

TOP NUTRITION MYTHS

Randy Pendergrass CSCS, LSN, LMT

randylsn@gmail.com

MYTH #1: Dietary Cholesterol is Harmful

- [Scientific Report of the 2015 Dietary Guidelines Advisory Committee:](#)
"Previously, the Dietary Guidelines for Americans recommended that cholesterol intake be limited to no more than 300 mg/day. The 2015 DGAC will not bring forward this recommendation because available evidence shows no appreciable relationship between consumption of dietary cholesterol and serum (blood) cholesterol, consistent with the AHA/ACC (American Heart Association / American College of Cardiology) report.
Cholesterol is not a nutrient of concern for overconsumption."



Lancet

1994 OCT 29;344(8931) pp-1195-96

Dietary Polyunsaturated Fatty Acids and Composition in Human Aortic Plaques

- How long-term dietary intake of essential fatty acids affects the fatty-acid content of aortic plaques is not clear. We compared the fatty-acid composition of aortic plaques with that of post-mortem serum and adipose tissue, in which essential fatty-acid content reflects dietary intake. **Positive associations were found between serum and plaque omega 6 ($r = 0.75$) and omega 3 ($r = 0.93$) polyunsaturated fatty acids, and monounsaturates ($r = 0.70$), and also between adipose tissue and plaque omega 6 polyunsaturated fatty acids ($r = 0.89$). No associations were found with saturated fatty acids.** *These findings imply a direct influence of dietary polyunsaturated fatty acids on aortic plaque formation and suggest that current trends favoring increased intake of polyunsaturated fatty acids should be reconsidered.*

Cholesterol Is Not Bad

- Gives cells shape
- Needed by the adrenal glands to make stress hormones
- Needed by the ovaries/testes to make sex hormones
- Needed to make vitamin D
- Needed to make Bile salts
- Neurotransmitters like serotonin, dopamine, etc. will not work without cholesterol.
- The brain makes its own cholesterol where about 25% of the cholesterol in the human body resides
- 2 sterols: animal/cholesterol & plant/phytosterol

Myth #2: HDL cholesterol is good and LDL cholesterol is bad

<u>Lipid (Cholesterol) Panel (mg/dL):</u>	<u>Optimal</u>	<u>Borderline</u>	<u>High Risk</u>
<u>Total Cholesterol</u>	<200mg/dL	200-239	240
<u>Triglycerides</u>	<150mg/dL	150-199	200
<u>HDL</u>	40mg/dL (male)	<40	
	50mg/dL (female)	<50	
<u>LDL</u>	<130mg/dL	130-159	160
<u>Cholesterol/HDL ratio</u>	4.0	5.0	6.0

Vertical Auto Profile Test



Patient Name: PATIENT, TEST

Sex: F

Date Drawn 03/12/09

Account: TEST CLIENT

Age: 34

Date Tested: 03/12/09

Physician: Physician, Test

DOB: 10/01/1974

Accession: 6333743

Fasting Status: Fasting

Client No: CLIENTACN12345

Patient ID: 3173769

Direct-Measured Cholesterol Panel	Actual	Desirable	Risk		Description	
			Low	High		
Total LDL	162	<130 mg/dL	Green	Yellow	Red	LDL ₄₊₃₊₂₊₁ + Lp(a) + IDL
LDL ₄₊₃₊₂₊₁	128	<100 mg/dL	Green	Yellow	Red	Total LDL minus Lp(a) and IDL
Lp(a)	15	<10 mg/dL	Green	Yellow	Red	More atherogenic than LDL
IDL	19	<20 mg/dL	Green	Yellow	Red	More atherogenic than LDL
Total HDL	56	≥40 mg/dL	Green	Yellow	Red	HDL ₂ + HDL ₃
HDL ₂	13	>15 mg/dL	Green	Yellow	Red	Large Buoyant, more protective
HDL ₃	43	>25 mg/dL	Green	Yellow	Red	Small Dense, less protective
Total VLDL	24	<30 mg/dL	Green	Yellow	Red	VLDL ₁₊₂ + VLDL ₃
VLDL ₁₊₂	9.8	<20 mg/dL	Green	Yellow	Red	Buoyant VLDL, less risk
VLDL ₃	15	<10 mg/dL	Green	Yellow	Red	Dense VLDL, more risk
Total Cholesterol	243	<200 mg/dL	Green	Yellow	Red	LDL + HDL + VLDL

Other Important Diagnostic Labs

- Coronary arterial calcium score (CAC)
- Insulin levels
- Glucose levels
- Hgb A1c
- Triglycerides/HDL (insulin resistance)

Myth # 2: HDL cholesterol is good, LDL cholesterol is bad



Myth # 2: HDL cholesterol is good and LDL cholesterol is bad

- HDL- High Density Lipoprotein
- At least 5 different forms
- Transports cholesterol, triglycerides, and phospholipids back to liver
- Contains proteins that are antimicrobial
- Binds bacterial endotoxins (LPS-lipopolysaccharides)
- Contains an enzyme (paraoxonase) which lowers the chance of oxidation

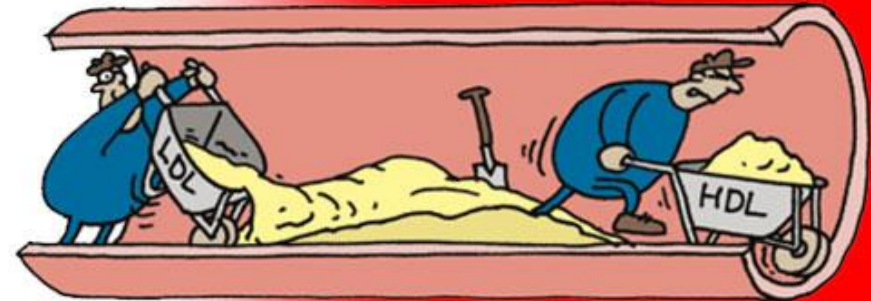


Myth # 2: HDL cholesterol is good and LDL cholesterol is bad

- LDL- Low density lipoprotein
- At least 3 different forms
- Transports cholesterol, fats, and fat soluble vitamins from liver to body
- Contains proteins that are antimicrobial (less than HDL)
- Binds bacterial endotoxins (LPS)
- More susceptible to oxidation



WHAT IS LDL?



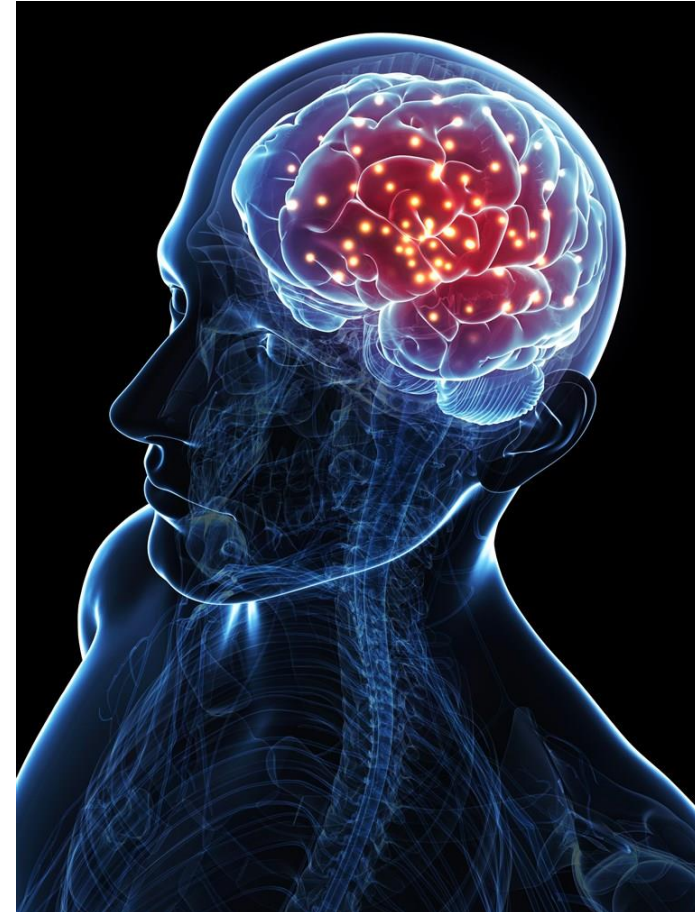
Prevent LDL oxidation (damage)

1. Lower free cholesterol to increase LDL receptor sensitivity especially in the liver
 - a. DO NOT EAT Omega 6 grain and seed oils
 - b. statins: lowers production of cholesterol in liver
 - c. polyunsaturated fat: binds to cholesterol (causes oxidation)
2. Optimal thyroid status
3. Maintain optimal blood insulin levels by controlling blood sugar
4. Staying active

Myth #3: Dietary cholesterol is harmful

- Raises HDL and LDL
- Makes LDL large and fluffy
- Around 75% of people would have no issue with intake
- Those with familial hypercholesterolemia need to use caution (<1% of population)

- Around 1-3% of population have issues with cholesterol synthesis and may need to increase intake



Myth #4: Saturated fat causes Heart disease

- There's a lot of conflicting information about saturated fats. Should I eat them or not?
- The [American Heart Association recommends](#) limiting saturated fats – which are found in butter, cheese, red meat and other animal-based foods. Decades of sound science has proven it can raise your “bad” cholesterol and put you at higher risk for heart disease.
- The more important thing to remember is the overall dietary picture. Saturated fats are just one piece of the puzzle. In general, you can't go wrong eating more fruits, vegetables, whole grains and fewer calories.
- When you hear about the latest “diet of the day” or a new or odd-sounding theory about food, consider the source. The American Heart Association makes dietary recommendations only after carefully considering the latest scientific evidence.

Source: (www.heart.org)

Types of Dietary Fat

- **Polyunsaturated Fat**

- *omega 3 fat

- *omega 6 fat

- **Monounsaturated Fat**

- *omega 9 fat

- *omega 7 fat

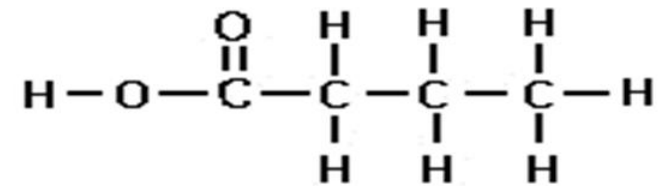
- **Saturated Fat (~9 different kinds)**

- **Trans (Transformed) Fat**

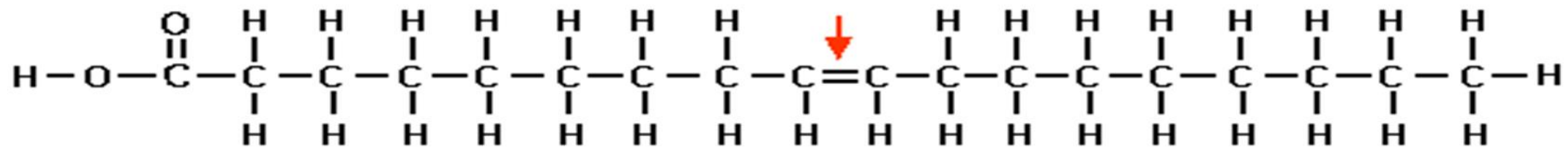
Shortening (partially hydrogenated vegetable oil)



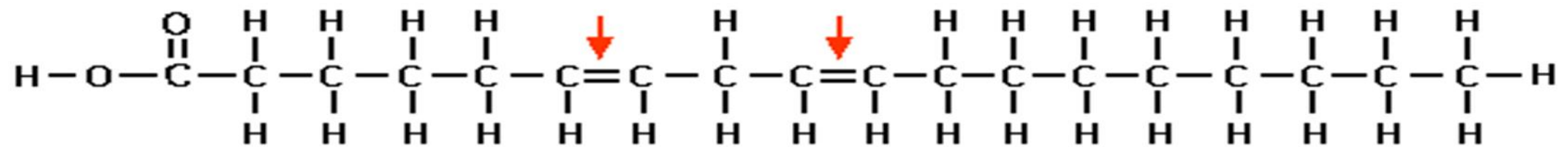
Differences in Fat Structure



Butyric Acid-Saturated Fatty Acid



Oleic Acid- Monounsaturated Fatty Acid



Linoleic Acid- Polyunsaturated Fatty Acid

Truths about Polyunsaturated Fats

- Two kinds: omega 6 and omega 3
- Omega 6 and omega 3 have opposite functions and need to be balanced in close to equal amounts, e.g., omega 6's increase inflammation, omega 3's decrease inflammation
- Essential- We have a need for them, but are unable to make them (~3% of total calories?)
- The least stable fats- unstable when exposed to heat, light, oxygen, toxins (easily oxidized)
- Increase in intake after World War II due to promotion of grain and seed oils
- Mostly used in processed foods and by restaurants
- Recommendations are to decrease consumption of grain and seed oils and incorporate more longer chained omega 3 fats from fatty fish and pastured animal products



Truths about Monounsaturated Fats

- Not essential
- Provides energy and cell structure
- Basically neutral on cholesterol
- Some are anti-microbial
(Palmitoleic acid)



Truths about Saturated Fats

- Resistant to oxidation
- Makes LDL large and buoyant
- Raises HDL
- Along with monounsaturated fats, saturated fats are great at increasing absorption of fat soluble anti-oxidants like carotenoids
- The saturated fat butyric acid (butter) has numerous benefits in colon health
- Increases ketosis
- Several saturated fats are potent anti-microbial

lauric acid

caprylic acid

caproic acid

capric acid



MYTH #4: Saturated Fat Causes heart Disease

- Comment by Dr. Darius Mozaffarian, M.D. of Harvard School of Medicine in Journal of American Dietetic Association

“Although the paradigm that saturated fat is a major cause of CHD has become entrenched in the public and scientific consciousness over decades, modern nutritional evidence does not support a major effect of saturated fat on heart disease.”



MYTH #5: Red Meat Causes Cancer

A PUBLICATION OF *The Washington Post* | READEXPRESS.COM | @WAPOEXPRESS

express



Danger zone
The World Health Organization puts processed meats — including America's beloved bacon — in the same category for cancer risk as smoking or asbestos **13**

Tuesday 10.27.15



Roads to success
The Mets and Royals bring different styles to the World Series **17**

At risk on foot
A new study finds that "walking while black" can be hazardous **13**



While you wait
Lines are no fun, but our Momofuku and Milk Bar bingo is **3**

ADVERTISEMENT

58 | 46 pm

MYTH #5: Red Meat Causes Cancer

- October 2015, The World Health Organization classified red meat as a class 2a(probable) carcinogen.
- Conclusion from 300 nutrition studies reviewed by advisory board.

(Meta-analysis study)

- Conclusion from one study stated, *“Collinearity between red meat intake and other dietary factors (e.g. Western lifestyle, high intake of refined sugars and alcohol, low intake of fruits, vegetables and fibre) and behavioural factors (e.g. low physical activity, high smoking prevalence, high body mass index) limit the ability to analytically isolate the independent effects of red meat consumption”*.
- Numerous studies show Americans with a high intake of red meat also do not exercise regularly, are more likely to smoke and drink, be overweight, eat less fruits and vegetables, and have poor sleep habits.
- Most Americans eat red meat on a white bun with french fries and a soft drink.
- *High iron intake and over cooking could be a problem.*

MYTH #6: Calcium Is The Most Important Thing To Build Strong Bones

- Exercise is by far the most important thing to build strong bones. (Wolff's Law)
- Numerous minerals makeup bone: calcium, phosphorus, magnesium, boron, sodium, chloride, strontium, etc.
- Vitamin's D and K2 regulate mineral uptake in bone



How To Build Strong Bones

- Exercise, especially weight bearing
- Adequate Vitamin D- get tested, ideal levels will be ~50ng/mL. Obtain through sunlight or supplementation (cod liver oil or Vitamin D3)
- Vitamin K2- produced through bacterial fermentation in our guts and in the process of cheese making and a soy based product called natto. Edam and Gouda are rich sources. K1 is in leafy greens. Be careful supplementing if on blood thinners. Supplementing 200mcg/day.
- Magnesium- 80% of population deficient. Influences osteoblasts and osteoclasts, parathyroid hormone and active form of vitamin D (calcitriol). Strive for 1:1 ratio of magnesium to calcium.
- Balance Calcium and Phosphorus

MYTH #7: Eat Small Frequent Meals To Lose Weight.

- Most often cited study to back up claim is a 1989 study in New England Journal of Medicine.
- Study compared eating 3 times/day to 17 times/day.
- Conclusion showed 17 meal/day people had slightly lower insulin but no other statistical differences were found.
- Calories are the most important variable to consider with weight loss according to the research.
- Small frequent meals are useful for those with adrenal issues and severe low blood sugar

Myth #8: Low _____ Foods are Healthier Than Their Regular Counterparts

- Fat, salt(sodium), sugar are the three primary flavor enhancers in food.
- If one is removed one of the others if not both will usually be added.(Dairy is a possible exception)
- The introduction of these foods began in the mid 1980's prior to the increased rates of obesity and diabetes.



MYTH #9: Whole Grains Are Heart Healthy

- Based on the premise that fiber in grains MAY lower cholesterol.
- Grains have to be processed to be put into an edible form.
- Processing removes most nutritional value which is why they are usually fortified.
- High carbohydrate diets for sedentary individuals can contribute to diabetes which increases the risk for heart disease.



Nutrition Facts

Serving Size 1/2 cup (28g)
Servings Per Container about 17

Amount Per Serving	Honey Nut Cheerios	with 1/2 cup skim milk
Calories	110	150
Calories from Fat	15	15

	% Daily Value**	
Total Fat 1.5g*	2%	2%
Saturated Fat 0g	0%	0%
Trans Fat 0g		
Polyunsaturated Fat 0.5g		
Monounsaturated Fat 0.5g		
Cholesterol 0mg	0%	1%
Sodium 160mg	7%	9%
Potassium 115mg	3%	9%
Total Carbohydrate 22g	7%	9%
Dietary Fiber 2g	8%	8%
Soluble Fiber less than 1g		
Sugars 9g		
Other Carbohydrate 11g		
Protein 2g		

Vitamin A	10%	15%
Vitamin C	10%	10%
Calcium	10%	25%
Iron	25%	25%
Vitamin D	10%	25%
Thiamin	25%	30%
Riboflavin	25%	35%
Niacin	25%	25%
Vitamin B ₆	25%	25%
Folic Acid	50%	50%
Vitamin B ₁₂	25%	35%
Phosphorus	8%	20%
Magnesium	6%	10%
Zinc	25%	30%

*Amount in cereal. A serving of cereal plus skim milk provides 1.5g total fat, less than 5mg cholesterol, 220mg sodium, 300mg potassium, 20g total carbohydrate (15g sugars, 2g other carbohydrates), and 7g protein.

**Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

	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	2,400mg	2,400mg
Potassium	Less than	3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Ingredients: Whole Grain Oats, Sugar, Oat Bran, Corn Starch, Honey, Brown Sugar Syrup, Salt, Tripotassium Phosphate, Rice Bran Oil and/or Canola Oil, Natural Almond Flavor. Vitamin E (mixed tocopherols) Added to Preserve Freshness.

Vitamins and Minerals: Calcium Carbonate, Zinc and Iron (mineral nutrients), Vitamin C (sodium ascorbate), A B Vitamin (niacinamide), Vitamin B₆ (pyridoxine hydrochloride), Vitamin B₂ (riboflavin), Vitamin B₁ (thiamin mononitrate), Vitamin A (palmitate), A B Vitamin (folic acid), Vitamin B₁₂, Vitamin D₃.

CONTAINS ALMOND INGREDIENTS.

DISTRIBUTED BY GENERAL MILLS SALES, INC.,
MINNEAPOLIS, MN 55440 USA

GLUTEN FREE

© General Mills May be mfg. under U.S. Pat. Nos. 5,968,572; 7,959,951; 7,021,525 & Pat. Pend.

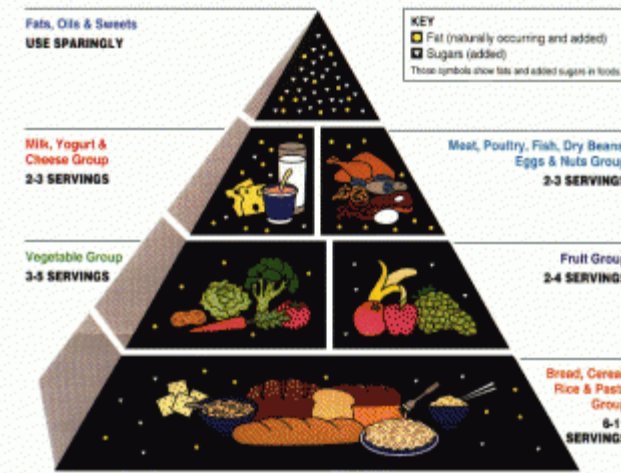
Exchange: 1 1/2 Starch
Based on Academy of Nutrition and Dietetics and American Diabetes Association criteria

This package is sold by weight, not by volume. You can be assured of proper weight even though some settling of contents normally occurs during shipment and handling.

F 3860022108 SSG 3572489100

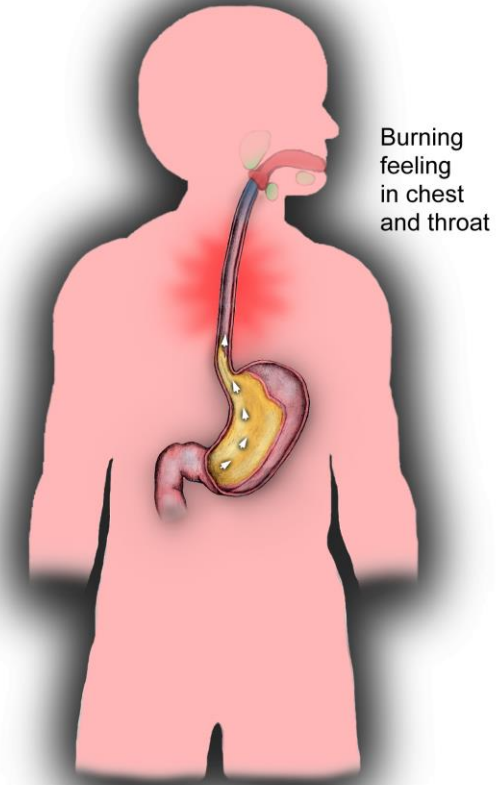
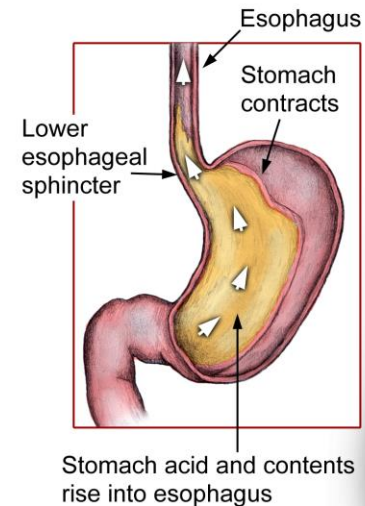
Myth #10: The USDA's Food Guide Pyramid Was Created To Promote Good Health

- Luise Light RD., was asked by the USDA to create a new healthy eating plan to replace the Four Basic Food Groups in the late 1970's.
- Her original pyramid had fruits and vegetables as the base (5-9 servings), with grains and sugars at the top (2-3 servings).
- She has stated that her original pyramid was changed to curb the cost of the food stamp program. *(Also the USDA has to try and please too many people)*
- The Food Guide Pyramid was released in 1992.
- As Luise predicted obesity and diabetes rates have skyrocketed since its inception.



Myth# 1 :Acid reflux is caused by too much acid

- Acid reflux is primarily caused by a faulty LES (lower esophageal sphincter)
- Intra-abdominal pressure can create pressure on stomach forcing LES to not close properly
- Low stomach acid can cause food to sit in stomach too long combined with an over growth of bacteria can lead to fermentation
- Overgrowth of bacteria too far up the GI tract



Use Caution with Nutrition Studies

- Test Tube Research (in vitro- within the glass)
- Animal Studies
- Case Reports: Involves people or situations
- Observational Studies: Usually involves a group being observed without any change administered to identify trends.
- Controlled Trials: Involves a control group and 2 or more experimental groups. Some sort of change happens to the experimental group while nothing happens to the control group
- Systematic Reviews and Meta-Analysis: A study of studies

Beware of Nutrition Studies

- Many studies are done on cells in test tubes not whole organisms
- Animal studies
- Observational/Epidemiological studies can have too many variables unaccounted for
- Based on inaccurate food questionnaires
- Financial disclosure
- Human bias
- Pesky statistics: relative and absolute risk

“Eating an egg everyday doubles your risk of developing heart disease!”

or

2 out of 1,000 died

4 out of 1,000 died

