

Culinary Medicine - Healthier Choices

Luis Calo, MD, MMM, FAAFP, CCMS
Medical Director- MCR

Medical Directors' Grand Rounds
January 13th, 2021



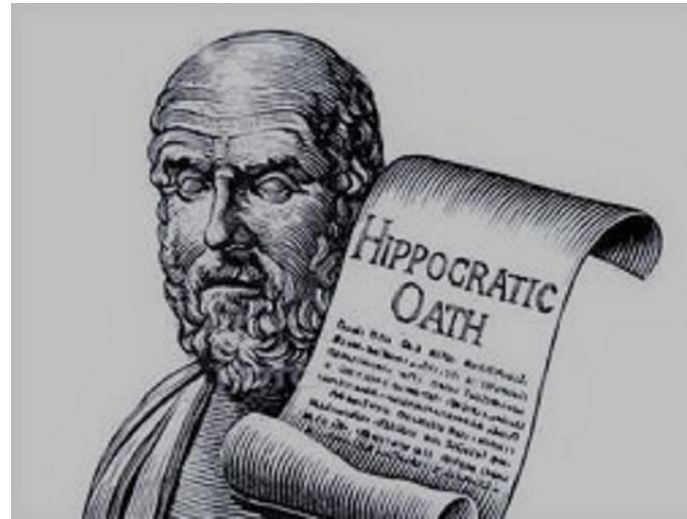
Disclosure

I have no actual or potential conflict of interest to any product or service mentioned in this presentation.

Learning Objectives

1. Define Culinary Medicine and understand its applications
2. Identify major opportunities in the practice of Culinary Medicine and learn some pearls
3. Develop an awareness of the need to address health issues as related to food intake
4. Encourage and challenge all participants to apply the concepts learned to themselves and support patients/members on the implementation of ongoing healthy eating and physical activity behaviors.

"Let food be thy medicine and medicine be thy food."
— Hippocrates



Quote



Introduction

Reasons for the rise interest in Culinary Medicine

1. The people's interest is changing as they seek better quality of foods contrary to popular dietary advise for weight reduction and chronic illness management.
2. Expanding integrative medicine with teams of professionals addressing chronic disease management.
3. Growing aware of undesirable side effects of highly processed foods and snacks.
4. The rising cost of health care and prescription drugs for the treatment of many preventable illnesses and deteriorating conditions.
5. A revived enthusiasm for organic food, home gardening, local agriculture, farmer's market and holistic medicine approach.

Culinary Medicine

Is **not** a substitute for nutritionist and dietitians

Is **not** preventive medicine as seen by family and internal medicine

Is **not** prescribing diets, medications and other modalities alone

Is **not** solely about good food, macro and micronutrient balance

Culinary Medicine



Culinary Medicine is a new evidence-based field in medicine that blends the art and knowledge of food management and cooking with the science (and art) of medicine.



Culinary Medicine is “aimed in helping people reach good personal medical decisions about accessing and eating high-quality meals that help prevent and treat disease and restore well-being.” John La Puma MD

Culinary Medicine

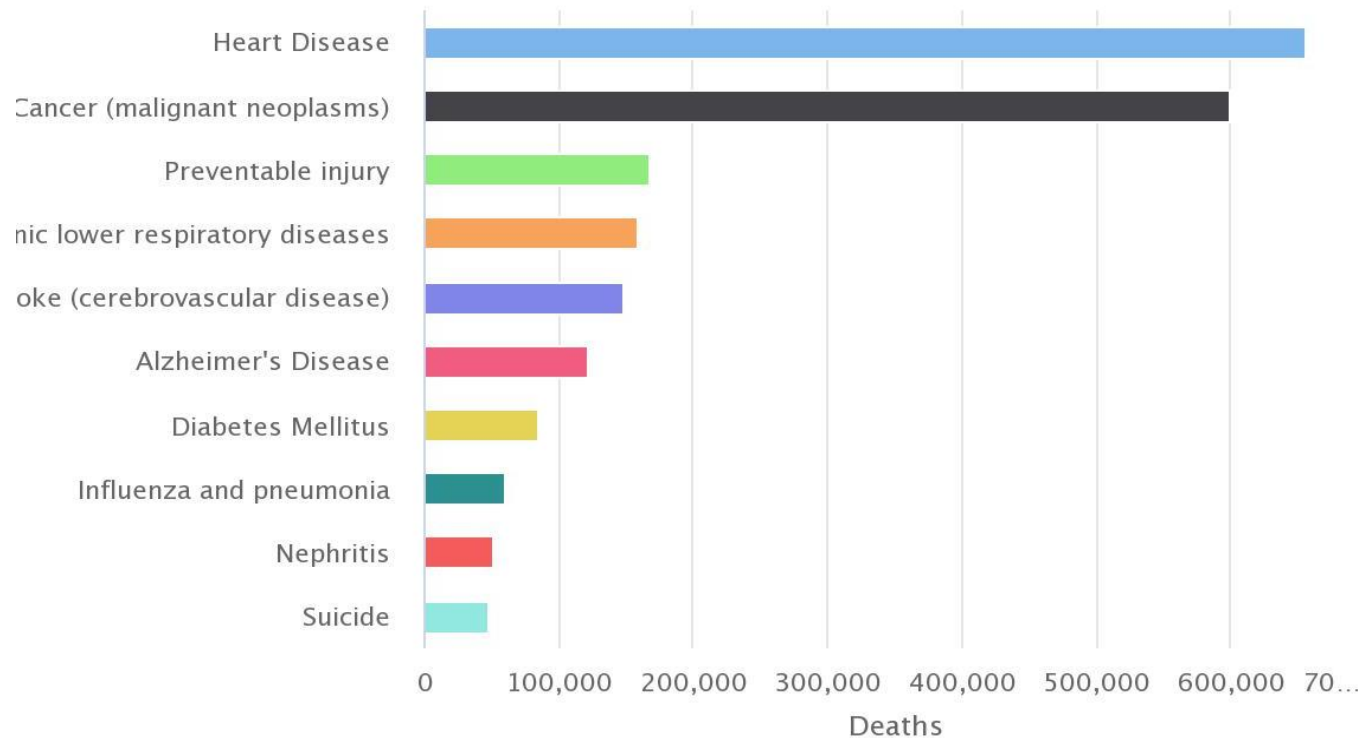
Achieves its goal for daily application of the knowledge and practices aiming to improve what we eat and drink.

Knowing how food works in our bodies is not enough. There are socioeconomic and cultural aspects that must be considered as well as addressing the pleasure aspect of cooking and eating.

The Problems

All leading causes of death, United States, 2018

All causes deaths: 2,839,205



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- Will talk about

- Hypertension
- Obesity
- Metabolic Syndrome
- Diabetes
- Inflammation Response
- Food Allergy
- Cooking tips
- Recipes

Assessment of nutritional status

Methodology in clinical practice

First Stage Assessment

Nutrient Intake

Compared to estimated requirements

Clinical Signs

External signs- skin, hair, eyes..

Anthropometry

Height, weight, circumference, skinfold

Second Stage Assessment

Biochemistry and Haematology

Blood and/or urine tests for protein status, vitamins, mineral and trace element status

Third Stage or Research protocols

Body Composition

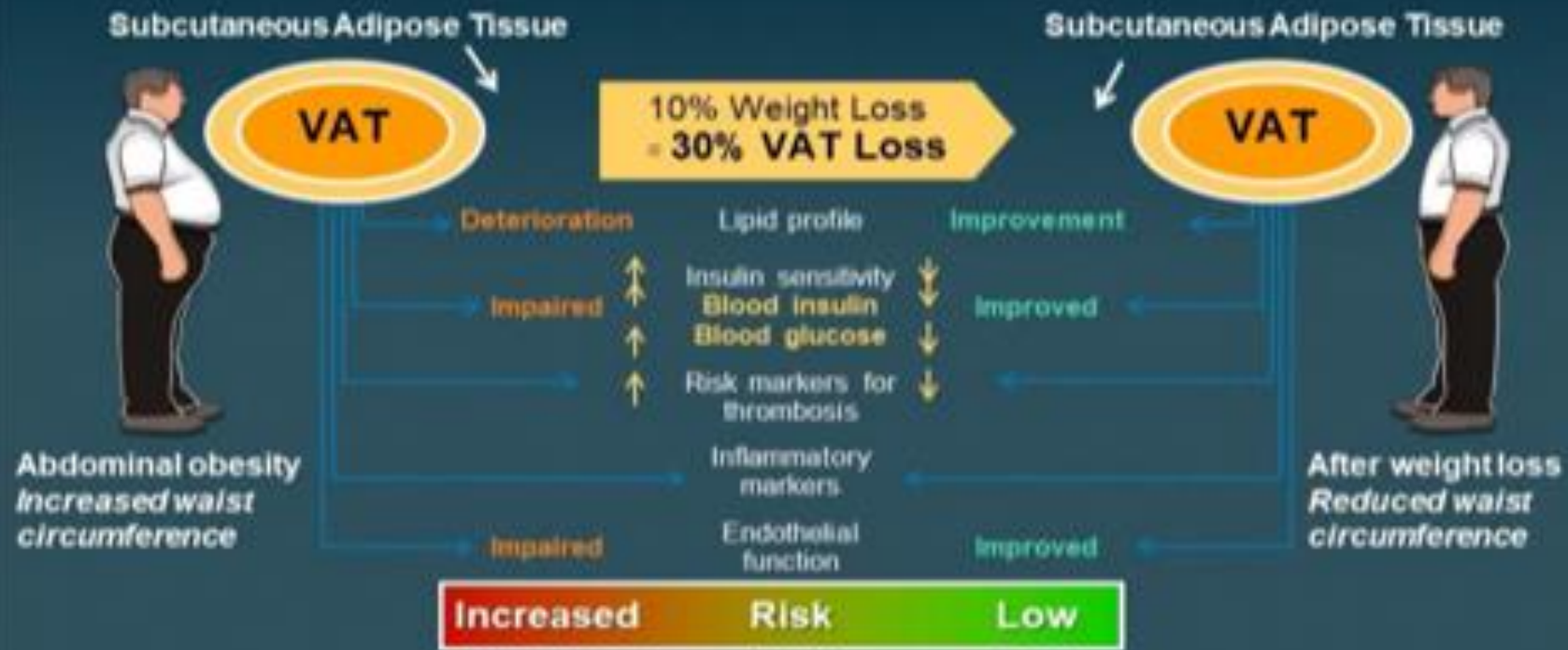
Distribution of fat, lean, water and minerals

Functional Tests

Neurological function
Developmental tests

Nutrition:
How
healthy are
you?

Visceral Adipose Tissue: Association With Cardiometabolic Risk



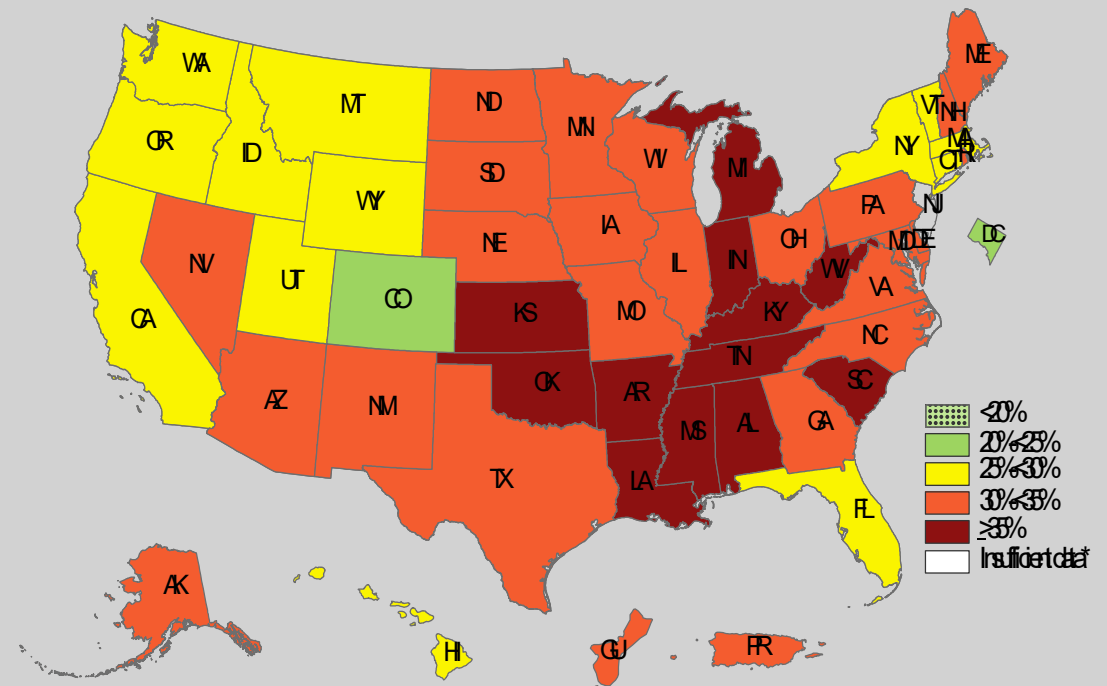
VAT = visceral adipose tissue.

Adapted from: Després J, et al. *BMJ*. 2001;322(7288):716-20. Reproduced with permission from BMJ Publishing Group Ltd.

Prevalence† of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2019

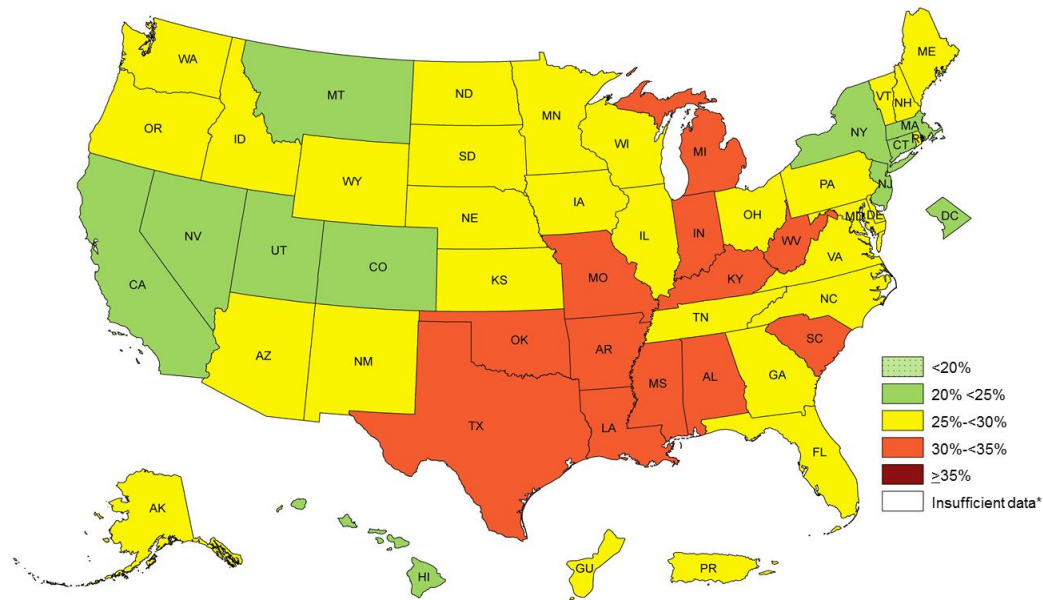
CLASSIFICATION OF OBESITY

BMI	STATUS
< 18.5	underweight
18.5–24.9	normal weight
25.0–29.9	overweight
30.0–34.9	class I obesity (Obese)
35.0–39.9	class II obesity (Morbidly obese)
≥ 40.0	class III obesity (Super morbidly obese)

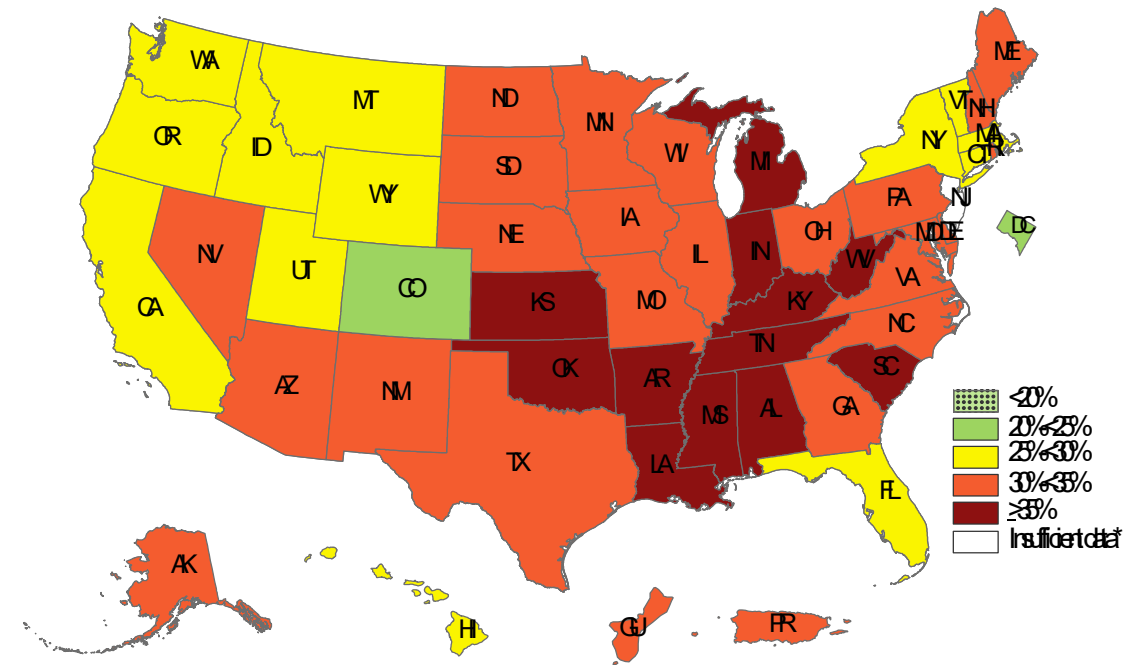


Obesity in USA over the years

Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2011



Prevalence of Self-Reported Obesity Among U.S. Adults by State and Territory, BRFSS, 2019

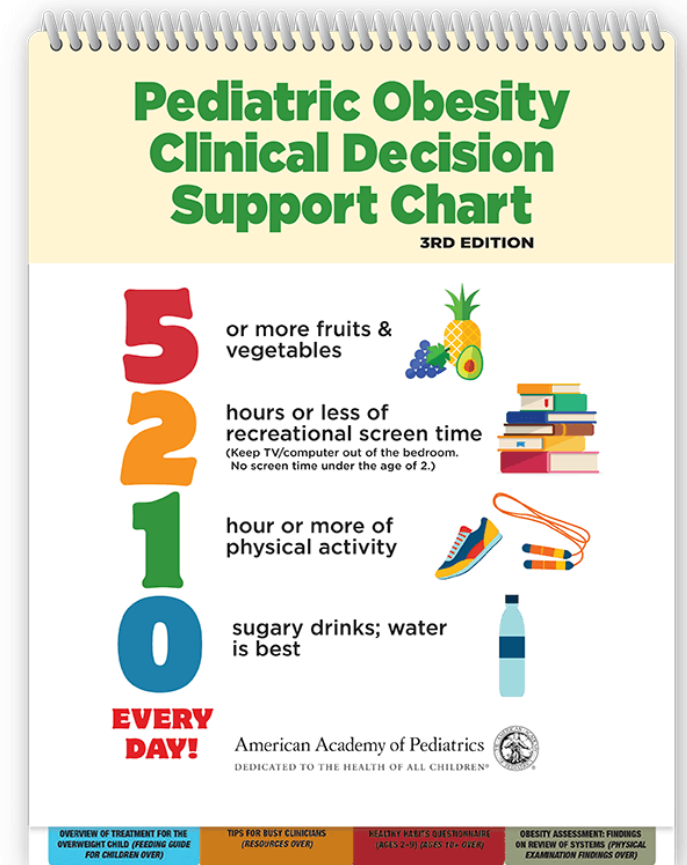


Obesity is a common, serious, and costly disease

- The prevalence of obesity was 42.4% in 2017~2018. [[Read CDC National Center for Health Statistics \(NCHS\) data brief](#)]
- From 1999–2000 through 2017–2018, the prevalence of obesity increased from 30.5% to 42.4%, and the prevalence of severe obesity increased from 4.7% to 9.2%. [[Read CDC NCHS data brief](#)]
- Childhood obesity is a serious problem in the United States putting children and adolescents at risk for poor health. Obesity prevalence among children and adolescents is still too high.

Risk Factors Risk Factors for Childhood Obesity Childhood

- Parents who are Obese
- Adverse Childhood Experiences
- Antibiotics -effect intestinal flora
- Sport participation (lack of)
- Drinking Low Fat Milk



Obesity

- Simple tool- A Measuring tape
 - [Waist-to-Hip Ratio \(WHR\) Calculator \(thecalculatorsite.com\)](http://thecalculatorsite.com)
 - $M \leq 0.90$ $F \leq 0.80$

- Waist-to-hip ratio (WHR) is the ratio of your waist circumference to your hip circumference (calculated by dividing the waist circumference by the hip circumference). WHR is a measurement tool that looks at the proportion of fat stored on your waist, and hips and buttocks.

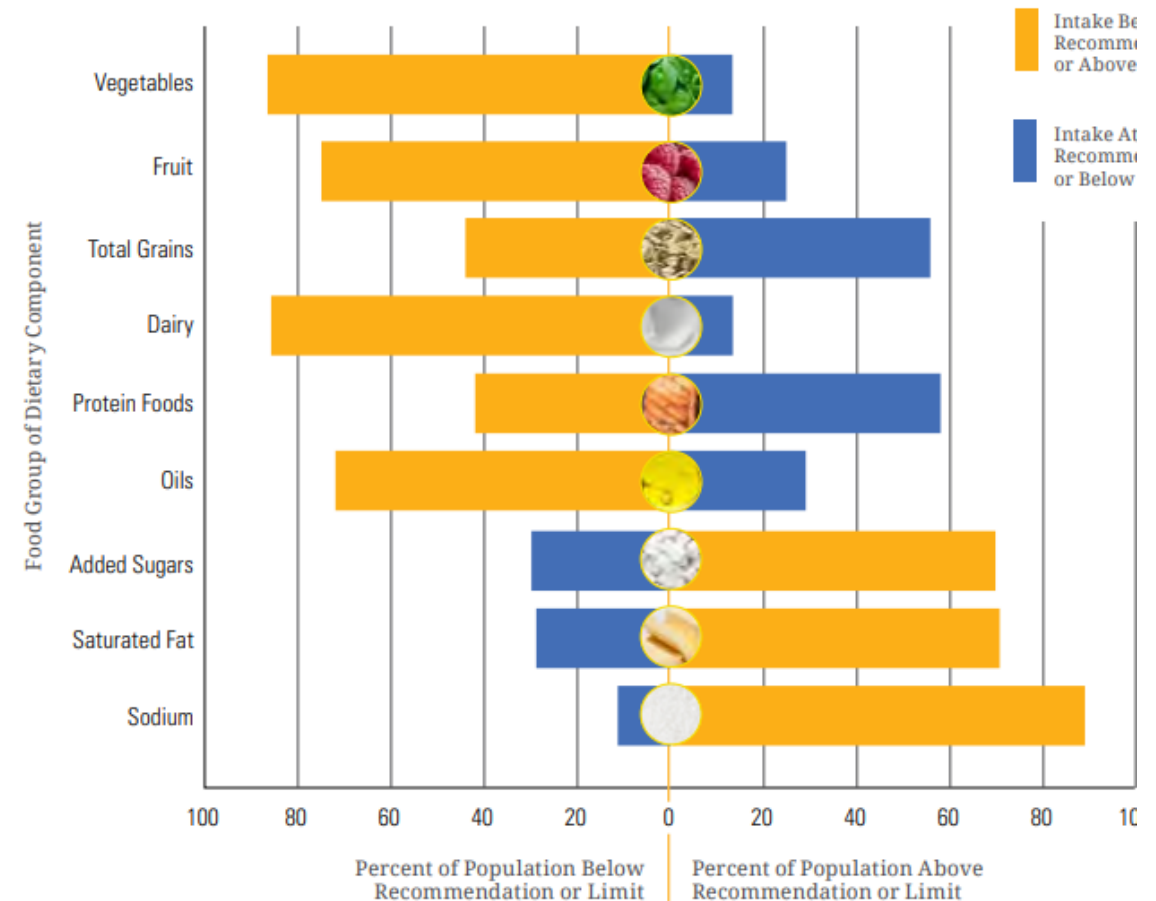


Food Intake: Recommended vs Consumed

https://www.dietaryguidelines.gov/sites/default/files/2019-05/2015-2020_Dietary_Guidelines.pdf

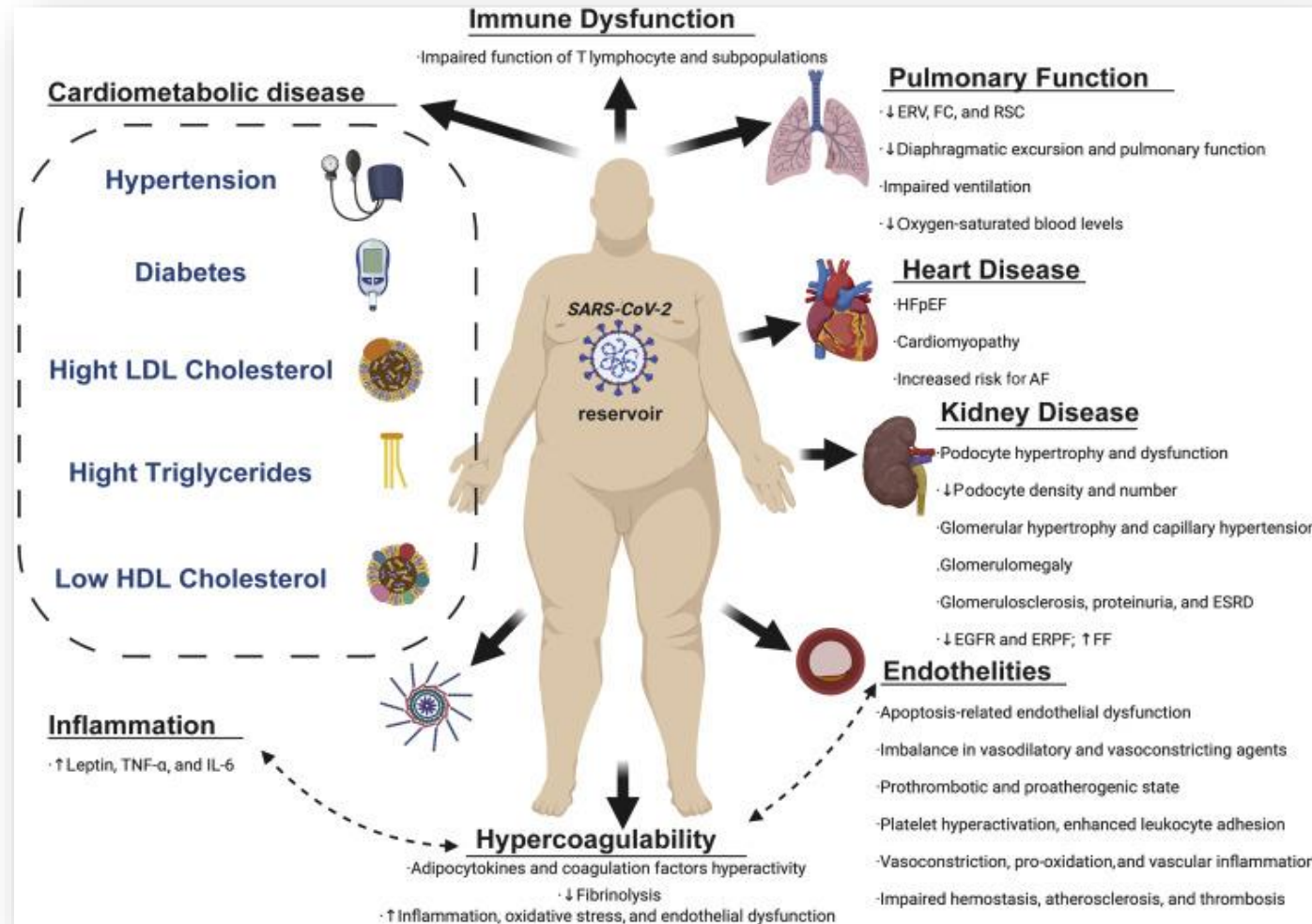
DATA SOURCES: What We Eat in America, NHANES 2007-2010 for average intakes by -- age-sex group. Healthy U.S.-Style Food Patterns, which vary based on age, sex, and activity level, for recommended intakes and limits.

Dietary Intakes Compared to Recommendations. Percent of the U.S. Population Ages 1 Year & Older Who Are Below, At, or Above Each Dietary Goal or Limit



NOTE: The center (0) line is the goal or limit. For most, those represented by the orange sections of the bars, shifting toward the center line will improve their eating pattern.

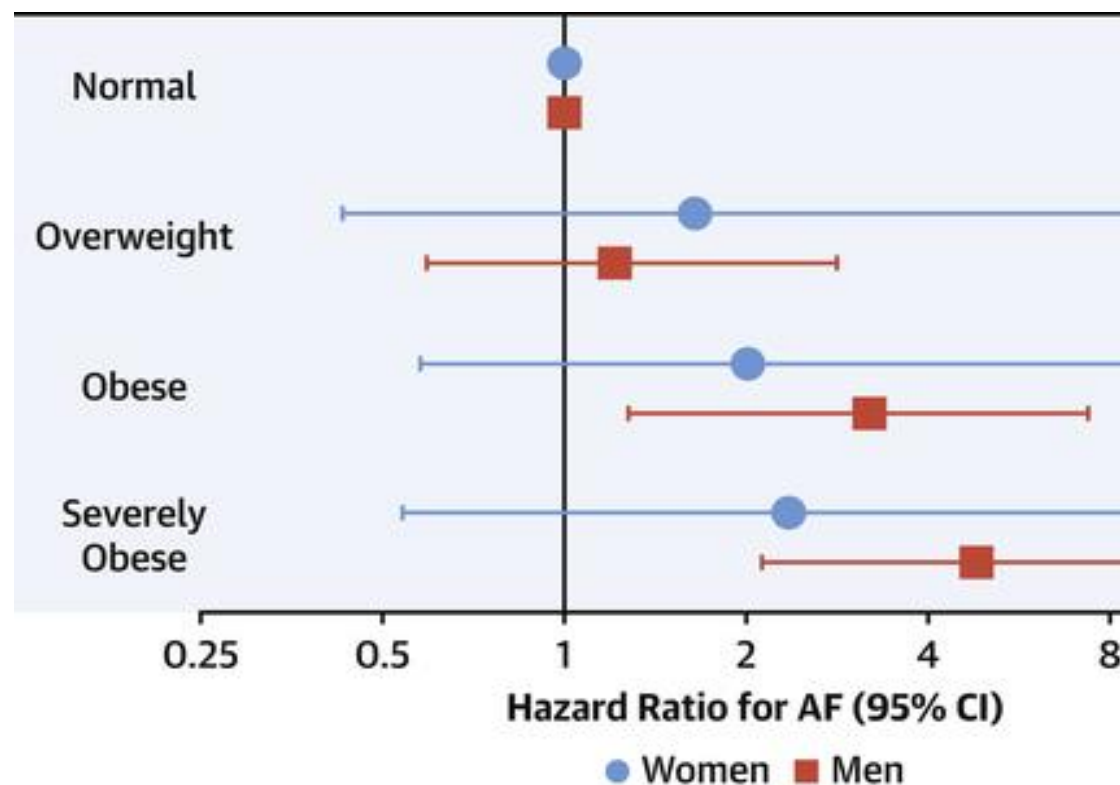
“When an Epidemic and Pandemic Collide” – Mayo Clinic



Study links **obesity** to AFib risk among **men** with T2D

- A study in JACC: Clinical Electrophysiology found that obesity and severe obesity were tied to a higher risk of atrial fibrillation among men with type 2 diabetes -- an association that was not present among women or among men who were only overweight. "For any given degree of obesity, men have a much higher risk of obstructive sleep apnea than women, [which] has potent arrhythmogenic effects and is strongly associated with incident AFib," explained lead author Matthew Singleton.

• <https://www.jacc.org/doi/10.1016/j.jacep.2020.08.008>



Obesity and Hypertension in the Time of COVID-19

- **Editorial-** September 9, 2020
- [Griffin P. Rodgers, MD¹](#); [Gary H. Gibbons, MD²](#)
- *JAMA*. 2020;324(12):1163-1165. doi:10.1001/jama.2020.16753
 - ✓ In this issue of JAMA, 2 reports^{1,2} present cross-sectional data on the prevalence and trends for obesity and controlled hypertension from 1999 through 2018 based on data from the National Health and Nutrition Examination Survey, a federal program of nationally representative surveys designed to **monitor** the health and nutrition of adults and children in the US.
- “The prevalence of both obesity and uncontrolled hypertension remains disturbingly high.”
- Salt intake remains High Avg. 3,400 Na. Rec 2,300 mgs Na (one teaspoon of salt =2,325 mgs of sodium)
 - ✓ DASH (Dietary Approaches to Stop Hypertension)

COVID19 and nutrition for Health

- To help cope with stress that may be related to the pandemic, take care of your body including good nutrition, as part [of self-care](#) and exercise.
- Dietary supplements aren't meant to treat or prevent COVID-19. [Certain vitamins and minerals external icon](#) (e.g., Vitamins C and D, zinc) may have effects on how our immune system works to fight off infections, as well as inflammation and swelling.
- Foods like tree nuts, greens, citrus, blueberries, green tea, mushrooms...



Additional Topics Obesity related

- **Does Eating Only Within a Limited Time Window Promote Weight Loss?**

[Paul S. Mueller, MD, MPH, FACP](#) reviewing [Lowe DA et al. JAMA Intern Med 2020 Sep 28](#)]

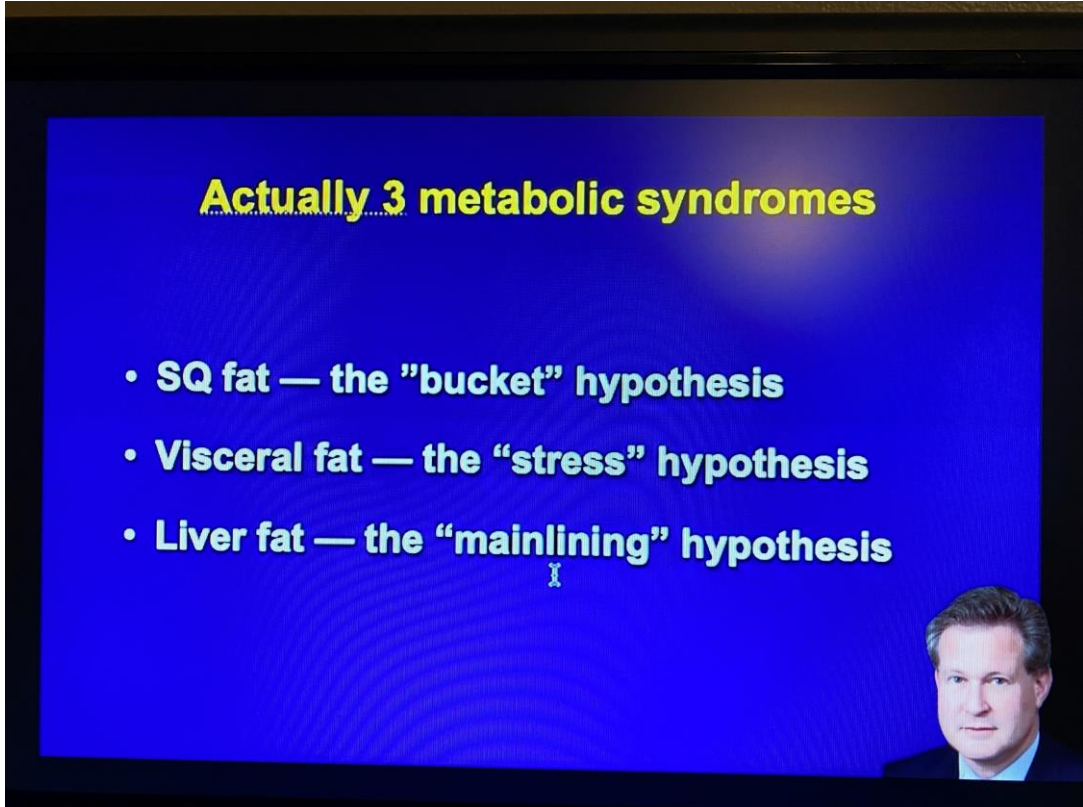
- **Abdominal Obesity Is Associated with Early All-Cause Mortality**

[Bruce Soloway, MD](#) reviewing [Jayedi A et al. BMJ 2020 Sep 23](#)

- **Metabolic Syndrome**

Three Faces of Metabolic Syndrome 6/21/19

- Robert H Lustig MD MS Pediatric Endocrinologist UC, San Francisco
- 'The three faces of metabolic syndrome' <https://www.youtube.com/watch?v=kDJsxw0uMLM>

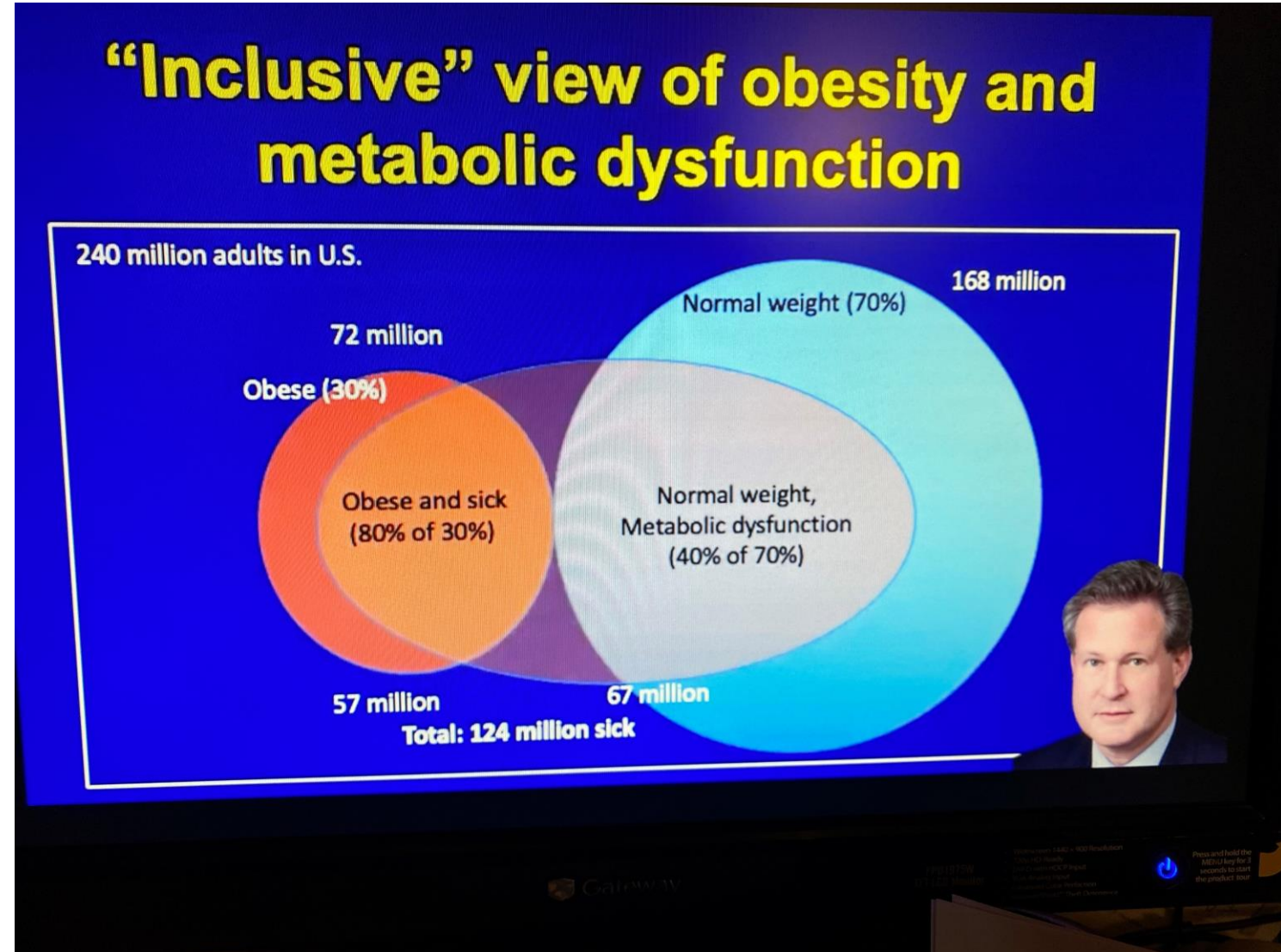


Actually 3 metabolic syndromes

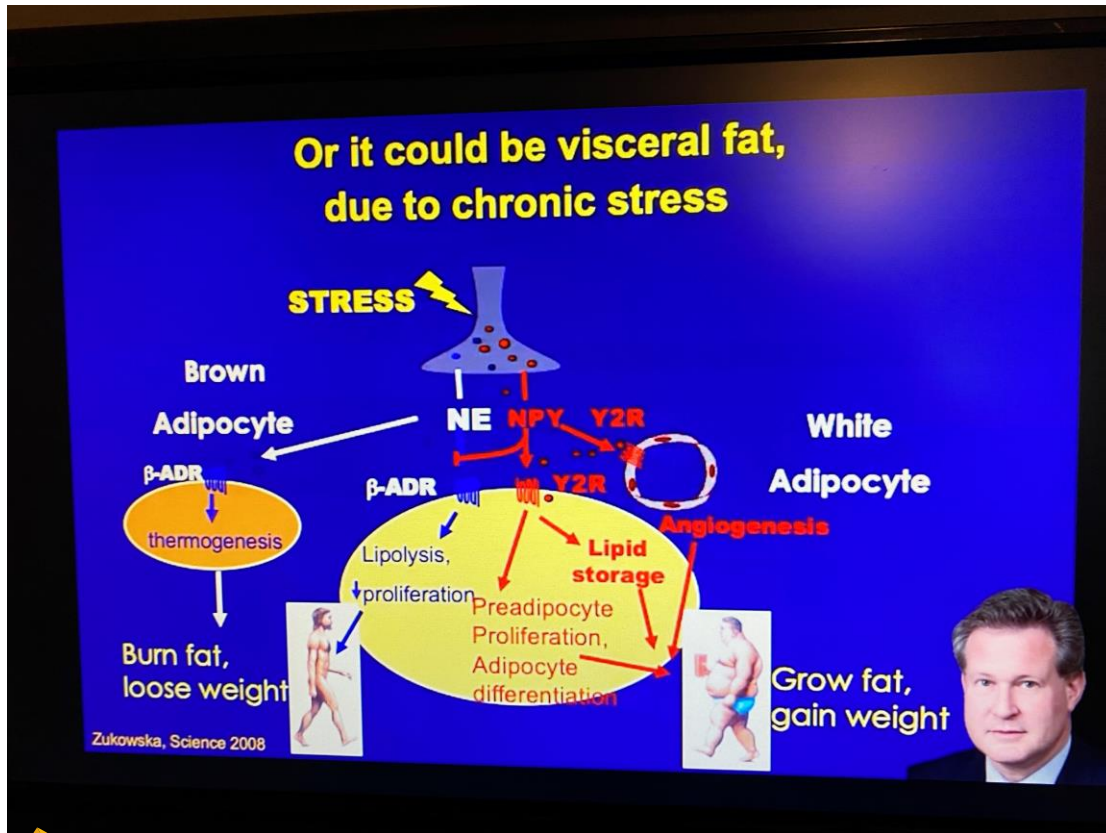
- **SQ fat — the “bucket” hypothesis**
- **Visceral fat — the “stress” hypothesis**
- **Liver fat — the “mainlining” hypothesis**

Metabolic Syndrome

- “Gordito pero contento”
- “Fat but Happy”



Root of the Problem: Metab. syndrome, Stress, Genetics, Insulin resistance, Inflammation



Obesity is not the problem

Metabolic Syndrome: where all the money goes (75% of all healthcare dollars)

Diabetes

Hypertension

Lipid abnormalities

Cardiovascular disease

Non-alcoholic fatty liver disease

Polycystic ovarian disease

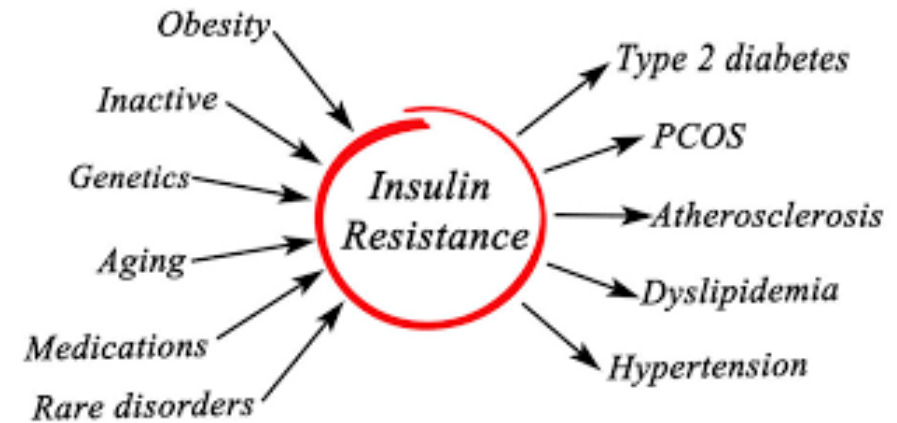
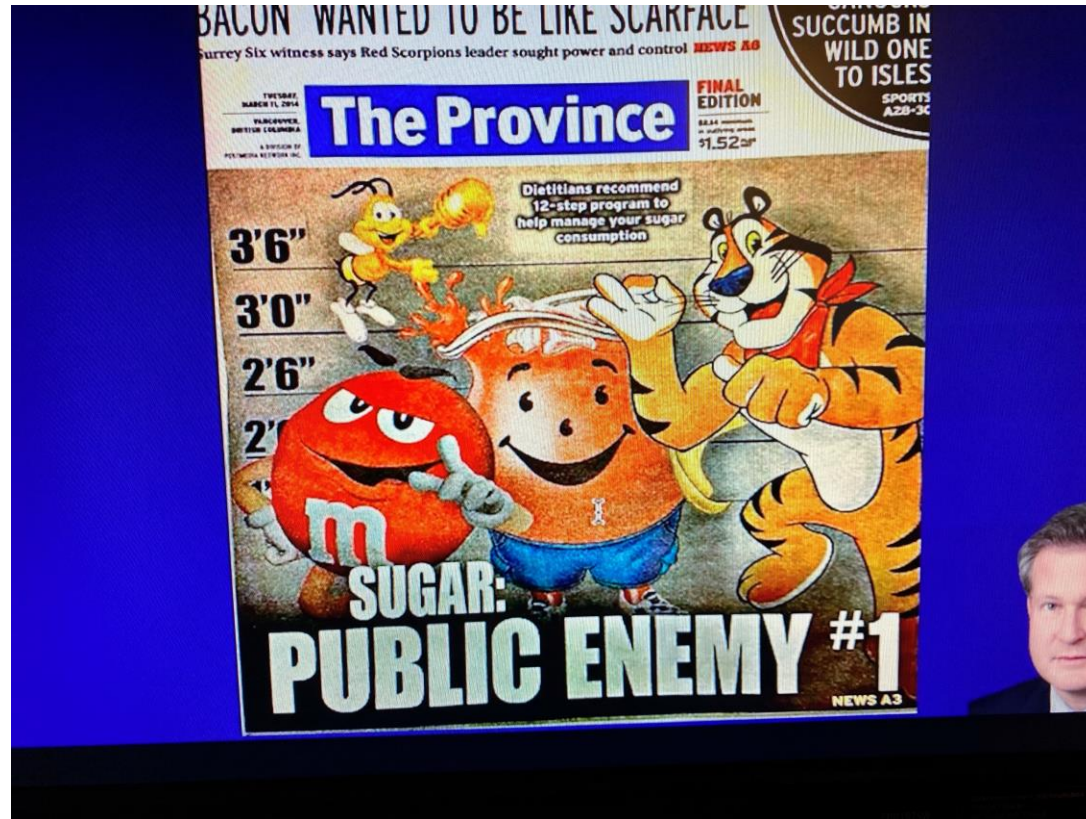
Cancer

Dementia

Relation between visceral and subcutaneous obesity: TOFI (thin on the outside, fat on the inside)

A	Trunk fat: 12.8 (l) ASAT: 8.2 (l) IAAT: 4.6 (l) IAAT/ASAT: 0.56
B	Trunk fat: 12.8 (l) ASAT: 6.5 (l) IAAT: 6.3 (l) IAAT/ASAT: 0.97

Metabolic Syndrome



Does eating turkey make you sleepy?



shutterstock.com • 1508790587

Does eating turkey make you sleepy?



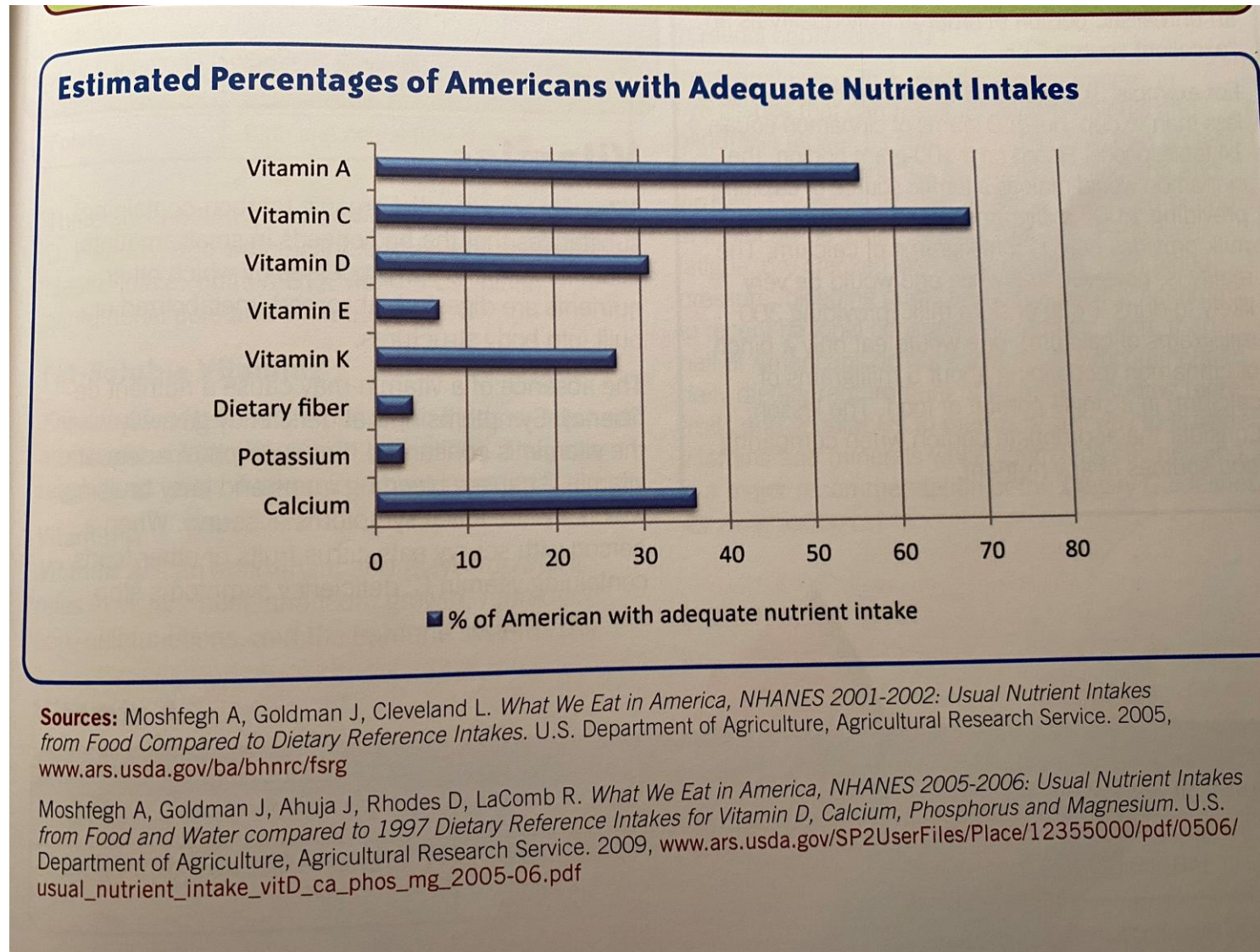
Merlot or Pinot noir

shutterstock.com • 1508790587

Answer: No

Tryptophan is an amino acid found in other meats and dairy products. The body can convert tryptophan to niacin (Vit B3) Ratio 60 mgs (T) to 1 mg N)

Nutrition in America



Skipping Breakfast INCREASES Obesity Risk!

- Observational: Comparing low frequency breakfast vs high frequency
- Low Frequency Breakfast Eaters →
- Overweight: OR=1.48 (95% CI 1.40–1.57)
- Abdominal Obesity: OR=1.31 (95% CI 1.17–1.47)
 - ❖ Obesity Research & Clinical Practice 2020; 14(1): 1-8



One Egg/Day is Safe, and Maybe Protective!

- MA: of 170,000+ women (NHS I & NHS II), & 42 055 men (HPFS) who were free of cardiovascular disease, type 2 diabetes, and cancer at baseline; over 32 years

Results

- Average : 1-4 eggs per week
- Meta-analysis: 1 egg/day was **not** associated with
 - CV disease risk (RR = 0.98, 95% CI 0.93 to 1.03)
 - CVD (RR = 0.96, 95% CI 0.91 to 1.03)
 - Stroke (RR = 0.99, 95% CI 0.91 to 1.07)
- Inverse association in Asian cohorts (meaning risk was LOWERED)

BMJ 2020;368:m513



- Eggs sunny side up
- Scallions or green onions
- Cherry tomatoes
- Salt/Pepper
 - ❖ Total calories 191

- 1 sld Whole Bread lightly toasted
- Half boiled egg
- Hummus 1 tbsp
- Avocado *1/4
- Salt/Smoke Paprika
 - ❖ Total calories 218



Commercial Programs with evidence to support Efficacy and Safety

- Weight Watchers: Low cost (\$43/month) 2 diet options, classic point system, group sessions or online coaching, self-monitoring; activity tracking
- Jenny Craig: Participant buys shelf stable dry or frozen foods; approximately \$579/month, 1:1 counseling; goal setting
- Nutrisystem: Participant buys the food (approximately \$280/month; 1:1 counseling; encourages exercise

Godzune KA, et al Ann Inter Med 2016, 162 (7) 501-12

Fad Diets

- A **fad diet** is a trendy weight-loss plan that promises dramatic results. Typically, these **diets** are not healthy and don't result in long-term weight loss. In fact, some **diets** actually can be dangerous to your health. Jun 8, 2020 Google Search

Examples of Fad Diets

- Negative Calorie Diet
- Eat Right 4 Your Blood Type Diet
- Atkins' Diet
- Keto (Keto and Atkins are both low-carb diets that may aid weight loss by burning fat and cutting your calorie intake. However, on Atkins, you gradually increase your carb intake, while it remains very low on the keto diet.)
- South Beach Diet
- The Zone Diet
- Dean Ornish Life Choice
- Paleo Diet
- Wheat Belly Diet
 - <https://www.everydayhealth.com/food/the-10-most-famous-fad-diets-of-all-time.aspx>

Golo?

GOLO Diet Review: Does It Work for Weight Loss?

- Written by [Rachael Link, MS, RD](#) on November 27, 2018
- Healthline Diet Score: 2.75 out of 5
- The GOLO Diet was one of the most searched-for diets in 2016 and has become increasingly popular since then.
- The 30-, 60- or 90-day programs available for purchase promise quick weight loss and better health without counting calories or tracking nutrients.
- The diet is also claimed to kick-start your metabolism, boost energy levels and increase fat loss simply by balancing your hormone levels.
- RATING SCORE BREAKDOWN
 - Overall score: 2.75
 - Fast weight loss: 3
 - Long-term weight loss: 2
 - Easy to follow: 2
 - Nutrition quality: 4
- **BOTTOM LINE:** The GOLO Diet focuses on managing insulin levels through supplements, diet and exercise to promote weight loss. It may be effective but pricey and challenging, and research on its potential benefits is limited.

Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates

NEJM 2/26/2009

- List of authors. Frank M. Sacks, M.D., George A. Bray, M.D., Vincent J. Carey, Ph.D., Steven R. Smith, M.D., Donna H. Ryan, M.D., Stephen D. Anton, Ph.D., Katherine McManus, M.S., R.D., Catherine M. Champagne, Ph.D., Louise M. Bishop, M.S., R.D., Nancy Laranjo, B.A., Meryl S. Leboff, M.D., Jennifer C. Rood, Ph.D., Lilian de Jonge, Ph.D., Frank L. Greenway, M.D., Catherine M. Loria, Ph.D., Eva Obarzanek, Ph.D., and Donald A. Williamson, Ph.D.
- **Conclusions: Reduced-calorie diets result in clinically meaningful weight loss regardless of which macronutrients they emphasize.**
- (ClinicalTrials.gov number, [NCT00072995](https://clinicaltrials.gov/ct2/show/study/NCT00072995).)
- <https://www.nejm.org/doi/pdf/10.1056/NEJMoa0804748>

What About Weight Loss?



Comparison of Weight-Loss Diets with Different Compositions of Fat, Protein, and Carbohydrates

811 overweight adults to one of four diets the targeted percentages of energy derived from:

Fat	Protein	Carbohydrates
20 %	15%	65%
20%	25%	55%
40%	15%	45%
40%	25%	35%

At 6 months, participants had lost an average of 6 kg
7% of their initial weight

Sacks FM, Bray GA, Carey VJ, et al. Comparison of weight-loss diets with different compositions of fat, protein, and carbohydrates. N Engl J Med. 2009;360(9):859-873. doi:10.1056/NEJMoa0804748.

HEALTH
meets
FOOD.

Thus, my best, simplest recommendations to achieve/maintain healthy weight are...

1. Application of Math- Calorie Intake in the real deal!
 - 3,500 calories = 1 pound of weight. Thus, decreasing intake by 500 cal per day should and could help losing a pound of weight a week. The opposite is also truth. (Regardless of which macronutrients you consume).
2. Add exercise which assists with calorie consumption (thermoregulation and metabolism) and you have a nice plan to lose weight. AHA and others recommend moderate exercise 30 minutes/day x 5 d minimum. Daily is the key. 150 minutes once a week not effective.
 - Example: Walking Moderate pace for 30 minutes (Wt 178) = 140 cal burned
 - ❖ <https://www.verywellfit.com/how-many-calories-you-burn-during-exercise-4111064>
3. Last, but not least, Sleep 7-8 hours/24 hrs

Suggestions with Evidence

- Exercise
 - ❖ Decreases mortality
 - ❖ Helps prevent dementia
 - ❖ Exercise Reduces Mortality in Metastatic CRC
 - ❖ Helps cognition, Memory and Mood


**AND... Take a Walk EVERY Day
> 8,000 Steps/Day → Lower All Cause Mortality**

- US adults ≥ 40 years; ~ 5000 (56.8 Yrs; 54% women; 36% obese)
- **Confounders:** age, gender, race, education, diet, alcohol, smoking, BMI, General Health, Mobility, Diabetes, CVD, Heart Failure, CVA, Cancer, Chronic Bronchitis/Emphysema

	< 4000 S/D	4-8000 S/D	8-12,000 S/D	> 12,000
• All-cause mortality (ACM)				
• Steps Per day:				
(ACM/1000 PY)	76.7	21.4	6.9	4.8

JAMA. 2020;323(12):1151-1160

Photo: Ron Jautz; www.jautzphoto.com



FMX
FAMILY MEDICINE
EXPERIENCE

Nurses Health Study

- In the Nurses Health Study of 71,617 women aged 45 to 65 years, investigators found that individuals with sleep duration of **approximately 5 hours per night** experienced a significantly elevated 10-year risk for incident CHD (RR = 1.82; 95% CI, 1.34-2.41) compared with those who slept 8 hours per night.

❖ <https://www.nurseshealthstudy.org/>

- At the start of the study, all of the women were healthy, and none were obese; 16 years later, women who slept 5 hours or less per night had a 15 percent higher risk of becoming obese, compared to women who slept 7 hours per night. Short sleepers also had **30 percent higher risk of gaining 30 pounds** over the course of the study, compared to women who got 7 hours of sleep per night.

❖ <https://www.hsph.harvard.edu/nutritionsource/sleep/>

Portions, Serving Size, Nutrient Dense and Energy Density

- A **portion** of food is the amount of food one chooses to consume. Portions, in our society, tend to run quite large.
- A **serving size** is the amount mandated by the USDA and FDA to meet certain nutritional standards.
- Learn and apply sizes in practical terms such as the size of a golf ball (nut butter), baseball (legumes), or deck of cards (meat).
- **Energy density** is the amount of energy or calories in a particular weight of food and is generally presented as the number of calories in a gram (kcal/g). Foods with a lower energy density provide fewer calories per gram than foods with a higher energy density.
- By eating foods lower in energy and higher in nutrients (Nutrient-Dense), one can eat more food and less calories.

What would you choose?

Energy Density



Apple with 1 Tbsp. PB Nutrient Dense	Apple Juice Nutrient Poor	Snickers Bar Energy Dense
5.5 ounce	10 ounce bottle	2 ounce bar
189 kcal	143 kcal	280 kcal
28.6g CHO	35g CHO	35 g CHO
4 g protein	0 g protein	4 g protein
6 g fiber	1 g fiber	1 g fiber
20 g sugar	27 g sugar	29 g sugar

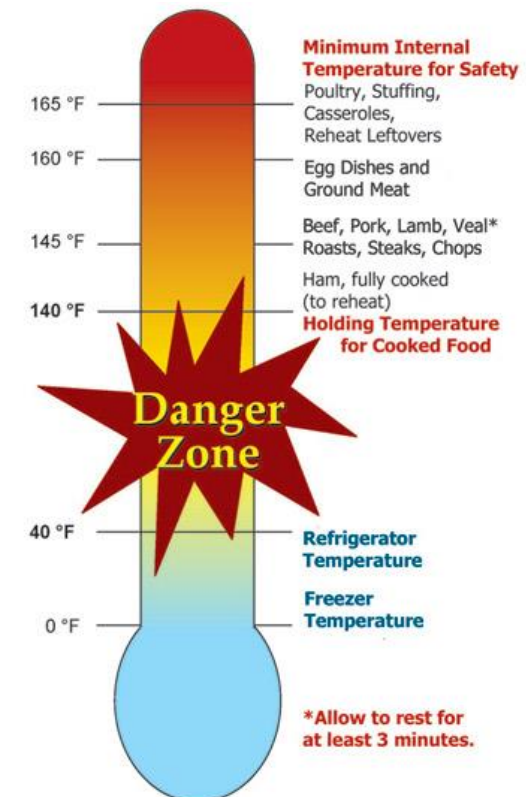
Few words on Temperature

Meat	Doneness	Internal Temp (°F)
Beef	Rare	125-135
Beef	Medium Rare	135-145
Beef	Medium	150
Beef	Medium Well	150-160
Beef	Well Done	165-170
Pork	Medium	155
Pork	Well Done	170
Ham	Fresh	160
Ham	Precooked	140
Poultry	Whole Bird	180
Poultry	Breasts	170
Ground Meat	Turkey/Chicken	165
Ground Meat	Beef, Pork, Lamb	166
Fish	Flakey	145
Shrimp, Lobster, Crab	Shells Turn Red	Flesh opaque
Scallops	Turn opaque	Firm
Clams, Mussels, Oysters	Shells Open	Careful if they don't ?bad

Brown it. Do not burn it. Avoid > 400 dgrs F
Why? HCAs and PAHs are carcinogenic.

Danger Zone" (40 °F - 140 °F) USDA

https://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/danger-zone-40-f-140-f/ct_index



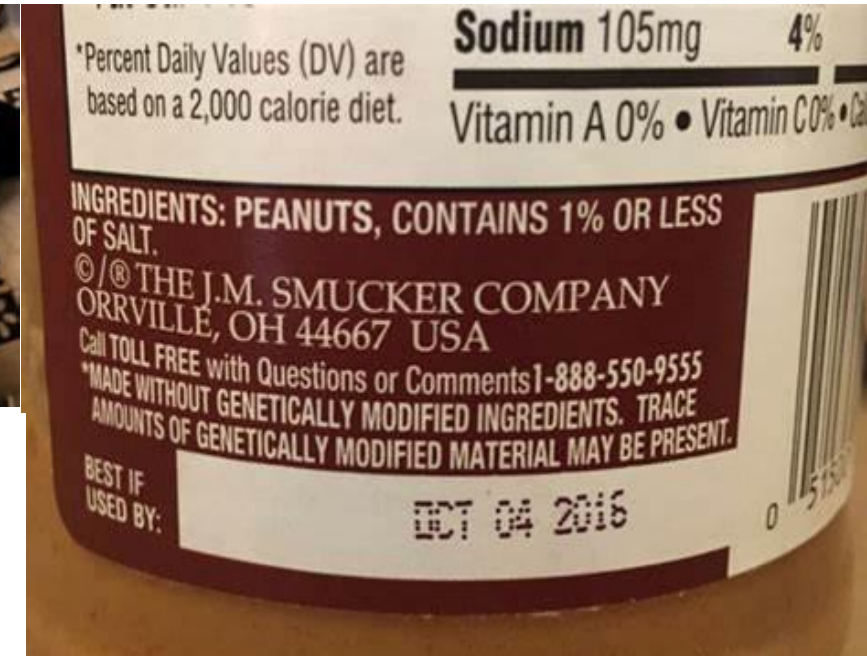
Labels: You must pay close attention

Peanuts Plus....??!!



Serving Size 2 Tbsp = 190 cal Na 140 mgs

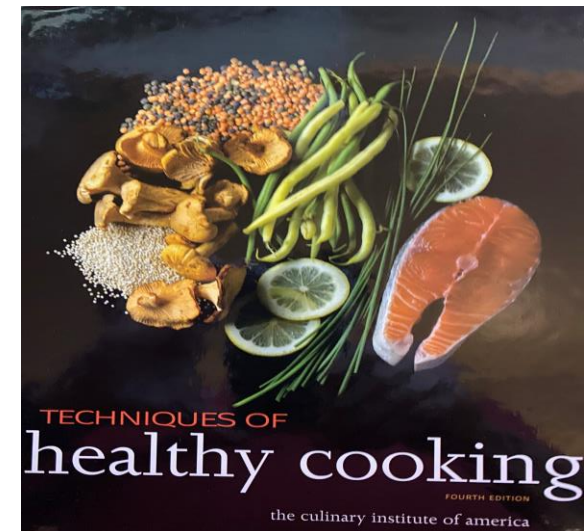
Peanuts ONLY



Serving Size 2 Tbsp = 190 cal Na 105 mgs

Healthier alternatives

- Choosing wisely
- Evidence based principles
- Modify the recipe
 - Incorporate veggie trilogy (celery, carrots, G/R peppers)
- Avoid processed foods
- Think fresh and healthy
 - Even frozen fruits and vegetables



American Diabetes Association

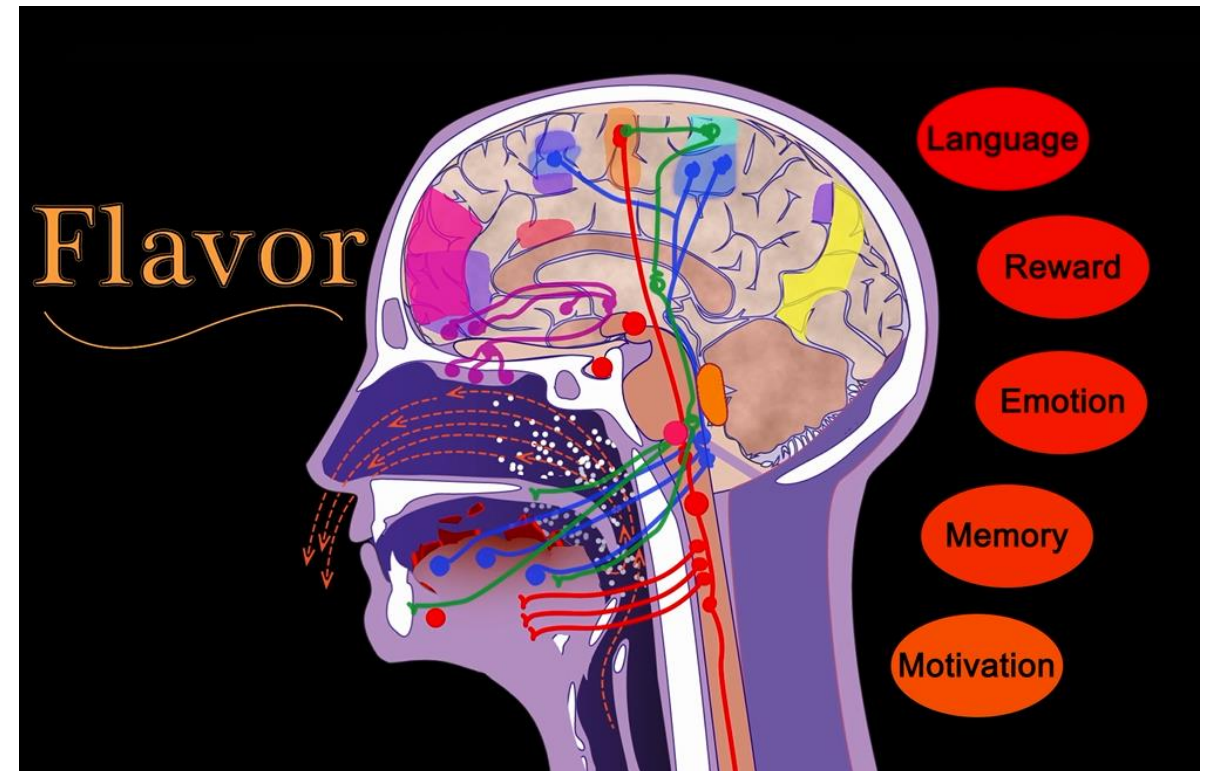
- **Eating doesn't have to be boring.**
- **It's all about finding the right balance that works for you.**



gg88585314 www.gograph.com

The Human Flavor creating system

- Vision
- Orthonasal smell
- Mouth touch (soft, crunchy, hard)
- Mouth taste (5)
- Retronasal smell
- Active sensing
- Swallowing
- Aroma burst



Umami - glutamate

There are a lot of ingredients that impart an umami flavor:

- Aged Cheese, like Parmesan
- Soy, Fish & Worcestershire sauce
- Tomato paste, canned tomatoes
- Seaweed
- Miso & other fermented products
- Olives & other cured products
- Mushrooms (especially dried)
- Beef
- MSG (bouillon, canned broth)





Healthier alternatives

Atlantic Salmon, Red Onions, Cappers, Turmeric, Lemon/Ruby red grapefruit sauce

- Yellow Squash**
- Shrimp**
- Corn**
- Diced tomatoes**
- Basil**



Creating a Recipe: Tips

Flavors-5 flavors

Smell (aroma) Stimulates your memory (cocoa, coffee)

Mouthfeel (Crunchy, popping, Soft, Bland, Hard)

Sight Appearance/Colors

Sound

Astringency (caused by tannins-wine)

Pungency (Combination of taste and aroma that irritate taste buds.)

Temperature

- **Consider**

1. Ingredients

- ✓ Amount
- ✓ Category

2. Flavoring agents and Seasoning

- ✓ Salt, Sugar: Amount and Substitute

3. Garnishes

- ✓ Color, Texture, additional nutrients

4. Accompaniments

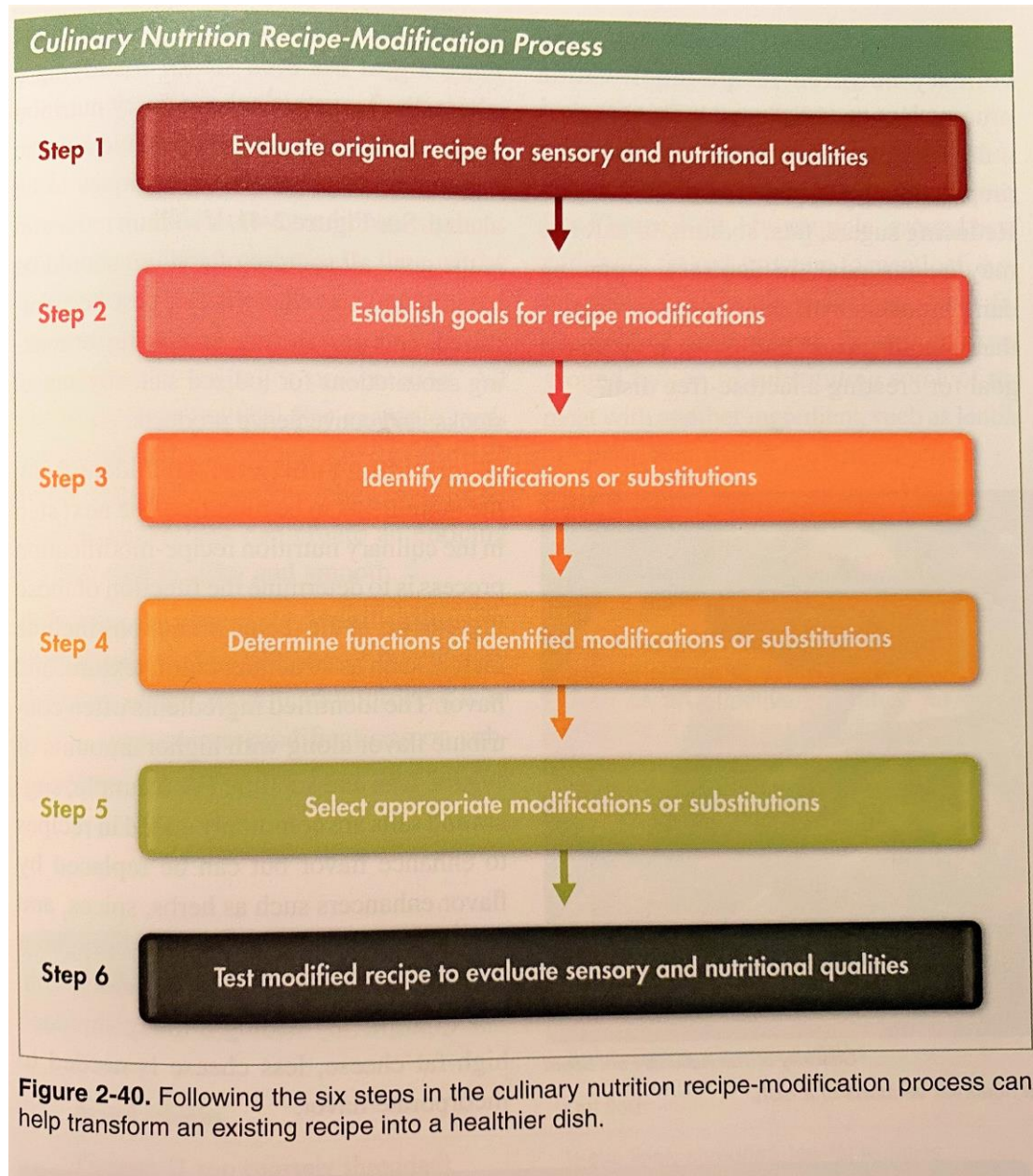
- ✓ Sauces
- ✓ Legumes, fruits, vegetables

5. Cooking methods

- ✓ Select the best method considering fat, calories, purpose
- ✓ Does it need to be fried? Using what?... Breaded (Panko crust) instead for crunchy texture)

Modifying a Recipe: Tips

Trakselis, L J; Stein, EM (2014). *Culinary Nutrition- Principles and Applications*
American Technical Publishers, Inc. Page 77



Modifying a Recipe to Be Healthier

Ohio State University Extension at <https://ohioline.osu.edu/factsheet/HYG-5543>

Tips to Decrease Total Fat and Lower Calories

Instead of this:	Try this:
Shortening, butter, margarine or solid fat	Use $\frac{1}{4}$ less liquid oil or solid fat called for in the recipe. If recipe calls for 1 cup, use $\frac{3}{4}$ cup. If recipe uses $\frac{1}{4}$ cup shortening, use 3 tablespoons oil. Use equal amounts of oil for melted shortening, margarine or butter.
Shortening, butter or oil in baking	Use applesauce or prune purée for half of the butter, shortening or oil. Might need to reduce baking time by 25 percent.
Butter, shortening, margarine or oil to prevent sticking	When frying foods, use cooking spray, water, broth or a nonstick pan.
Frying in fat	Use cooking methods such as bake, boil, broil, grill, poach, roast, stir-fry or microwave.
Fat to sauté or stir-fry	When frying foods, use cooking spray, water, broth or nonstick pans.
Whole milk, half-and-half or evaporated milk	Use skim milk, *Skim Plus, 1% milk, evaporated skim milk, fat-free half-and-half or plain soy milk with calcium. (*Use of brand name does not indicate an endorsement of the product.)
Full-fat cream cheese	Use low-fat or nonfat cream cheese, Neufchâtel, or low-fat cottage cheese puréed until smooth.
Full-fat sour cream, full-fat cottage cheese or full-fat ricotta cheese	Use nonfat or reduced-fat sour cream, fat-free plain yogurt, or Greek yogurt. (Yogurt is not heat stable.) Use 2% or fat-free cottage cheese. Use part-skim ricotta.
Whole-fat cheese	Use reduced-fat cheese, but add it at the end of the baking time or use part-skim mozzarella.
Cream	Use evaporated skim milk.
Whipping cream	Use nonfat whipped topping or cream. (This is only nonfat if one serving size is used.)
Eggs	Use egg whites (usually 2 egg whites for every egg) or $\frac{1}{4}$ cup egg substitute.
Regular mayonnaise or salad dressing	Use low-fat, reduced- or nonfat mayonnaise or salad dressing. Try flavored vinegars.
Canned fish	Use water-packed canned products or vacuum-sealed pouches.
Fatter cuts of meat (skin on)	Use leaner cuts of meat or ground meat, with the skin removed before cooking.
Ground beef	Use extra-lean ground beef, ground turkey breast or ground chicken breast, without the skin.

Modifying a Recipe to Be Healthier

Ohio State University Extension

<https://ohioline.osu.edu/factsheet/HYG-5543>

Croissants, brioches, etc.	Use whole-wheat French rolls or whole-wheat brown-and-serve rolls.
Donuts, pastries	Use whole-wheat or whole-grain English muffins, bagels and/or other reduced-fat varieties.
Cookies, crackers	Use reduced-fat, low-sodium varieties.

Tips to Reduce Sodium	
Instead of this:	Try this:
Salt	Omit salt or reduce salt by half in most recipes, except in products with yeast. Cook foods without adding salt. Don't put the salt shaker on the table.
Frozen or canned vegetables	Choose frozen vegetables without sauces, or use no-salt-added canned goods. Rinsing canned vegetables will help reduce sodium.
Seasoning salt or spice mixes with salt	Use salt-free seasonings and spice mixes. Use herbs, spices, lemon juice or vinegar to flavor food instead of salt. Seasonings high in sodium include catsup, chili sauce, chili powder, bouillon cubes, barbecue sauce, soy sauce, Worcestershire sauce and meat tenderizers. Choose low-sodium versions.

Modifying a Recipe to Be Healthier

Ohio State University Extension

<https://ohioline.osu.edu/factsheet/HYG-5543>

Tips to Reduce Sugar	
Instead of this:	Try this:
Sugar	Reduce sugar by one-quarter to one-half in baked goods and desserts. If a recipe calls for 1 cup, use $\frac{3}{4}$ cup or less. Add cinnamon, nutmeg, vanilla or almond extract to give impression of sweetness. (Do not remove all sugar in yeast breads, as sugar provides food for the yeast.)
Sugar	For most baked products, replace sugar with equal amounts of sucralose (*Splenda). Add $\frac{1}{2}$ teaspoon baking soda in addition to each cup of sucralose used. Baking time is usually shorter, and product will have a smaller yield. Try using aspartame (*Nutra Sweet), saccharin or acesulfame potassium in other products that are not baked. The sweet taste will vary with product combination or amounts of each sweetener used. Check packages of Stevia for substitution, as it can vary. Generally, 1 cup of sugar is equal to 24 packets of Stevia. (*Use of brand name does not indicate an endorsement of the product.)
Fruit-flavored yogurt	Use plain yogurt with fresh fruit slices, or use light versions of yogurt.
Syrup	Use puréed fruit such as no-sugar-added applesauce, or use sugar-free syrup.
Sugar in canned or frozen fruits	Decrease or eliminate sugar when canning or freezing fruits, or buy unsweetened frozen fruit or fruit canned in its own juices, water or light syrup.

Modifying a Recipe to Be Healthier

Ohio State University Extension at <https://ohioline.osu.edu/factsheet/HYG-5543>

Tips to Increase Fiber	
Instead of this:	Try this:
White rice or enriched grains	Use whole-grain rice, brown rice, wild rice, whole cornmeal (not degermed), whole barley, bulgur, kasha, quinoa or whole-wheat couscous.
All-purpose flour	Substitute whole-wheat flour for up to half of the all-purpose flour. For example, if a recipe calls for 2 cups all-purpose flour, try 1 cup all-purpose flour and 1 cup minus 1 tablespoon whole-wheat flour. Use "white whole-wheat flour" or "whole-wheat pastry flour" for total amount of all-purpose flour.
Pastas, crackers, cookies or cereals	Use whole-grain or whole-wheat pastas, crackers, cookies and cereals. Buy reduced-fat versions.
White bread	Use 100 percent whole-wheat bread and 100 percent whole-grain bread.
Iceberg lettuce	Use romaine lettuce, endive and other leafy lettuces, or use baby spinach.
Peeled fruits and vegetables	Add extra fruits and vegetables such as adding carrots to spaghetti sauce and leaving apple peels in apple crisp, zucchini bread, etc. Add extra fruits and vegetables to recipes, and include the peel when appropriate.
Meat	Use more dried beans and peas. Add legumes and lentils to many different dishes. Try adding lentils to spaghetti sauce.

Spaghetti with Meat & Lentils Sauce:

This recipe makes great leftovers.

Storage instructions: Cool and refrigerate or freeze for a quick meal later!

Ingredients:	
12 oz	Dried Whole Wheat Spaghetti
1/4 lb	Brown Lentils, dried
1 tbsp	Olive Oil
1 small	Yellow Onion, chopped small
2 cloves	Fresh Garlic, minced
1/2 each	Red Bell Pepper, chopped small
1 stalk	Celery, chopped small
4 oz	Mushrooms, chopped small
1/2 lb	Ground Beef (90/10 or leaner)
1 (15 oz) can	Canned Tomato Sauce
1 tsp	Worcestershire Sauce
1 cup	Water
1/8 tsp	Kosher Salt
2 tsp	Italian Seasoning
1/4 tsp	Ground Black Pepper

Preparation:

1. Gather all the ingredients and equipment.
2. Bring a large pot of lightly salted water to a boil and add lentils. Cook until lentils are tender, about 15 minutes. Remove lentils and reserve water. Set lentils aside.
3. Add water back to the pot. Add additional water if necessary, to boil spaghetti. Once water comes back to a boil, add spaghetti and cook spaghetti until al dente, about 8-10 min. Once cooked, toss with 1/2 tsp of oil and set aside.
4. Heat the oil in a small pot over medium-high heat. Once hot, add the onion and beef. Cook, stirring frequently, until the onions are soft, and beef is no longer pink.
5. Add the remaining ingredients, except for the spaghetti and bring to a simmer. Simmer about 10-15 minutes.
6. Serve 3/4 cup of sauce over 3/4 cup of pasta.

Serving size

Calories 300

3/4 cup pasta, 3/4 cup sauce

Calories from Fat 60

Air Fryer

French Style



Potato Wedges



Yes, it is fried chicken! (Air fried)



Cooking wisely presentation March 2019



Highlights

Healthier Choices

Tips on grocery Shopping

Planning weekly menus

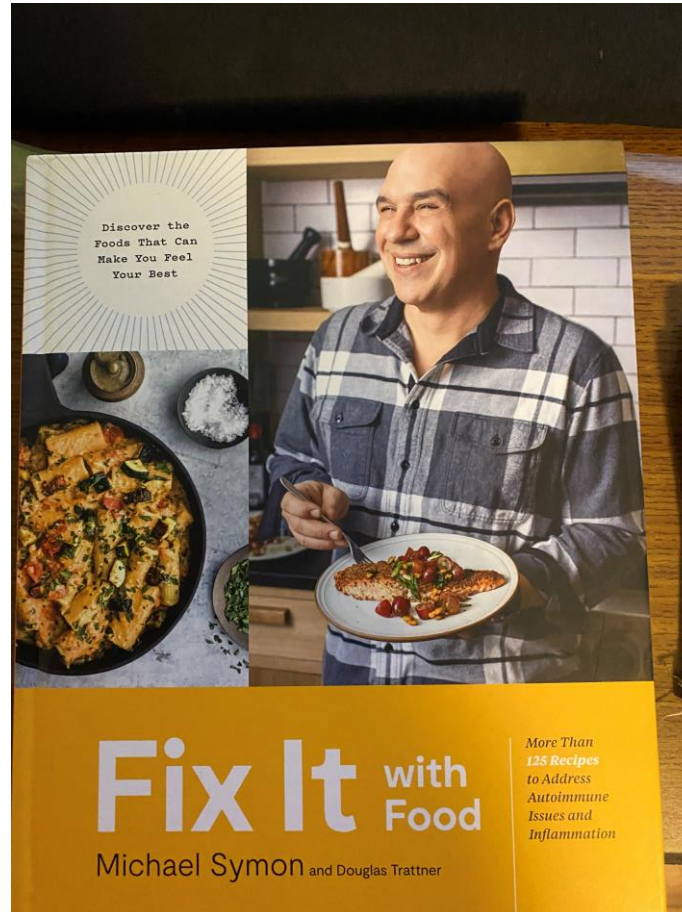
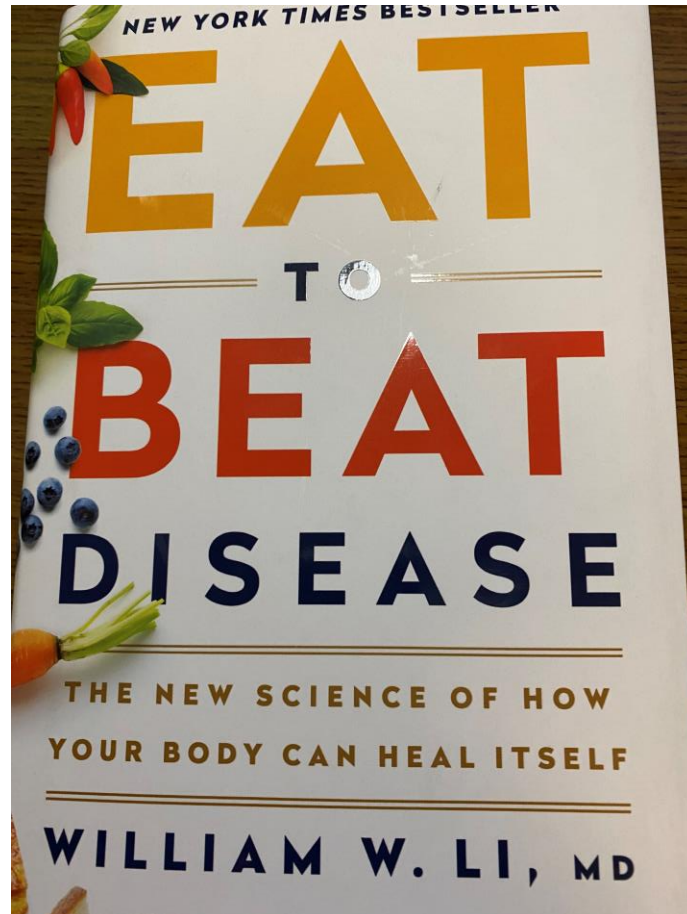
Recipes

Avoid highly processed foods

Diversity in selection and use



Healthy eating has become very popular



Foodie is a relatively recent addition to our language (dating from the early 1980s).

Foodie definition, a person keenly interested in food, especially in eating or cooking.

Macronutrients

- Carbohydrates are the body main source of energy Rec 45-65% per day
4 calories/gram
- Protein builds, maintains, and replaces components in our body Rec 10-35% p day
4 calories/gram
- Fats build nerve tissue and hormones and also serve as fuel Rec 20-35% per day
9 calories/gram
- Water Rec 9 cups for women and 13 for men
 - ❖ 1 cup = 8 ounces
- PS: Alcohol (**not** a macronutrient) has 7 calories /gram



Protein

There are more sources besides beef

PROTEIN CHALLENGE | **Stock Your Protein Pantry**

Here's a helpful guide to stock up on protein staples so you can easily enjoy flavorful, protein-rich meals any time of the day.

MEAT/EGGS (cooked)		
3 oz Strip Steak	25g	180 kcal
3 oz 95% lean Ground Beef	22g	140 kcal
3 oz ground chicken	20g	160 kcal
3 oz ground turkey	22g	165 kcal
3 oz ground pork	26g	160 kcal
3 oz lamb chops	23g	160 kcal
3 oz pork tenderloin	22g	120 kcal
3 oz pork chops	24g	200 kcal
3 oz roasted ham	21g	135 kcal
3 oz skinless chicken breast	26g	130 kcal
3 oz deli roast beef	17g	155 kcal
3 oz deli turkey	12g	90 kcal
3 oz deli ham	14g	110 kcal
3 slices cooked bacon	11g	160 kcal
1 large egg	6g	90 kcal
1 oz beef jerky	15g	115 kcal

DAIRY		
6 oz nonfat Greek plain yogurt	17g	100 kcal
6 oz nonfat yogurt	9g	110 kcal
1 oz Swiss cheese	8g	105 kcal
1 oz American cheese	5g	100 kcal
1 oz cheddar cheese	7g	115 kcal
1 cheese stick/string cheese	5-8g	70-85 kcal
8 oz low-fat cottage cheese	27g	195 kcal
8 oz skim milk	8g	85 kcal

BEANS		
½ cup cooked pinto beans	8g	120 kcal
½ cup cooked black beans	8g	115 kcal
½ cup cooked kidney beans	7g	105 kcal
½ cup cooked garbanzo beans	7g	135 kcal
½ cup cooked edamame	8g	95 kcal
½ cup tofu	10g	95 kcal

FISH/SEAFOOD		
3 oz canned tuna	20g	110 kcal
3 oz filet of catfish	16g	90 kcal
3 oz filet of tilapia	22g	110 kcal
3 oz filet of salmon	19g	155 kcal
3 oz crabmeat	15g	70 kcal
3 oz shrimp	19g	100 kcal
3 oz lobster	16g	75 kcal

NUTS/SEEDS		
2 tbsp peanut butter	8g	190 kcal
2 tbsp almond butter	7g	195 kcal
1 oz peanuts	7g	160 kcal
1 oz almonds	6g	165 kcal
1 oz pistachios	6g	160 kcal
1 oz walnuts	4g	185 kcal
1 oz pecans	5g	195 kcal
1 oz pumpkin seeds	5g	125 kcal
1 oz sunflower seeds	5g	175 kcal

GRAINS		
½ cup cooked brown rice	2.5g	110 kcal
½ cup cooked spelt	5.5g	125 kcal
½ cup cooked quinoa	4g	110 kcal
½ cup cooked amaranth	5g	125 kcal
1 cup cooked oatmeal	6g	165 kcal

USDA Agriculture Research Service, National Nutrient Database for Standard Reference, Release 26

BEEF LOVING TEXANS
TEXAS BEEF COUNCIL

Visit BeefLovingTexans.com/proteinchallenge

Recommended Intake

- 0.8 mg/kg wt for average adult
- For the elderly, chronic ill or athletes 1.2 to 1.6 mgs/kg
- The recommended daily allowance (RDA)
 - young children (1-13) ranges between 13-34 grams/day,
 - females (14-18) is 46 grams/day,
 - males (14-18) is 52 grams/day
 - women (19-70+) is 46 grams/day
 - men (19-70+) is 56 grams/day.

Carbohydrates (CHO)

Sugar in beverages



Based on one teaspoon (tsp) = 4.5g of sugar

AUSTRALIAN **healthyfood** GOES

Recommended Intake

- The recommended daily allowance for total carbohydrate is 275 g per day. This is based on a 2,000-calorie daily diet.
- BTW Generally, the recommended daily calorie intake is 2,000 calories a day for women and 2,500 for men.

Sugar substitutes

- **Aspartame** (NutraSweet®, Equal®, and Sugar Twin®) is made from two amino acids, while **sucralose** is a modified form of sugar with added chlorine. One 2013 study, however, found that **sucralose** may alter glucose and insulin levels and may not be a “biologically inert compound.” **Aspartame** sweetener and caramel colorant which are rich in advanced glycation end products that potentially increase. **Aspartame** intake (≥ 143 mg/day from diet soda and packets) was associated with significantly elevated risk of non-Hodgkin lymphoma (NHL) and of multiple myeloma in men.
- **Sucralose** is considered safe in small amounts, except for people with phenylketonuria, a genetic disease. **Sucralose**, also known as **Splenda**, passes through the body easily and does not build up in body fat. It's also 600 times sweeter than sugar, so a little goes a long way. Sep 13, 2016 **Sucralose** is almost certainly safer than **aspartame**.
- **Swerve** Sweetener is a sugar substitute that has zero calories and does not raise your blood sugar. It's made from natural ingredients and can be used for baking.

- **Stevia** is a sugar substitute made from the leaves of the stevia plant. It's about 100 to 300 times sweeter than **table sugar**, but it has no carbohydrates, **calories**, or artificial ingredients. Not everyone likes the way it tastes. Some people find it bitter, but others think stevia tastes like menthol. It can help lower total cholesterol.
- **Truvia** is a sweetener developed jointly by Cargill, Inc. — a multinational food and agricultural conglomerate — and the Coca-Cola Company. It was introduced in 2008. Truvia is the **second-most-popular sugar substitute** in the US. It contains erythritol, rebaudioside A and natural flavors. Truvia is claimed to be a stevia-based sweetener.
- **Monk fruit** extract sweetener is a natural, zero-calorie sweetener. It is high in unique antioxidants called mogrosides, which make it 100–250 times sweeter than regular sugar. The extract contains zero calories, zero carbohydrates, zero sodium, and zero fat. This makes it a popular sweetener alternative for manufacturers who make low-calorie products and for the consumers who eat them. Monk fruit is also known as *luo han guo* or “Buddha fruit.” It's a small, round fruit grown in Southeast Asia.



- Sugar substitutes

Fats

- **Essential Fatty Acids (EFAs)** α -Linolenic acid (**omega-3**) and Linoleic acid (**omega-6**). The suggested omega-6:omega-3 ratio is 1:1 to 4:1. The Western diet often is 10:1 to 30:1.
- The best source for omega-3s in terms of amount and absorption is seafood, particularly oily fish like Tuna; Mackerel; Salmon, Trout, Halibut and oysters.
- Omega-3s (α -Linolenic) can also be found in plant sources, although the bioavailability of such is not as great as seafood. Plant sources include: Soybeans and soy products; Canola oil; Wheat germ; Walnuts; Flax seeds and oil; Pumpkin Seeds
- Omega-6 fatty acids (Linoleic acid, arachidonic acid) are needed to regulate blood pressure, for blood clot formation, and immune response to injury, among other needs. Some sources include: Sunflower seeds & oil; Sesame seeds & oil; Canola oil; Almonds; Avocado; Coconut oil

Generally, the recommended daily calorie intake is 2,000 calories a day for women and 2,500 for men. Based on this the **recommended daily calorie** for total fat is **65 g** per day.

Fat Replacers

Can Replace Fat in...

Ripe Bananas	Baked Goods, desserts
Applesauce	Baked goods, desserts
Legumes	Baked goods, desserts, dressings, sauces, spreads
Prune or Raisin	Paste Baked goods, desserts (esp. chocolate), meats (ground)
Avocado	Desserts, mayonnaise, dressings
Olive or Vegetable Oil	Baked goods, desserts, entrees (i.e. reduced fat meats)
Liquids & Condiments i.e. tomato paste	Reduced Fat Meats

Micronutrients

- Vitamins
- Amino acids
- Minerals
- Phytochemicals

Phytochemical: Sources and Potential Health Benefits

- Lutein- Green and Yellow vegetables
 - ✓ Cataract and Mac degeneration protection
 - ✓ Decreases risk lung cancer
- Zeaxanthin- Green leafy and orange veggies
 - ✓ Protects against cataracts and macular degeneration

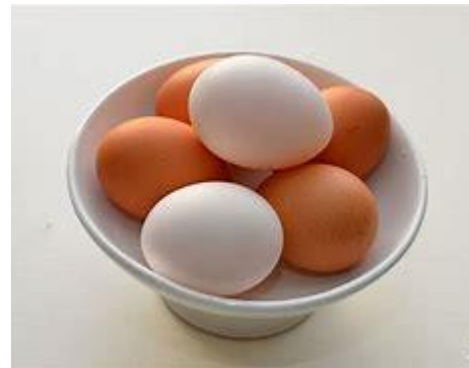
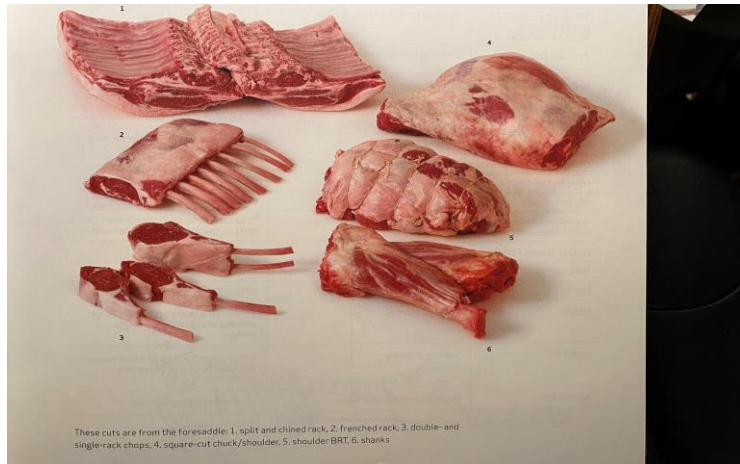


Phytochemical: Sources and Potential Health Benefits

- Beta-carotene Yellow-Orange Fruit and veggies
 - ✓ Slows aging process
 - ✓ Reduces the risk of certain cancers
 - ✓ Improves lung function
 - ✓ Reduces complications associates with diabetes
 - ✓ Protect eyes
- Lycopene Red Fruit and veggies
 - ✓ Reduces the risk of prostate cancer and heart disease



For the carnivorous



For the vegetarian

Legumes



Watch for common deficiencies in calcium, vitamin B12, Vitamin D, iron, and zinc intakes.

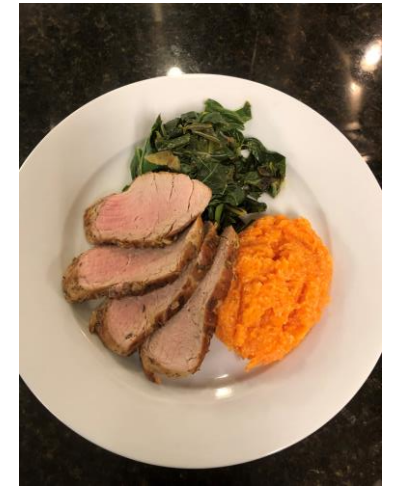
Complementary Plant Proteins

Legumes	Grains	Nuts	Seeds
• Beans	• Whole Wheat	Walnuts	• Sesame
• Peas	• Bulgur	Almonds	• Poppy
• Tofu	• Oats	Cashews	• Flax
• Lentils	• Buckwheat	• Pecans	• Sunflower
• Peanuts	• Spelt	Hazelnut	• Safflower
• Okra	• Barley	Chestnut	• Hemp
• Soy	• Quinoa	Pistachio	• Pumpkin

There are very few complete proteins available from plant sources. The notable exceptions are **quinoa and amaranth**. Both grains contain complete proteins.

Suggestions with Evidence

- Mediterranean Style Nutrition



- 25 per cent reduction of “all-cause mortality” and the effect remains when considering “cardiovascular or cerebrovascular mortality” as well.
- 2019 Cochran Authors' conclusions: Despite the relatively large number of studies included in this review, there is still some uncertainty regarding the effects of a Mediterranean-style diet on clinical endpoints and CVD risk factors for both primary and secondary prevention. The quality of evidence for the modest benefits on CVD risk factors in primary prevention is low or moderate, with a small number of studies reporting minimal harms. There is a paucity of evidence for secondary prevention. The ongoing studies may provide more certainty in the future.

Mindful Eating

How To Practice Mindful Eating

1. **Eat** more **slowly** and don't rush your meals.
 - ❖ Satiation time = Average 20 minutes
2. Chew thoroughly. (20-25 times)
3. **Eliminate distractions** by turning off the TV and putting down your phone.
4. **Eat** in silence. (Don't talk while chewing)
5. Focus on how the food makes you feel.
6. Stop **eating when** you're full.
7. Ask yourself why you're **eating**. Are you actually hungry? Thirsty? Is it healthy?

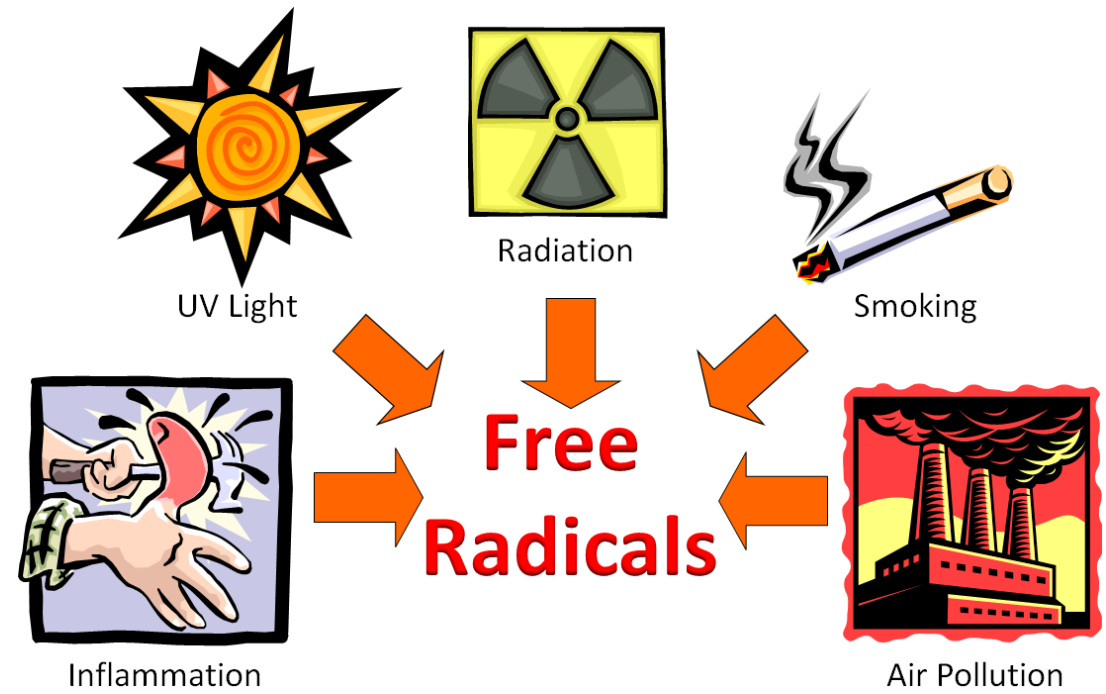
Nutritional Biochemistry

Free Radicals and Oxidative Stress

Free Radicals

- Free radicals are produced every day by the oxidation that occurs in our bodies as a product of digestion, metabolism, stress, pollution. They contribute to the process of aging, heart disease and cancer.
- Examples Oxygen Species: H_2O_2 , OH , OH_2 , HNO_3 and Nitrogen Species: NO , N_2O , NO_3 , HNO

Free radical promoters

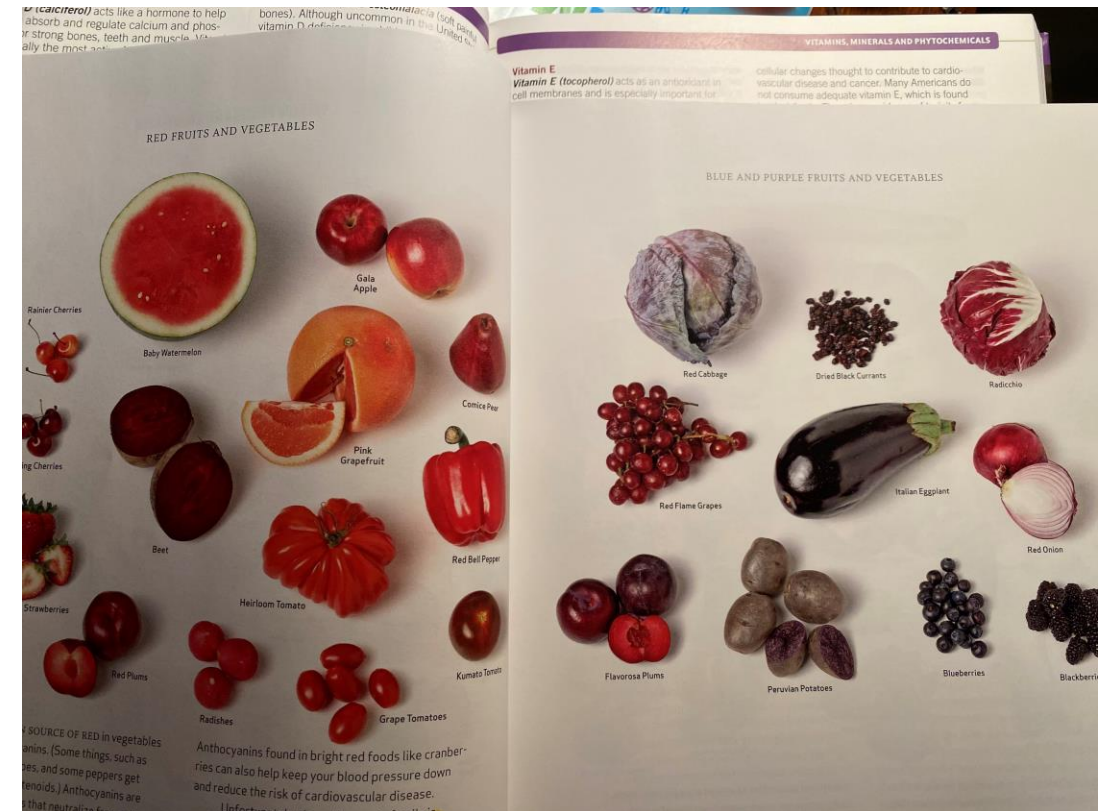


Flavonoids

Purple/red fruits and vegetables

- Anthocyanidins
 - ✓ Delays diseases associated w aging
 - ✓ Helps circulation and nerve function
- Flavanols- Quercetin
 - ✓ Potent antioxidant

Also, red wine 😊



Antioxidants

Also serve as anti-inflammatory

- Vitamins A, C and E
- Selenium
- Carotenoids, such as beta-carotene
- Lycopene
- Lutein and Zeaxanthin
- Resveratrol

Sources



Antioxidants (Sirtfood Diet)

The list of the “top 20 sirtfoods” provided by the Sirtfood Diet includes

- . kale
- . red wine
- . strawberries
- . onions
- . soy
- . parsley
- . extra virgin olive oil
- . dark chocolate (85% cocoa)
- . matcha green tea
- . buckwheat
- . turmeric
- . walnuts
- . arugula (rocket)
- . bird's eye chili
- . lovage
- . Medjool dates
- . red chicory
- . blueberries
- . capers
- . coffee

Foods that can help your body produce **collagen**

- Bone Broth (Watch NACL & quality)
- Chicken (connective tissue)
- Fish and Shellfish (marine collagen easiest absorbed)
- Egg whites
- Citrus fruits (Vit C as precursor)
- Tropical fruits (guava, mango, kiwi, pineapple) zinc boosters
- Berries (Vit C)
- Garlic (sulfur)
- Leafy greens (antioxidants)
- Beans (protein, copper)
- Cashews (non animal protein, Amino acids)
- Tomatoes (Vit C, lycopene)
- Bell Peppers (capsaicin) helps with anti-aging)

Additional Information

<https://culinarymedicine.org/moodle/course/view.php?id=513>

<https://culinarymedicine.org/moodle/mod/url/view.php?id=194091>

The video lectures in this course were presented at Health meets Food: The Culinary Medicine Conference over the course of the last few years. Many of the lectures fit very well as optional information that **complements the Health meets Food Professional Student Programming**.
Webcasts are made possible by an educational grant from:



References and Links:

- [https://www.dietaryguidelines.gov/sites/default/files/2019-05/2015-2020 Dietary Guidelines.pdf](https://www.dietaryguidelines.gov/sites/default/files/2019-05/2015-2020_Dietary_Guidelines.pdf)
- [Figuring Out How Many Calories You Burn Every Day \(verywellfit.com\)](#)
- Comparison of the Atkins, Zone, Ornish, and LEARN Diets for Change in Weight and Related Risk Factors Among Overweight Premenopausal Women; The A TO Z Weight Loss Study: A Randomized Trial (JAMA 2007;297:969-977)
- Powers, C. & Hess, M.A. (2013). *Essentials of Nutrition for Chefs (2nd ed)*. Culinary Nutrition Publishing, LLC.
- Culinary Institute of America (2013). *Techniques of Healthy Cooking (4th Ed)*. John Wiley & Sons, INC
- *Trakselis, L J; Stein, EM (2014). Culinary Nutrition- Principles and Applications* American Technical Publishers, Inc.
- Rees K, Takeda A, Martin N, Ellis L, Wijesekara D, Vepa A, Das A, Hartley L, Stranges S. Mediterranean-style diet for the primary and secondary prevention of cardiovascular disease. Cochrane Database of Systematic Reviews 2019, Issue 3. Art. No.: CD009825. DOI: 10.1002/14651858.CD009825.pub3.
- *Chaput JP, Després JP, Bouchard C, Tremblay A. The Association Between Sleep Duration and Weight Gain in Adults: A 6-Year Prospective Study from the Quebec Family Study. Sleep. 2008 Apr 1; 31(4): 517–523. PMID: 18457239*
- *Kripke DF, Simons RN, Garfinkel L, Hammond EC. Short and long sleep and sleeping pills. Is increased mortality associated? Arch Gen Psychiatry. 1979;36:103–116. [PubMed] [Google Scholar]*
- <https://culinarymedicine.org/moodle/course/index.php?categoryid=34>
- *The Goldring Center for Culinary Medicine, Tulane University*
- <https://www.drqourmet.com/>
- <https://culinarymedicine.org/moodle/course/view.php?id=513>

“That's All I *Have* To
Say About That..”
Forrest Gump



Post talk questions.

1. What is the definition of obesity?

Select one:

- a. BMI greater than or equal to 28
- b. BMI greater than or equal to 30
- c. BMI greater than or equal to 35
- d. BMI greater than or equal to 20

2 Which of these foods needs to be cooked to at least 160 F?

Select one or more:

- a. Pork
- b. Chicken
- c. Fish
- d. Egg casseroles

Post talk questions.

3. A 53-year-old male with high blood pressure tells you that he has begun substituting turkey bacon for pork bacon in an effort to improve his health. Why is this not perhaps the best idea?

Select one:

- a. turkey bacon has more calories than pork bacon
- b. turkey bacon has more saturated fat than pork bacon
- c. turkey bacon is higher in sodium than pork bacon
- d. turkey bacon has less protein than pork bacon
- e. turkey bacon has less iron than pork bacon

4. Which is not one of the purposes of fat in cooking?

Select one:

- a. prevents sticking
- b. mouthfeel
- c. separate starch
- d. provide moisture
- e. provides umami

Post talk questions.

5. A 24-year-old male has decided to begin a vegetarian diet but is concerned about getting enough protein and not becoming deficient in any amino acids. He friend told him that if you don't eat animals, you aren't getting a "complete protein." You can inform him that on the contrary he can combine plant foods over the course of a day to get all essential amino acids, and there are two notable plant sources that contain all nine essential amino acids and are thus complete proteins. What are those?

Select one:

- a. amaranth and pinto beans
- b. quinoa and amaranth
- c. millet and amaranth
- d. kidney beans and quinoa

Post talk questions: Answers

Answers:

1. B
2. B
3. C
4. E
5. B