Fed To Grain Fed** with Industrial Farming
 - Meat, Chicken and Eggs less Omega-3 and more Omega-6
- Greens & Cold Water Fish High in Omega-3
 - Eat Less Cold Water Fish



Processed Oils

- Made from Rape See (Canola), Soy, Sunflower, Corn, Peanut, Cotton Seed etc.
 - Often GMO and Grown with Pesticides
- Used Extensively in Baking and Cooking in Restaurants and Homes
- Linked to Increased Coronary Heart Disease



Processed Oils

- Seed, Peanut, Soy, Corn Oils - 1920's Industrialized
 - Remove nutrients like Vitamin E, Carotene, Lecithin, Omega-3 since not shelf stable
 - Deodorized
 - Goal: Tasteless and Shelf Stable
- Eliminate from Diet



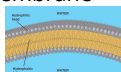
Trans Fat

- Hydrogenation Convert a Seed Oil in to a Solid Fat and Results in Trans Fat
 - Chemical Process with Metal Residue
 - Fat Molecule is a Shape the Body does Not Recognize, No Nutritional Value
- Shelf Stable
 - Found in the "Middle Aisles"
- Interfere with Essential Fats



Trans Fats

- Health Risks with Trans Fats
 - Interfere with Function of Cell Membrane
 - Block Flow of Nutrients and Waste
 - Interfere with Enzyme Structure
 - Harder to Detox
 - Foreign to the Body and “get stuck”
 - Makes Blood Hard & Sticky
- Increase Triglycerides -> thickening of walls of the arteries



Trans Fats

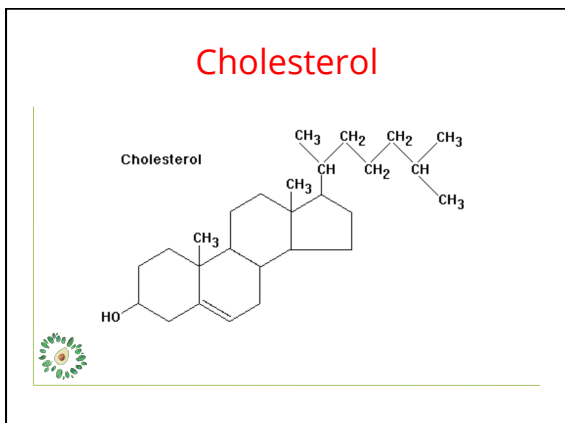
- Health Risks with Trans Fats cont'd
 - Free Radical Damage
 - Coronary Heart Disease - Main Culprit with Sugar
 - Type 2 Diabetes and Obesity
 - Cancer
 - Mental Health Issues
 - Inflammation
 - Autoimmunity
 - Hormone Synthesis
 - And more...



Trans Fats

- Read Labels Carefully
 - May say “No or Zero Trans Fat”
 - FDA Round to 0 if up to 0.5 gr/serving (USA)
 - CFIA Round to 0 if < 0.2 gr/serving (Canada)
 - Beware: Serving Size is often *very* small
 - Look for words like “Partially Hydrogenated Soybean Oil” and similar
 - Eliminate from Diet





Cholesterol

- Alcohol that Behaves like a Fat
- No Calories (not a macro-nutrient)
- Waterproof
- Mother's Milk
 - High in Cholesterol and Saturated Fat
 - Cholesterol Rich Food Needed for Growth & Development of Brain and Nervous System

Cholesterol

- Precursor to Sex Hormones
 - Estrogen
 - Progesterone
 - Testosterone
 - DHEA
 - Drops after age 40

Cholesterol

- Precursor to Adrenal Corticosteroids
 - Regulate Kidney Function
 - Prepare for Fight or Flight (sympathetic response)
 - Supports the Use of Vitamin D
 - Bone Health, Immunity, Nervous System
 - Ingredient of Bile
 - Breakdown of Dietary Fat
 - Absorption of Fat Soluble Vitamins (A, D, E, K)



Cholesterol

- Brain Health
 - Function of Serotonin Receptors
 - Cholesterol is half the dry weight of the Cerebral Cortex
- Intestinal Wall Health
 - Prevent and Heal Leaky Gut
- Heal and Protect Injured Areas
 - Skin, Cells, Arteries, Lungs



Cholesterol

- Because Cholesterol is so Important, our bodies can make it from Protein, Carbs and Fats.
- Cells and Liver makes Cholesterol as needed
- Only Half of the Cholesterol from the Diet is Absorbed
- Dietary Cholesterol only found in Animal Products



Cholesterol

- Lipoproteins Transport Long Chain Fatty Acids Across Gut Lining in to Circulation
 - LDL (Lower Density Lipoprotein)
 - Less Protein, More Cholesterol
 - From Liver To Cells
 - Particle Size matters (Small is Bad, Large is Good)
 - HDL (High Density Lipoprotein)
 - More Protein, Less Cholesterol
 - From Cell To Liver



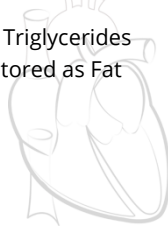
Cholesterol

- So what Raises [Dense LDL] Cholesterol?
 - Diet High in Refined Carbohydrates (sugar) and Trans Fat
 - High Caloric Intake
 - Lack of Fiber in Diet
 - Lack of EFA's in Diet
 - Stress



Real Risk

- Real Measurement of Risk for Heart Disease is in Triglycerides
 - Excess Sugar Converts to Triglycerides
 - Excess Triglycerides are Stored as Fat



Saturated vs. Trans Fat

- Saturated Fats has been part of our Diet for Millennia vs. man-made Trans Fats
- Often Lumped Together as “Unhealthy Fats”
 - Trans Fat
 - Saturated Fat
 - Cholesterol (not really a fat)
- Why did Saturated Fats and Cholesterol get such a Bad Rap?



Ancestral Keys – 7 Nation Study

- 1950's Lipid Hypothesis
- Cholesterol containing foods -> high blood cholesterol -> atherosclerosis a.k.a. hardening of the arteries -> coronary heart disease
- All above links have been disproven
- [Learn more here](#)

<http://www.drkarafitzgerald.com/2016/05/31/episode-14-taking-deeper-dive-clinicians-eat-fat-get-sing-or-mark-hyman/>



Big Pharma & Big Food

- 1 in 4 Americans are candidates for Cholesterol Lowering Drugs like Lipitor
 - Treatment level has been lowered
- Packaged Foods made with Hydrogenated and/or Processed Oils are Shelf Stable and Cheap to Make



Healthy Fat Habits

- Eliminate Clear Oils and Trans Fat (real zero)
- Avoid Processed Food
- Get Omega-3 EFA's from Food or Supplements
- Avoid Seed Oils to keep Omega-6 balanced
- Leafy Greens, Nuts, Seeds, Sardines, Wild Cold Water Fish
- Eat High Quality Real Foods



Fat in the Diet



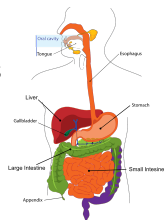
Fat in the Diet

- Provides Flavour
 - Coat Tongue
 - Spread Aromas
 - Enhances Other Foods
- Satiating and Satisfying
- Blood Sugar Balancing



Fat Digestion

- Mainly in the First Part of the Small Intestine
 - Bile from the Gallbladder
 - Lipase from the Pancreas



Cooking Fat - Smoke Point

- Heat beyond Smoke Point Transforms a Healthy Fat like Olive Oil in to Unhealthy Fat
 - Start over if fat or oil begins to smoke!



Fats to Include

- Olive Oil - Organic in Dark Glass Bottle
 - No Direct Heat
 - Water or Broth Sauté
 - Pour on Before Serving
 - Use in Salads
- Coconut Oil - Organic Cold Pressed
 - Good for cooking, roasting, baking and treats



Fats to Include

- Avocado Oil - Dark Glass Bottle
 - Use for cooking, roasting and baking
 - Neutral flavour
- Duck Fat
 - Use for cooking, roasting and baking
- Ghee Clarified Butter – Organic (if tolerated)
 - Use for cooking and roasting
- Butter – Organic (if tolerated)
 - Use for cooking, roasting and baking



Healthy Fat in Foods

- Avocado
- Nut & Seeds
- Cold Water Fish (wild)
 - Sardines in water
- Grass Fed Beef
- Game/Wild Meat
- Eggs, Pastured and Organic



Seafood Guide

- Monterey Bay Aquarium Seafood Watch
 - www.seafoodwatch.org
 - Consumer Guide
- SeaChoice – Canadian
 - seachoice.org



Fats to Avoid

- Clear Seed Oils (Canola, Sunflower etc.)
- Margarine or other Solid or Spreadable Fat made from Seed, Corn or Soy Oil
- Partially Hydrogenated Oils
- Read Labels and be Cautious with
 - Processed and Packaged Foods
 - Baked Goods (Breads, Crackers, Cakes etc.)
 - Restaurant and Take Out Foods



[Home] Environment



Chemicals in Our Environment

- Bisphenol-A (BPA plus BPS, BPF etc.) Linked To
 - Hormone Disruptor/ Reproductive Toxin
 - Obesogen (weight gain), Insulin Resistance
 - Thyroid Disorders
 - Cancer
 - Neurological (ADHD)
- Found In
 - Coffee Cup Lids
 - Receipts (thermal paper)
 - Plastic Water Bottles
 - Dollar Bills
 - Dental Sealants



Chemicals in Our Environment

- Perfluorooctanoic Acid (PFOA) Linked To
 - Hyperactivity
 - Hormone Disruptor/ Reproductive Toxin
 - Thyroid Disorders
- Found In
 - Non-Stick Cookware
 - Stainguard Treatments & Spot Cleaning Products
 - Microwave Popcorn Bags
 - Food Package Lining
 - House Dust



Chemicals in Our Environment

- Triclosan Linked To
 - Asthma
 - Liver Toxicity
 - Thyroid Dysfunction
 - Cancer (Chloroform production)
- Found In
 - Hand Sanitizers
 - Anti-Bacterial Soaps
 - Toothpaste
 - Household Cleaners
 - Anti-bacterial cutting boards
 - Anti-Bacterial Sponges
 - Shower Curtains



Chemicals in Our Environment

- Phthalates Linked To
 - Hyperactivity/Behavior Disorders
 - Birth Defects
 - Reproductive Toxin
 - Liver and Breast Toxicity
 - Obesogen
- Found In
 - Personal Care Products
 - Perfume and Fragrance
 - Shower Curtains and Vinyl Toys
 - Pharmaceutical and Supplement Coatings



Chemicals in Our Environment

- Parabens Linked To
 - Breast Cancer
 - Skin Damage/Cancer
 - DNA Damage
- Found In
 - Personal Care Products
 - Cosmetics
 - Sunscreens
 - Lotions



Chemicals in Our Environment

- Switch To Safe Personal Care Products



Home Environment

- Kitchen
 - Food Storage
 - Avoid plastic (or store only dry food in plastic)
 - Store in glass or stainless steel
 - Cooking
 - Avoid Non-Stick cookware, especially if scratched
 - Use Stainless Steel, Cast Iron, Enameled Cast Iron



Home Environment

- Cleaning Products
 - Avoid anti-bacterial and chemical cleaners
 - Use home-made or safe cleaning products
- Dust can be contaminated with toxins like pesticides and flame retardants
 - Wet dust with microfiber cloth
 - Vacuum with HEPA filter



Home Environment – Personal Care

- Shampoo – Contain Harsh Chemicals
 - Phthalates - Hormone Disrupting
 - Parabens - Suspected Carcinogen
 - Absorbed thorough Skin
- “Natural” and “Organic” Unregulated in Personal Care
- Better choices are easier to find
- Read Labels



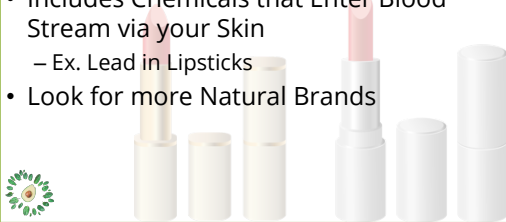
Home Environment – Personal Care

- Body Lotions – Dozens of Chemicals
 - Penetrate Skin and Enter Blood Stream
 - Caution with “Natural” Brands, read labels
- When Reading Labels Look for & Reject
 - Fragrance
 - Perfume
 - Ends in -“paraben”



Home Environment – Cosmetics

- Makes you pretty but can be ugly...
- Includes Chemicals that Enter Blood Stream via your Skin
 - Ex. Lead in Lipsticks
- Look for more Natural Brands



Home Environment – Anti-Bacterial

- Avoid products with labels that claim “Anti-bacterial”
 - May include harsh chemicals impregnated in to the material in questions (plastics, dish cloths, sponges etc.



Resources

- Environmental Working Group
www.ewg.org
 - Find “Clean Fifteen & Dirty Dozen” for pesticides in food
 - Consumer Guide for Food, Personal Care, Cleaning, Make-Up and more
- Terra20
Better, but read labels



Next Class

- Supplementing Wisely
- Soul & Spirit
 - Personal Growth
 - Living Life on Purpose

