

FOOD, MICROBIOME AND HEALTH

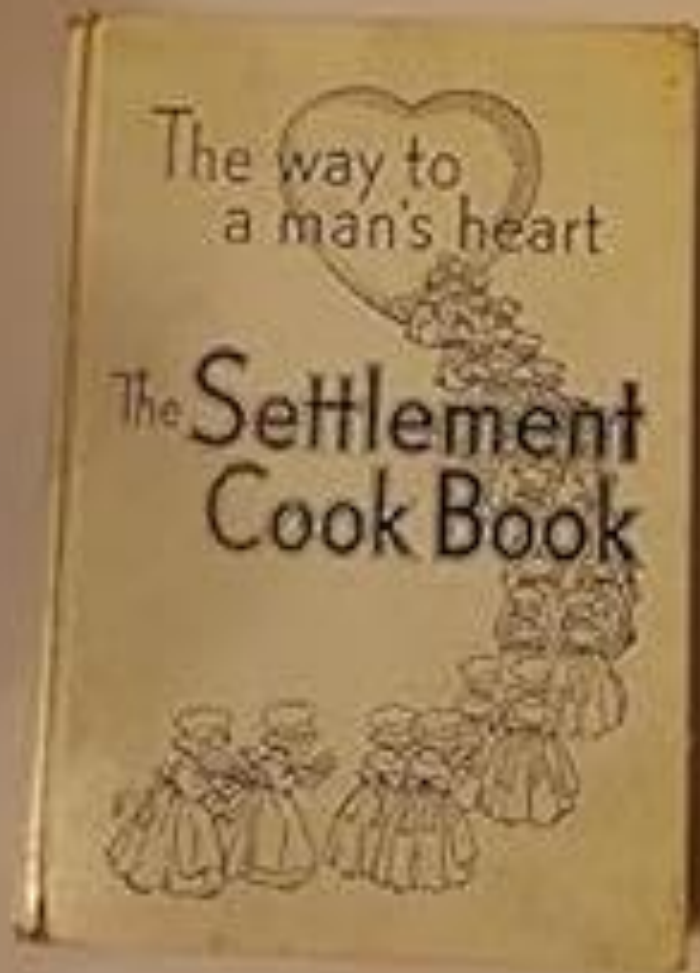
THE “METABOLIC SYNDROME”
WHAT, WHY, AND HOW

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(GRINNELL, COLUMBIA U, RUSH MED, CEDARS-SINAI, UW)



FOOD FOR THOUGHT:
WHY AND HOW TO FEED
YOUR GOOD GUT
BACTERIA SO THEY CAN
TAKE GOOD CARE OF YOU

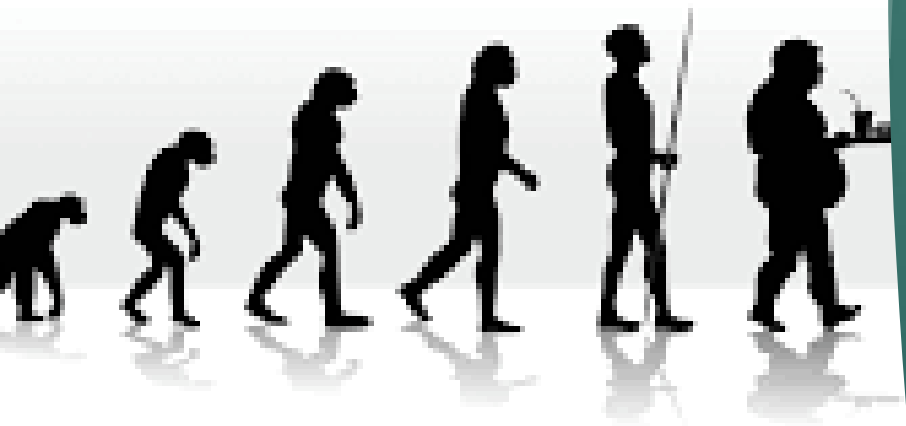




The Settlement
Cook Book
(Mrs Simon Kander)
1951

Tackling the Obesity Epidemic

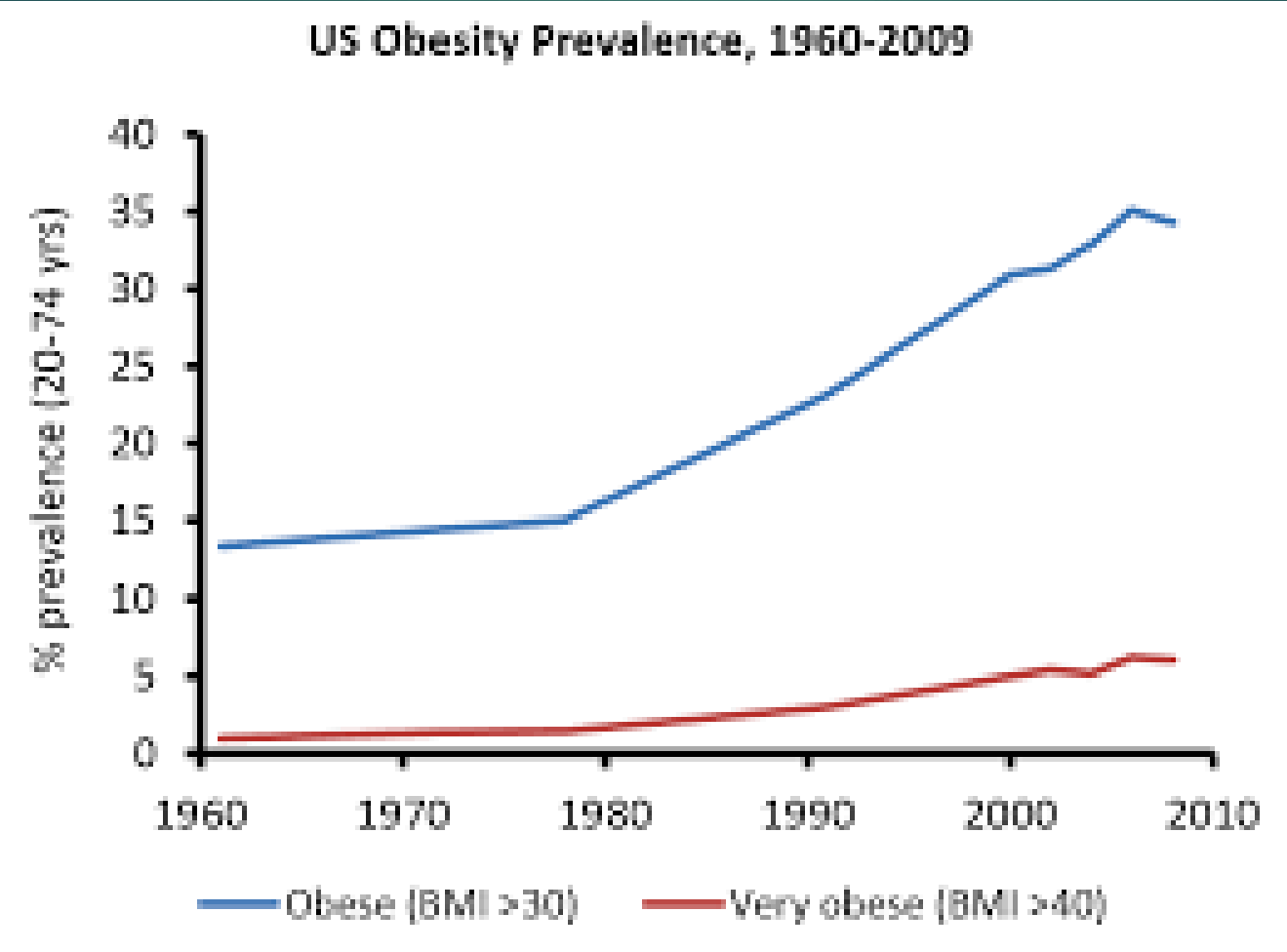
Professor Barry Popkin



EPIDEMIC Obesity & “Metabolic Syndrome”:

What is it
Why is it Bad
What Caused it
How to Fix it

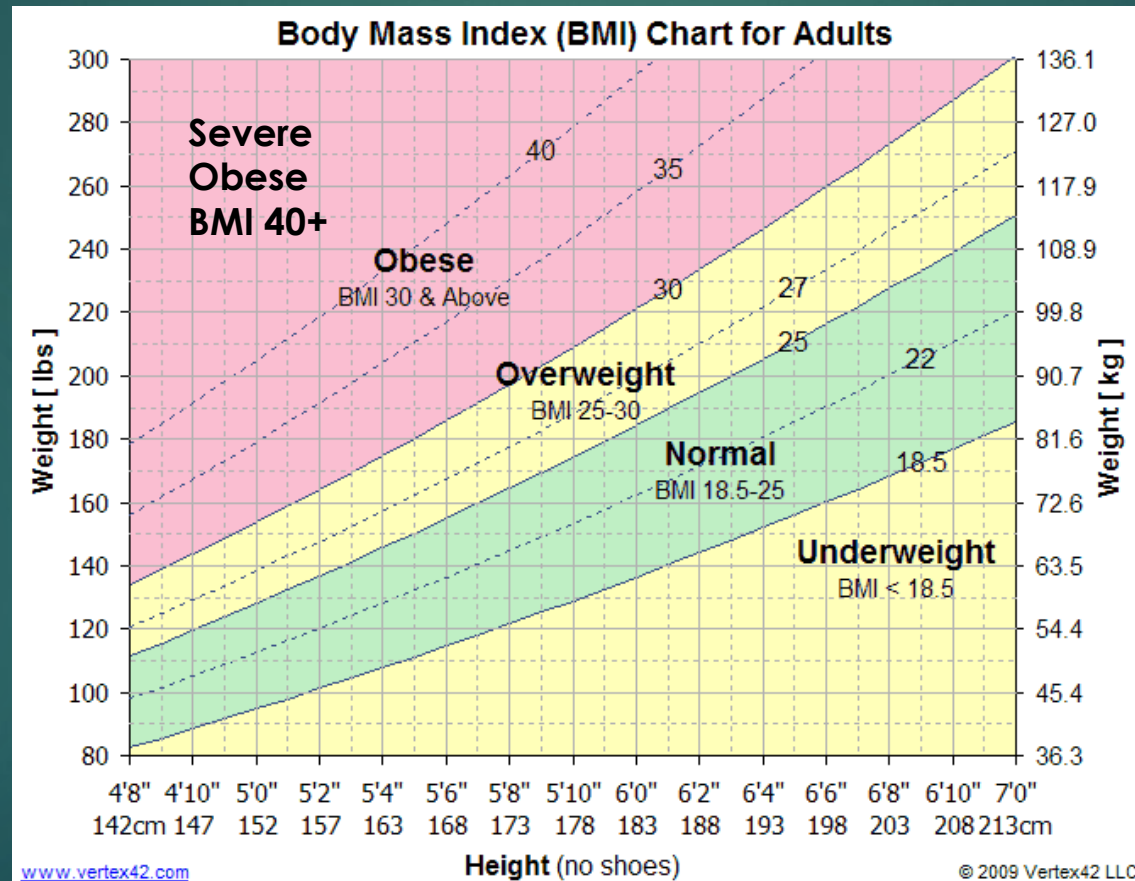
RISE SINCE 1960/TRIPLED 1980-2018 2023--42% “Obese (9% “Severely”)



BMI (BODY MASS INDEX) GRAPH

SIMPLIFIED (flawed) MATHEMATICAL *GUIDELINE*

BMI Math equation: $Wt (Kg)/Ht (meters, squared)$



CORRELATES, BUT DOES NOT DIRECTLY DEFINE HEALTH
(Not adjusted for gender and race, Lean vs Fat, or Fat Distribution)

OBESITY = EZ CATEGORIZATION

METABOLIC SYNDROME = DISEASE

- ▶ CENTRAL ABDOMINAL FAT = Visceral Adipose Tissue (VAT)
- ▶ ELEVATED BLOOD SUGARS (DMII)
- ▶ HARMFUL BALANCE OF FATS IN BLOOD (low HDL, high TGs)
- ▶ HYPERTENSION (High blood pressure)

LEADING DRIVER OF MOST OF MAJOR HEALTH PROBLEMS TODAY



“OBESITY” NOT NECESSARY FOR METABOLIC SYNDROME

29% “Normal Weight” have Metabolic Syndrome


Metabolic Syndrome

CONSEQUENCES:

- ▶ IMPAIRMENT: MI, CHF, CVA, CRF, DMII, Sleep Apnea, PCOS, Depression, Anxiety and Cognitive Decline/Dementia
- ▶ DISABILITY: Missed work, Hospital Day Stay per dx, Back/Joints
- ▶ CANCER: (liver, kidney, breast, endometrium, prostate, colon)
- ▶ PREMATURE MORTALITY

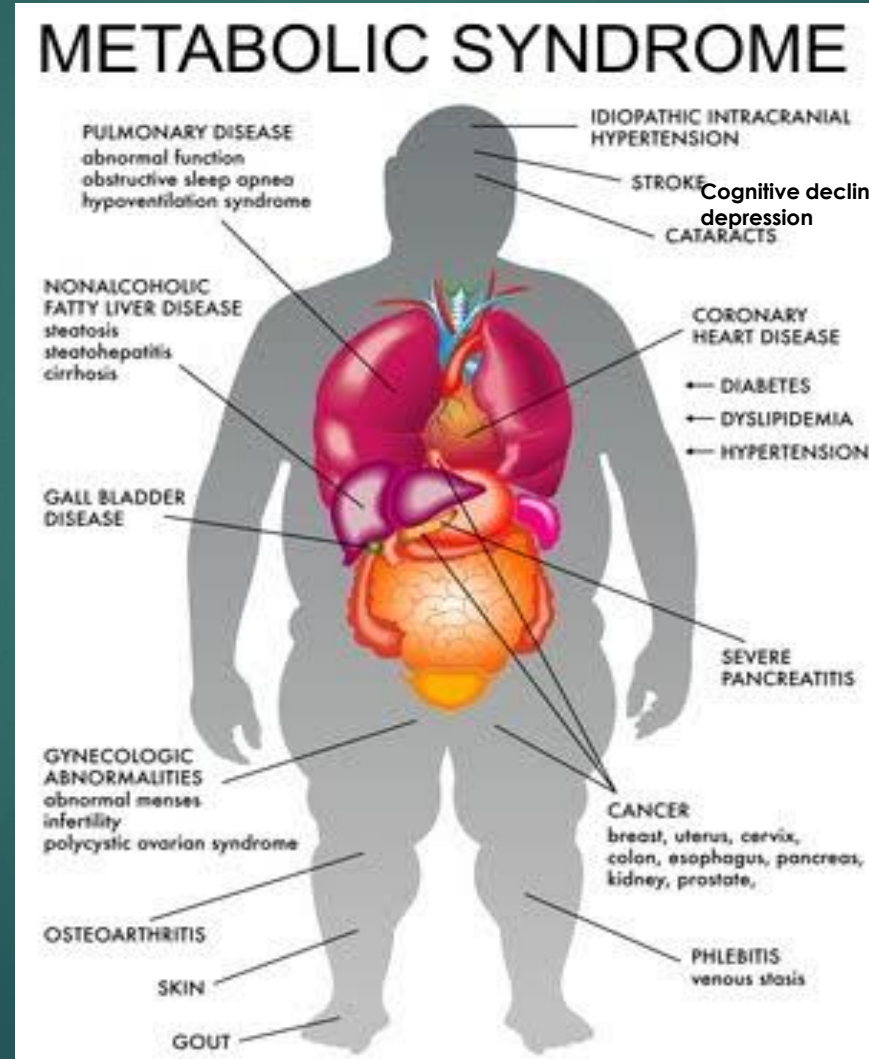
MetSyn

LEADING PREVENTABLE PREMATURE MORTALITY

- ▶ 695,000 deaths from heart disease
- ▶ 140,000 deaths from stroke
- ▶ 78,000 liver deaths 2030 (28K 2015)
- ▶  Risk of death from Covid 19 (RR~2.3)

↓ QOL & EARLY DEATH

**CHRONIC LOW
GRADE
"SYSTEMIC"
(whole body)
INFLAMMATION**



No organ is spared

USA LIFE
EXPECTENCY
2023 (WHO)

USA 47 in world

Below Puerto Rico

Barely above Albania

HEALTH CARE PRIORITIES\$: Disease TREATMENT NOT PREVENTION

- ▶ Metabolic Syndrome 21% of \$3.5 Trillion health-related expenditures
- ▶ Total pharmaceutical \$450 billion (B4 OZEMPIC/GLP1 \$20B—soon \$100B)
- ▶ New drugs research \$60 billion

.....

PREVENTION:

- ▶ Nutrition research \$1.5 billion
- ▶ Physical Education avg \$764/year/school



ORIGINS: CAUSES & CURE

OBESITY AND METABOLIC SYNDROME



ORIGINS: 3 Body Problems

What we Don't Do

Foods we Don't Eat

Foods we Do Eat



ORIGINS: 3 Body Problems

What we Don't Do

Foods we Don't Eat

Foods we Do Eat

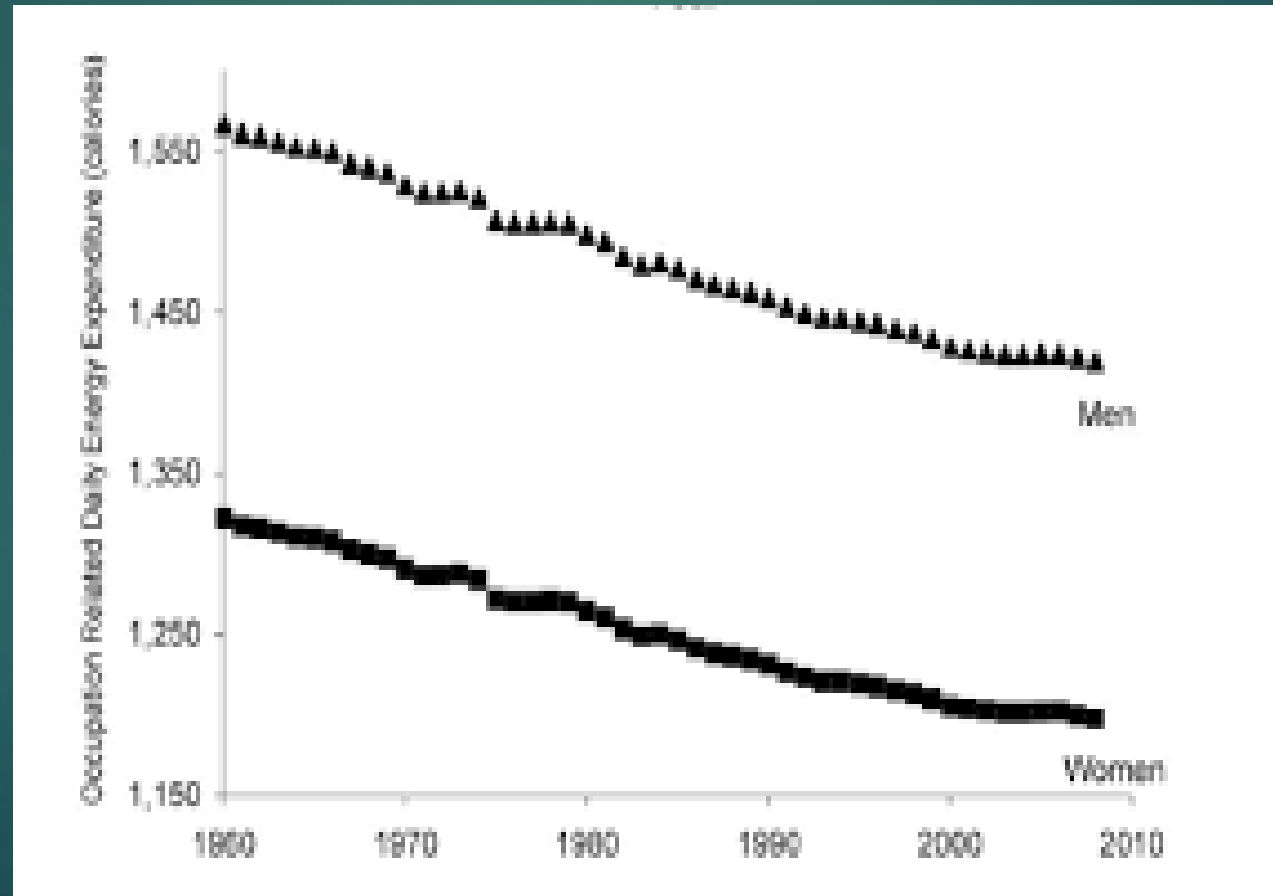
DECLINE ENERGY (Kcal) EXPENDED

WE DON'T MOVE ENOUGH!

- ▶ Began in 1960's
- ▶ Decreased physical activity (**sedentary**)
- ▶ Physical activities replaced by
 - ▶ Machines
 - ▶ Cars
 - ▶ TV/ELECTRONIC STREAMING (8 hrs/day) even B4 Covid!

DECLINE ENERGY EXPENDED

Kcal (“calories”)

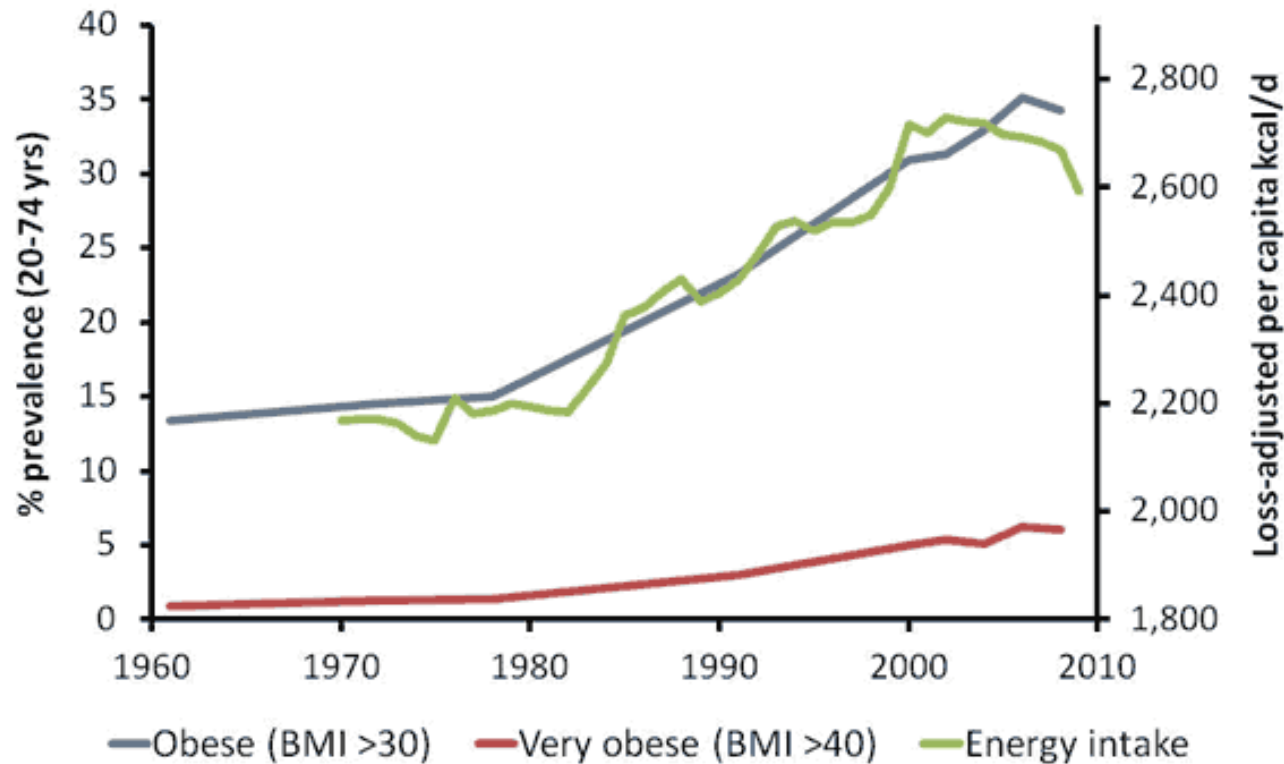


RISE ENERGY (Kcal) INTAKE

Processed Foods—sugars, salt, low fiber

Energy Intake And Obesity

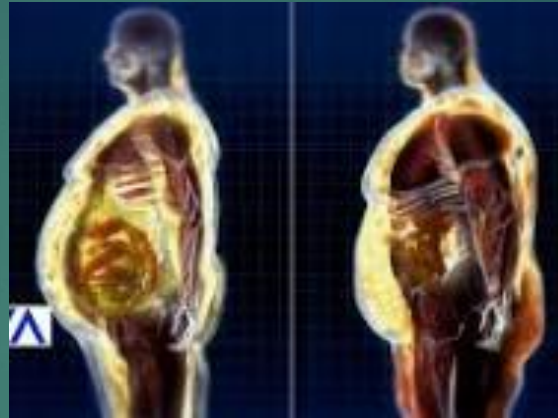
Obesity and Energy Intake in the US, 1961-2009



CDC NHES and NHANES 1960-2008

USDA ERS loss-adjusted food disappearance

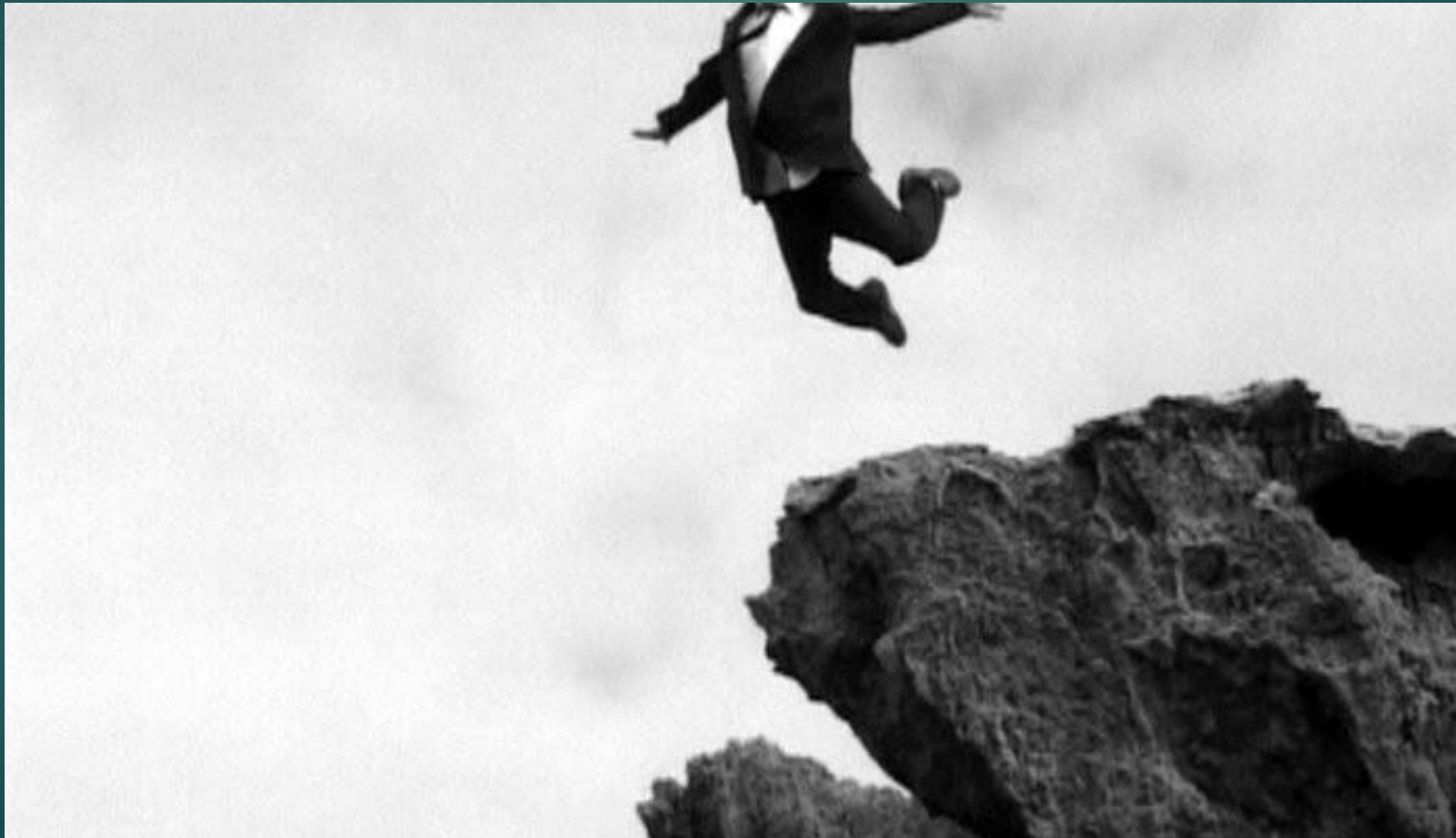
Arithmetic of Obesity



1 lb of human fat = 3500 Kcal

(Calories in Big Mac Combo = 1120; Calories jogging 15 min = 150)

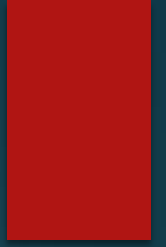
From Obesity to Metabolic Syndrome



PLOT ALL POINTS
AND A PICTURE
EMERGES



OBESITY: Food Quantity
MetSyn: Food Quality
(“Ultraprocessed”)



ORIGINS: WHAT WE EAT SINCE 1960 (FOOD QUALITY--ULTRAPROCESSED)

Consumers:

- ▶ Convenience=**Fast, not fresh**
 - ▶ Prep Time: > 2 hours 1960, 37 min 2015 (prep, serve, cleanup)*

Businesses:

- ▶ Convenience (Fast, Pre-Prepared MRE=Not Fresh +Storage—
TRADEOFF < <Quality)
- ▶ Consumption (>Quantity--+Sweeteners & Salt, remove Fiber)
- ▶ **Politic\$** (Short Term constituent pander vs Public Health):



CORN POLITICS

\$2.3 BILLION

- ▶ **Unprocessed:** Nutritious, source of fiber, vitamins

Processed:

- ▶ High Fructose Corn Syrup (caloric and inflammatory)
- ▶ Corn Oil (>n6/n3—inflammatory)
- ▶ Cattle Feed (antibiotics, n6FA vs n3FAs, saturated fats--inflammatory)



ORIGINS: 3 Body Problems

What we Don't Do

Foods we Don't Eat

Foods we Do Eat

FOODS WE **DON'T EAT**: (What's Missing)--FIBER

FIBER

- Removed to “refined” grains:
White flour, breakfast cereals
- Not Enough (less convenient):
<Vegetables/fruits/legumes/beans

DIETARY **FIBER***

*KEY to understanding origins

- ▶ “Complex carbohydrates” not digested in the small intestine (non-caloric)—gets to lg intestine
- ▶ Sources: Whole grains, legumes/beans, vegetables, fruits, seeds and nuts

MECHANISMS: WHY FIBER IN FOOD MATTERS

OBESITY

- ▶ Chew more (eat slowly)
- ▶ Takes up space—satiety (stretch receptors/"volumetrics")
- ▶ Delays stomach emptying—
 - Smaller spikes of sugar/insulin after meals
 - Less likely hungry again in 2 hrs
- ▶ Non-caloric
- ▶ (Waste elimination)

MECHANISMS: WHY FIBER MATTERS MOST

METABOLIC SYNDROME

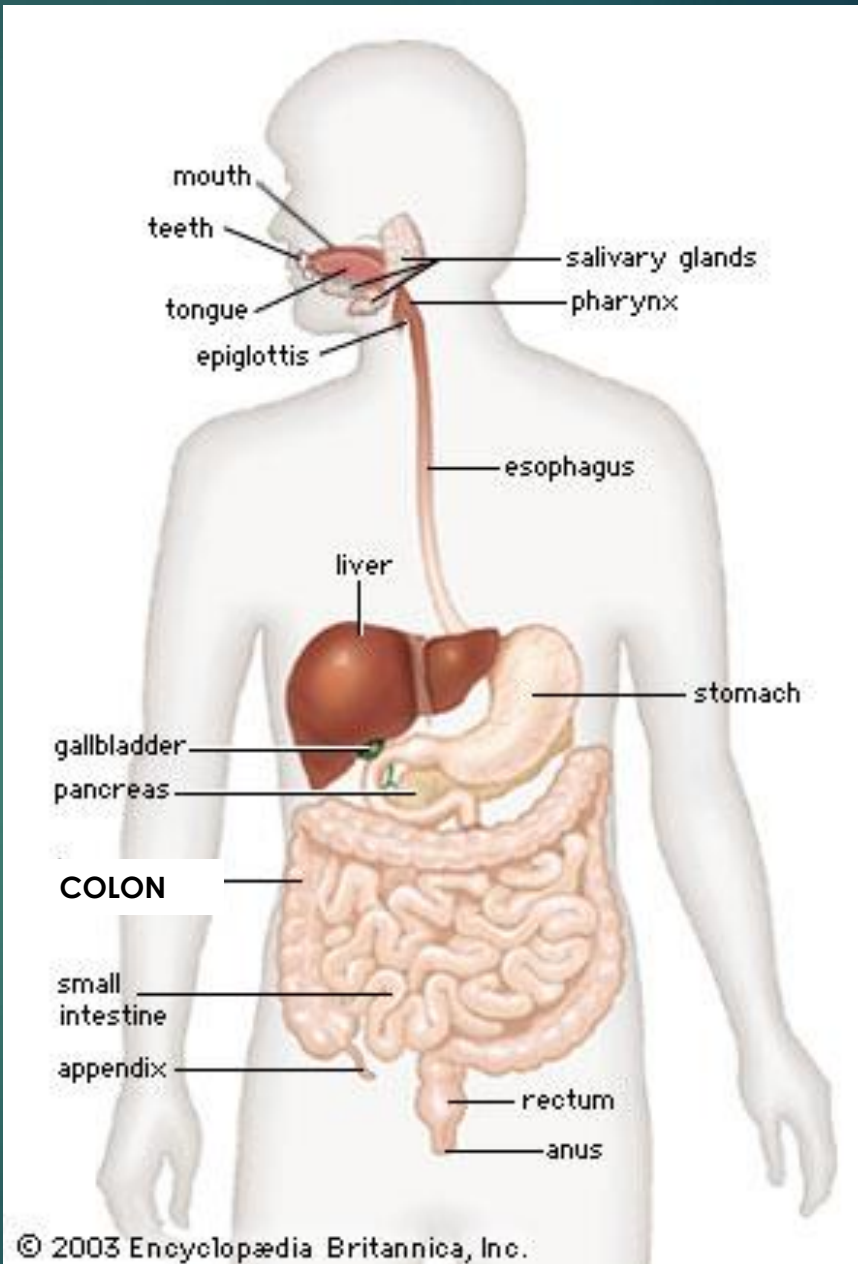
- ▶ Fiber is the essential food for the most important good bacteria in our **gut “microbiome”**
- ▶ **Feeding those bacteria fiber is a KEY component to blocking the systemic (whole body) INFLAMMATION of the Metabolic Syndrome**

DIGESTIVE TRACT OVERVIEW

Hollow tube-
Outside environment
Through Central “Lumen” (opening)
Surrounded by “Endothelial Cells”:
What gets absorbed
What stays out


SMALL INTESTINE:
(Digestion/**Absorption**)

COLON:
1) Trash compact/**Waste Elimination**
2) Home to **Gut Microbiome**



Gut MICROBIOME-CONTENTS

- ▶ **MICROBIOME:** “the combined microorganism with genetic material in particular environment”:
(bacteria, archaea, fungi, viruses, protozoa)
- ▶ 100 trillion microbes, 10-100 X human cells
- ▶ Over 1000 diverse bacteria species



Conceptually, having trillions of bacteria that course through a tube inside our body does not seem prudent

IT WORKS BECAUSE OUR SPECIFIC GUT MICROBIOME HAS EVOLVED WITH US FOR A MUTUALLY BENEFICIAL (SYMBIOTIC) RELATIONSHIP

BACTERIA RULE EARTH 3.5 BILLION YEARS

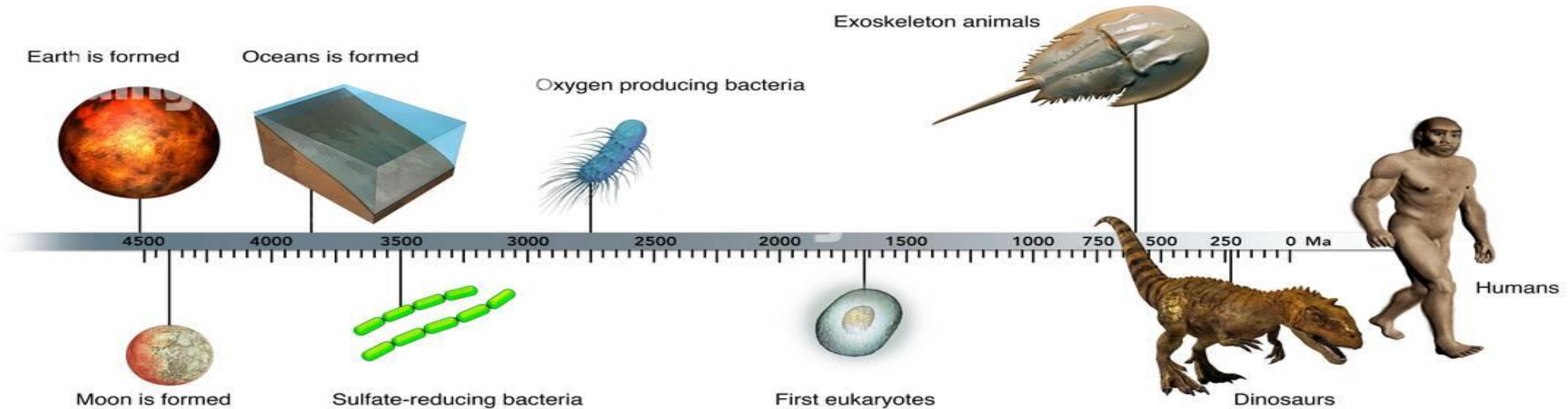
HUMANS 100 K YEARS

We exist only because of “**symbiosis**”=**mutual benefit**:

If certain bacteria did not protect us, we’d have been killed and eaten.

1000 species (out of 1 billion) fight to defend us to grow us as their home.

For those bacteria to take care of us, We must take care of them



Five million trillion trillion (10^{30}) living bacteria

8.1 Billion living humans

“In Nature, Nothing Exists Alone”



Rachel Carson

Silent Spring

(1962)

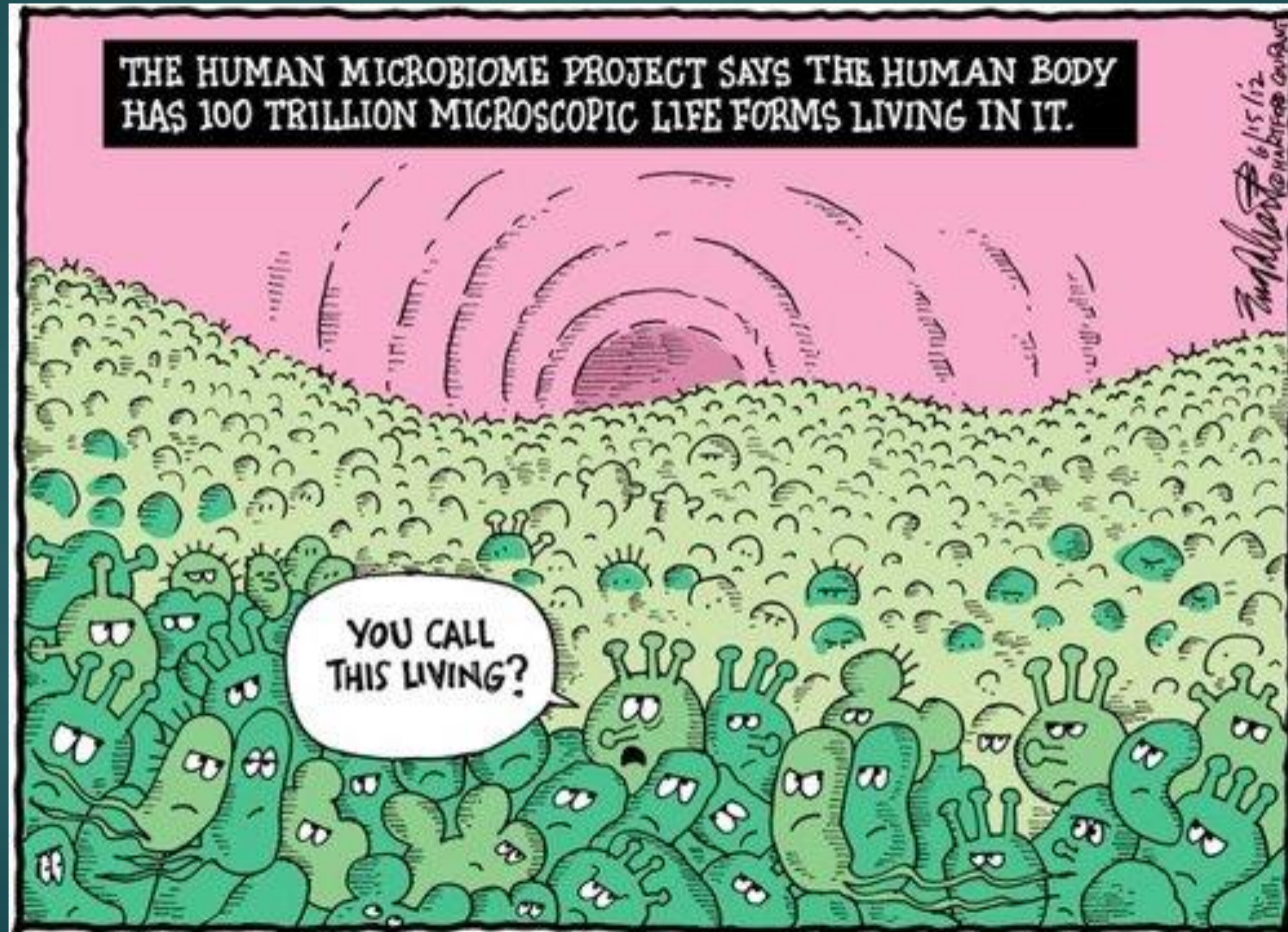
Microbiome in the Colon— FUNCTIONS

Busy Factory: Guilds of trades—specialized fxns—variety&diversity

- ▶ Waste management
- ▶ Support each other (food supply, mutual defense)...and us (Home):
- ▶ Protect us: Teach immune system Self vs Non-Self
 - Together we fight invaders that could harm or kill us
- ▶ **Metabolites impact brain:** satiety, cravings, mood (anxiety,depression)
- ▶ **Metabolites impact metabolism of every organ & tissue** in our body:
- ▶ MetSyn is transmissible with FMT—humans to mice, humans to humans

MICROBIOME IS LARGEST HUMAN ORGAN

ORGAN: "A relatively independent part of the body that carries out one or more special functions"

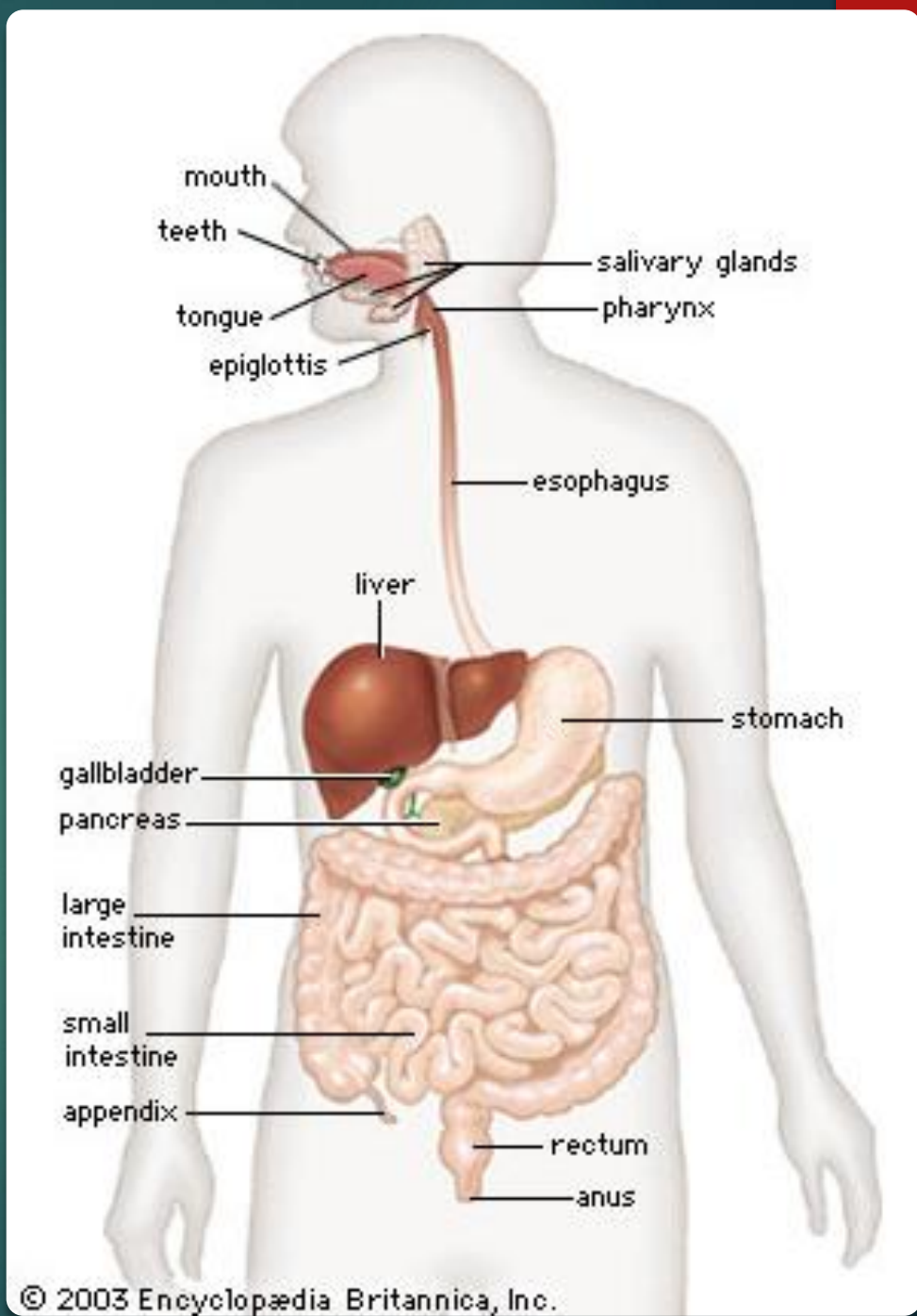


THE PROBLEM:

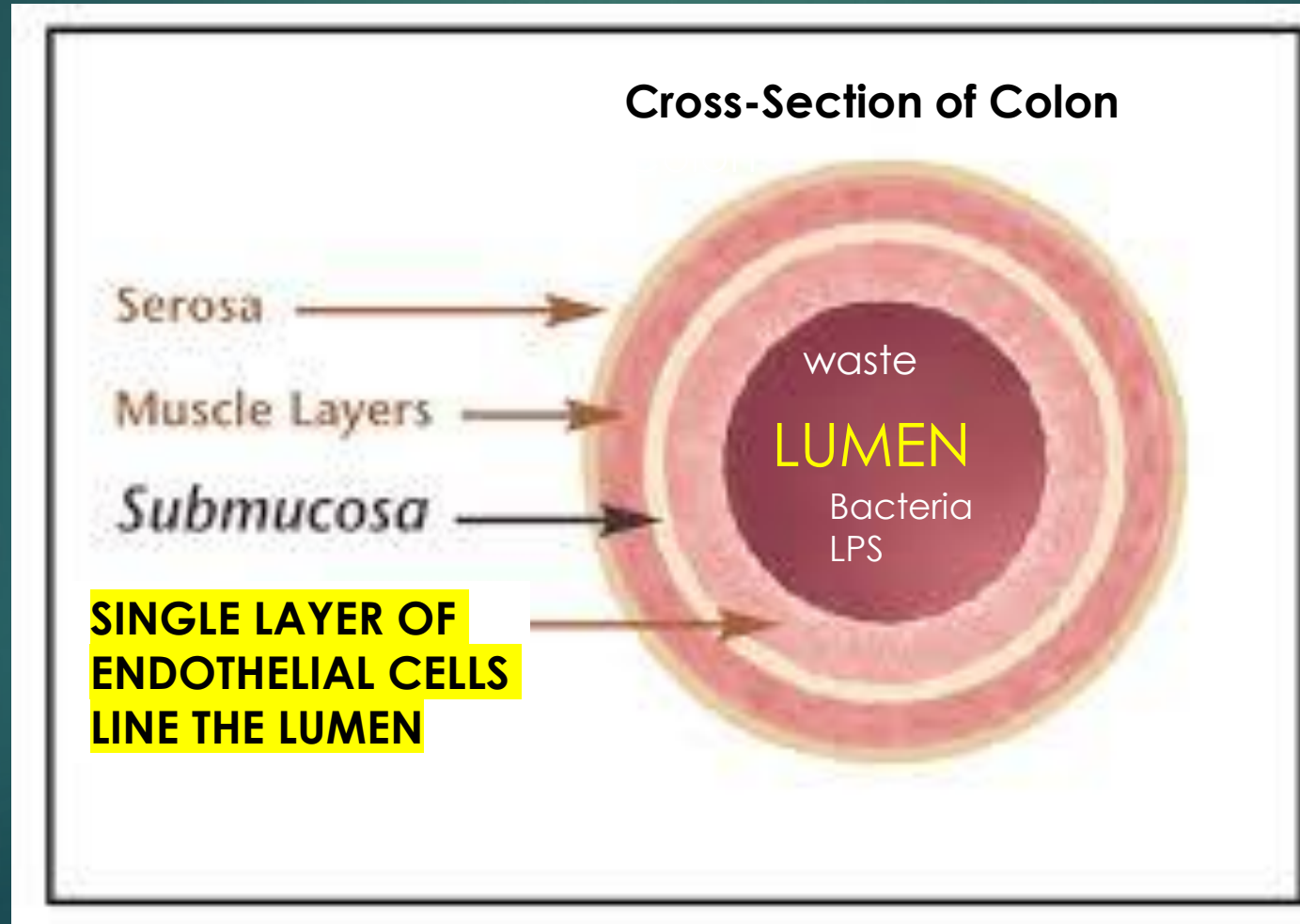
SOME OF EVEN GOOD GUT BACTERIA DIE DAILY

- ▶ Certain (“gm –”) bacterial wall components are toxic “**lipopolysaccharides**” (**LPS**)
- ▶ Ideally we eliminate LPS in our stool—no problem!
- ▶ If **LPS** seep into our body through colon wall, become “**Endotoxins**”:
- ▶ Endotoxins cause inflammation: Can kill us fast (“Endotoxic Shock”) or slowly (Metabolic Syndrome)

Digestive Tract:
Lg Intestine (colon)
processes waste



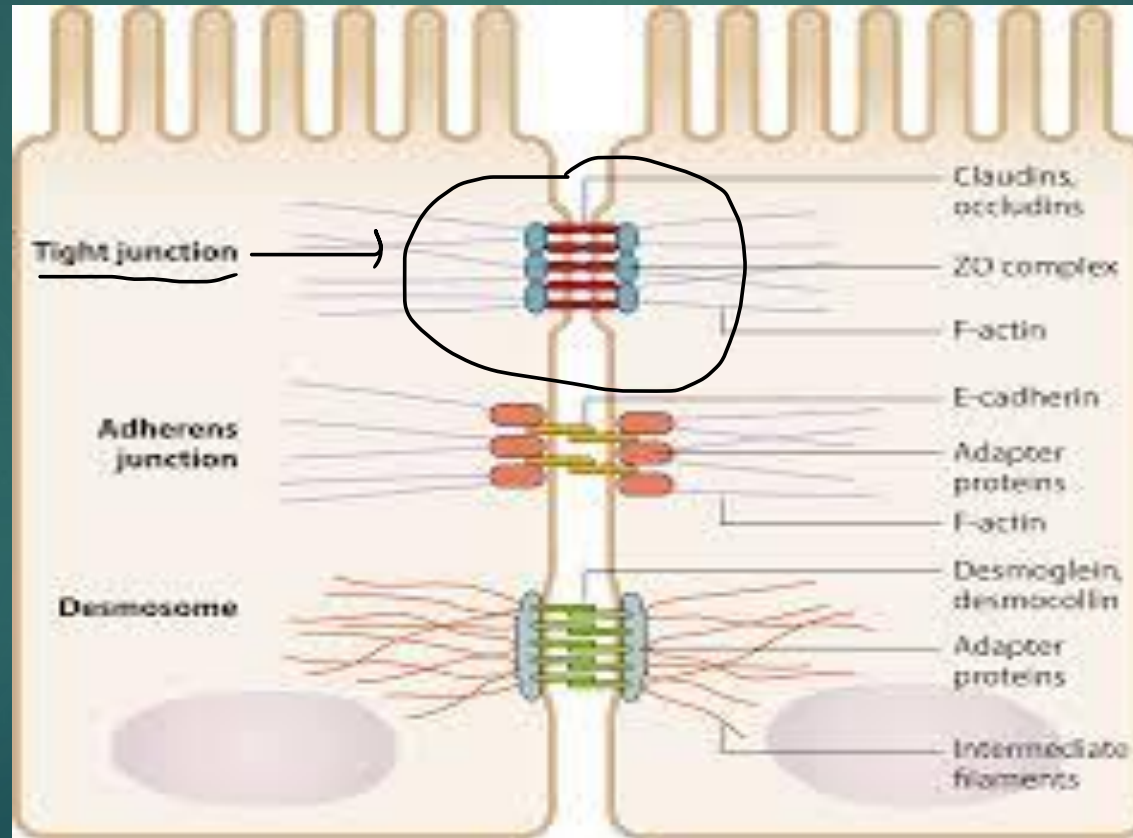
SINGLE LAYER OF "ENDOTHELIAL CELLS" LINING COLON LUMEN= 1ST LINE OF DEFENSE vs LPS/ENDOTOXINS



BETWEEN ANY TWO ENDOTHELIAL CELLS: **TIGHT JUNCTIONS** (fxn like “cell-ophane” wall) KEEP ENDOTOXINS EXTERNALIZED WITHIN LUMEN

Lumen/internal aspect of endothelia **This way out!** 

Impermeable wall between cells

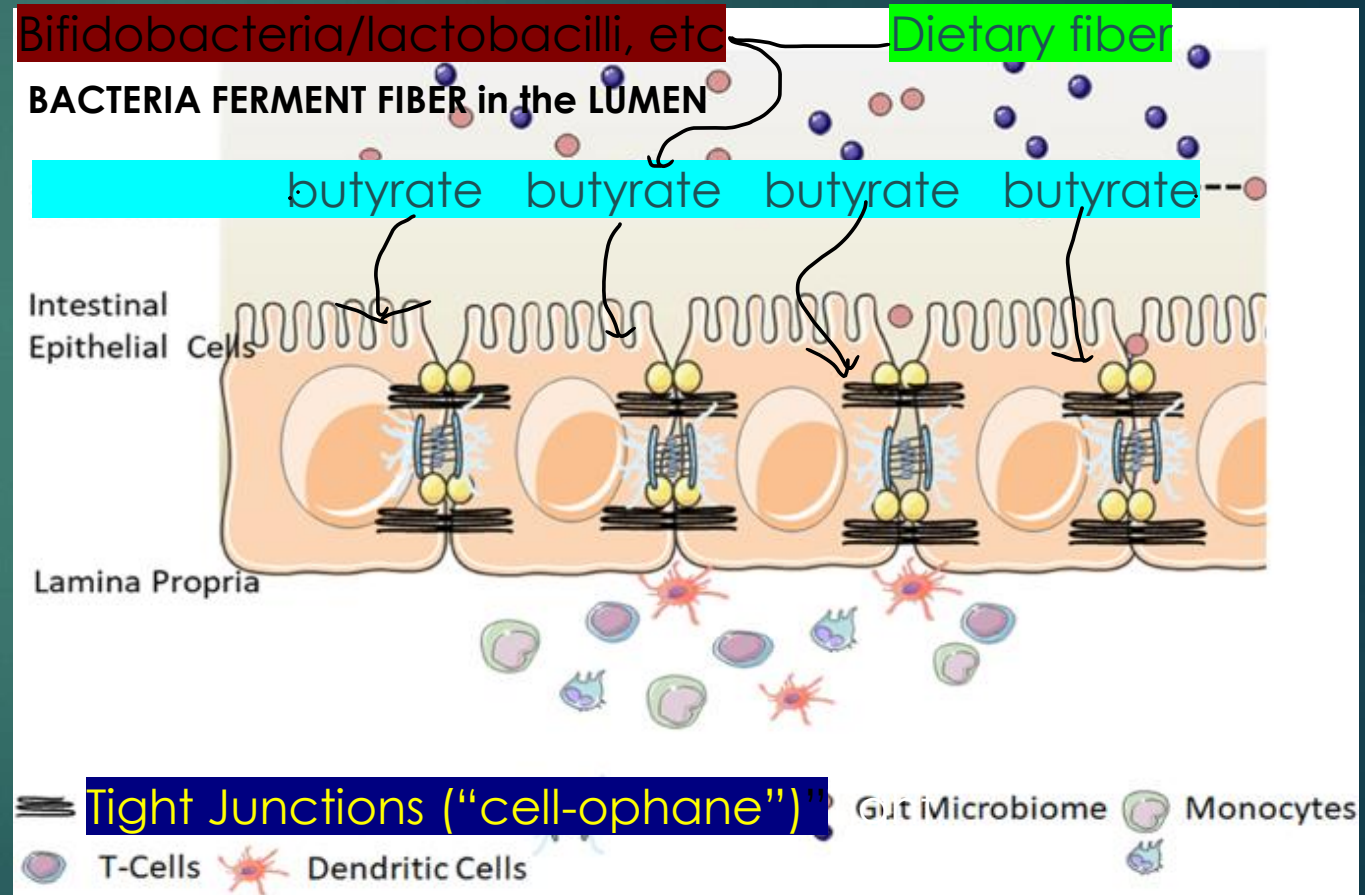


Submucosa side/lamina propria-
(towards inside of our body)

TO MAKE “cell-ophane” TIGHT JXNS, COLON ENDOTHELIAL CELLS REQUIRE

BUTYRATE

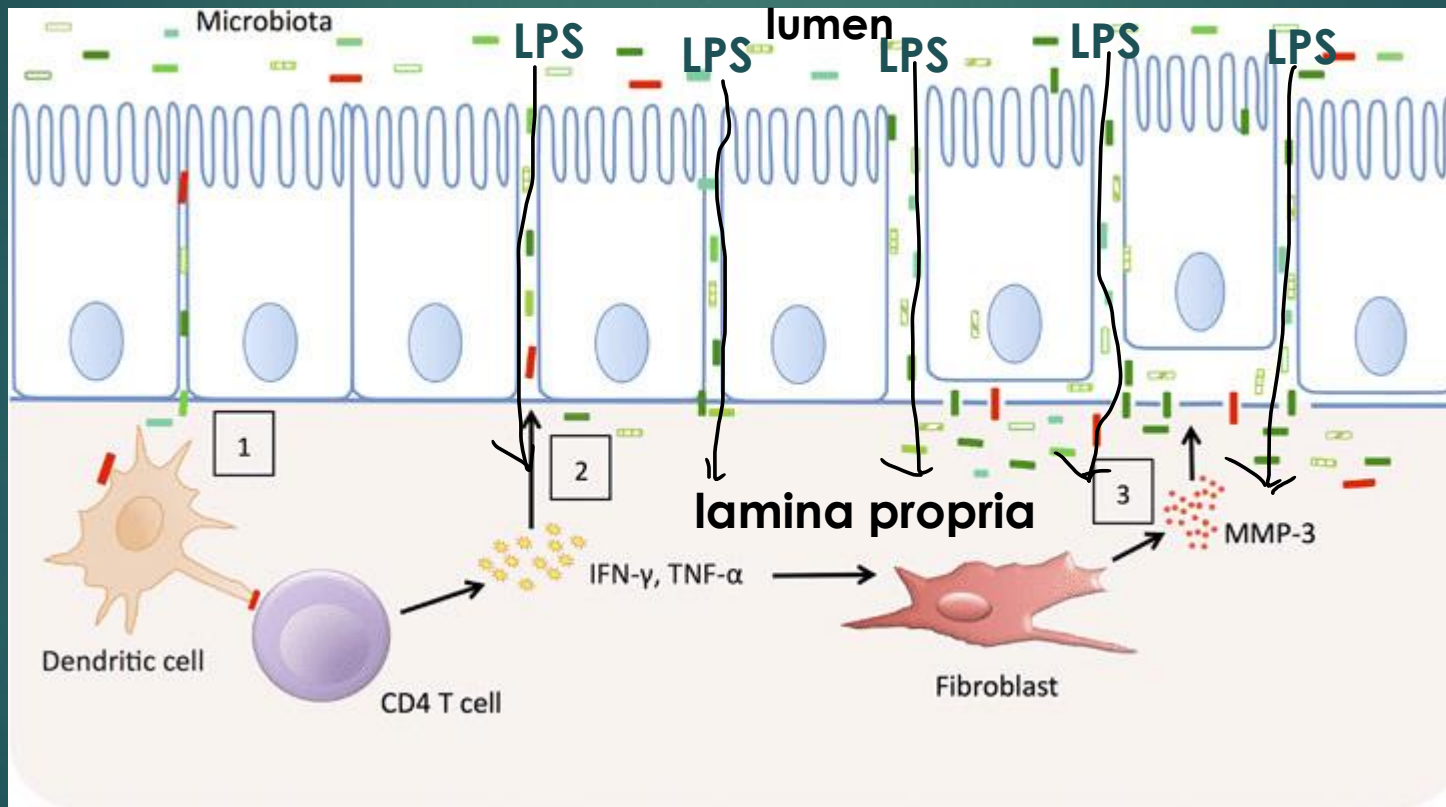
- ▶ Butyrate:
Byproduct:
certain bacteria
ferment dietary
fiber in the lumen



BUTYRATE PRODUCTION

- ▶ **SPECIFIC BACTERIA:** (Bifidobacteria, Lactobacilli, Prevotella, Akkermansia, Faecalibacterium)
- ▶ **Eat (ferment) fiber** for their own survival
- ▶ **Byproducts** of fermentation = **SCFAs:** acetate, **butyrate** and propionate (all bioactive)

INSUFFICIENT BUTYRATE— Low Fiber &/or “Dysbiosis”=not enough good bacteria: ENDOTHELIAL DAMAGE, TIGHT JXNs FAIL: LPS LEAK INWARD

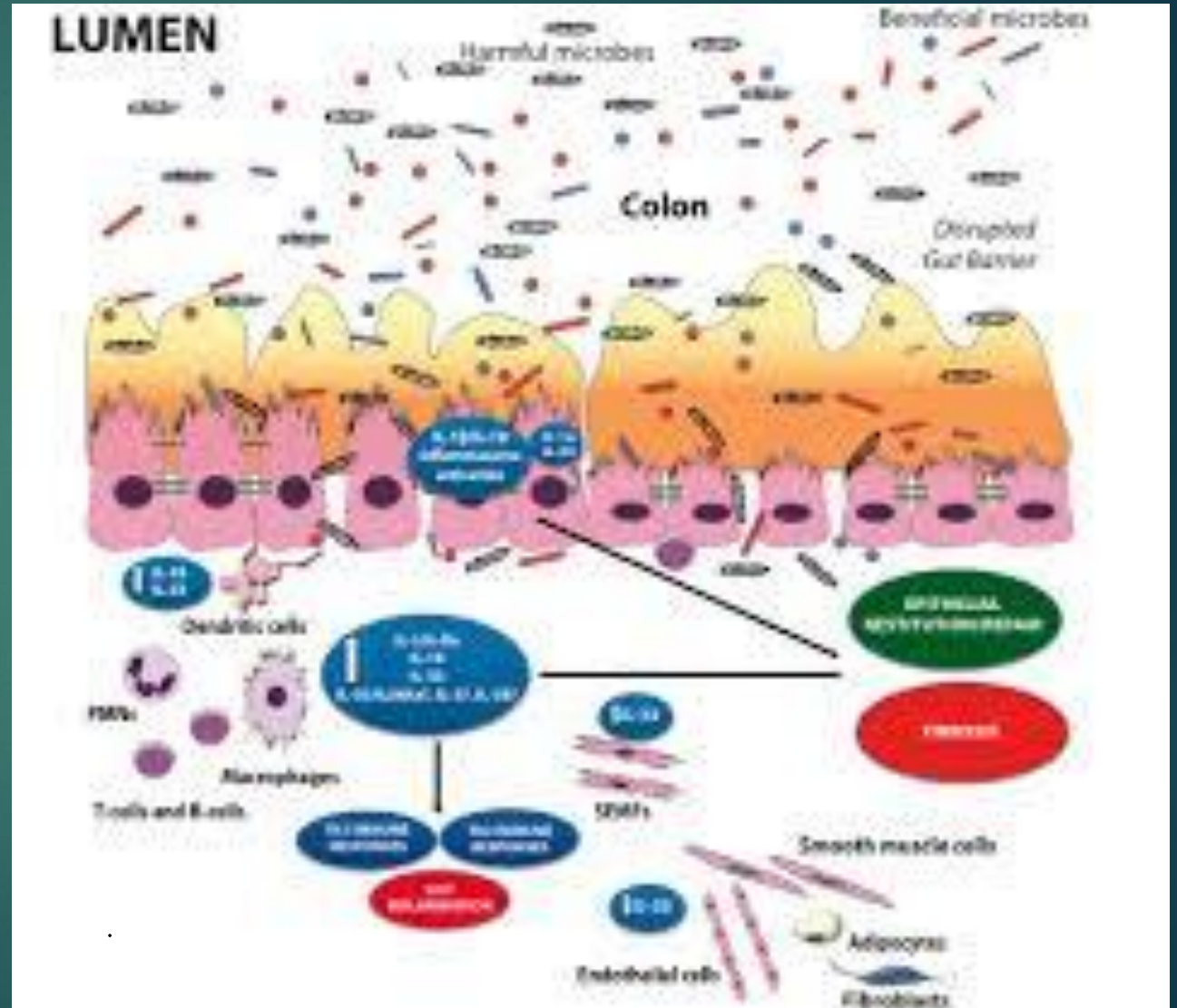


When Lipopolysaccharides Leak In

- ▶ Immune system cells go crazy trying to fight LPS (toxic debris chemicals from dead bacteria)
- ▶ Result is INFLAMMATION in the wall of our colon

INFLAMMATION: Immune system is fighting something that does not belong in our body

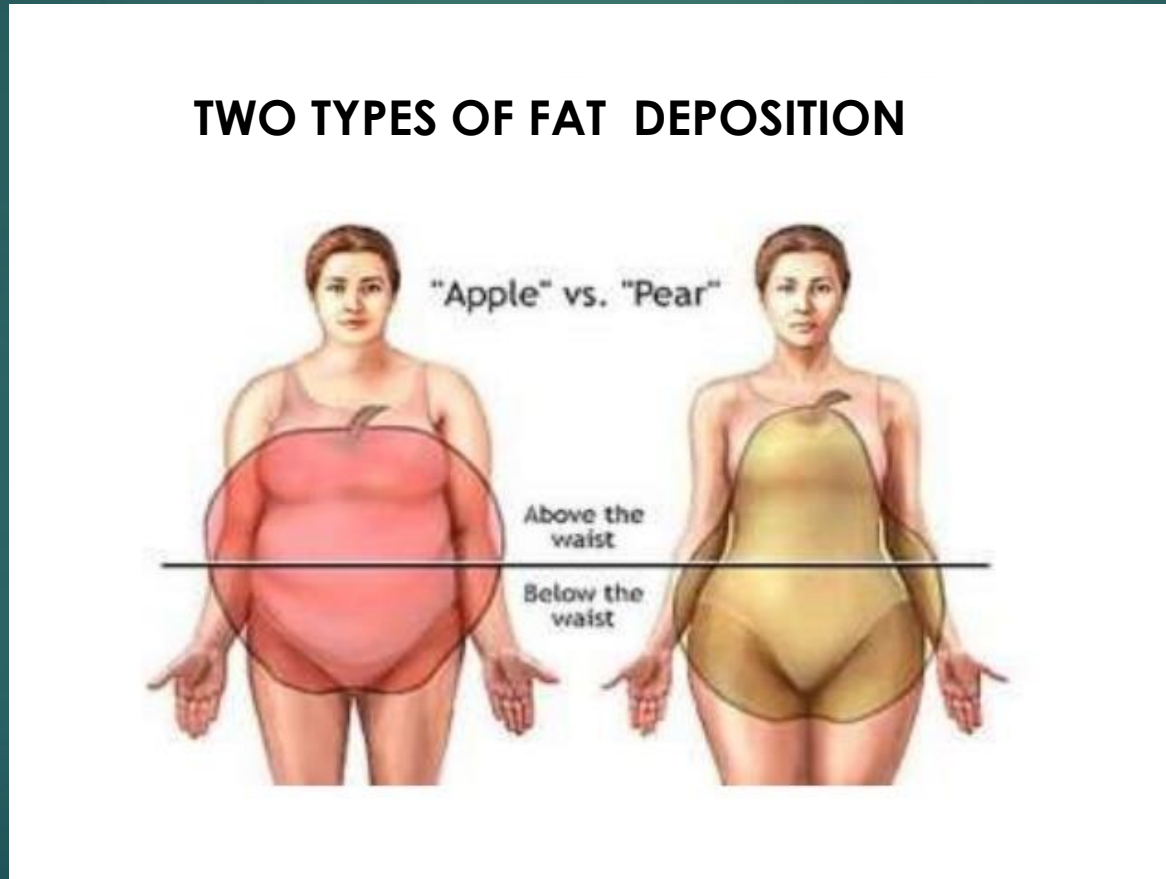
Inflammation migrates from the wall of the colon to reside in the “**Visceral Adipose Tissue**” --
Creates living tissue battery of inflammation that then sends inflammation to the rest of our bodies




VISCERAL ADIPOSE TISSUE (VAT)

Body Type: MetSyn CENTRAL ISSUE

VAT=
“battery”
storehouse
for
inflammation
originating
at the colon



Fat distribution,
not total
fat/weight

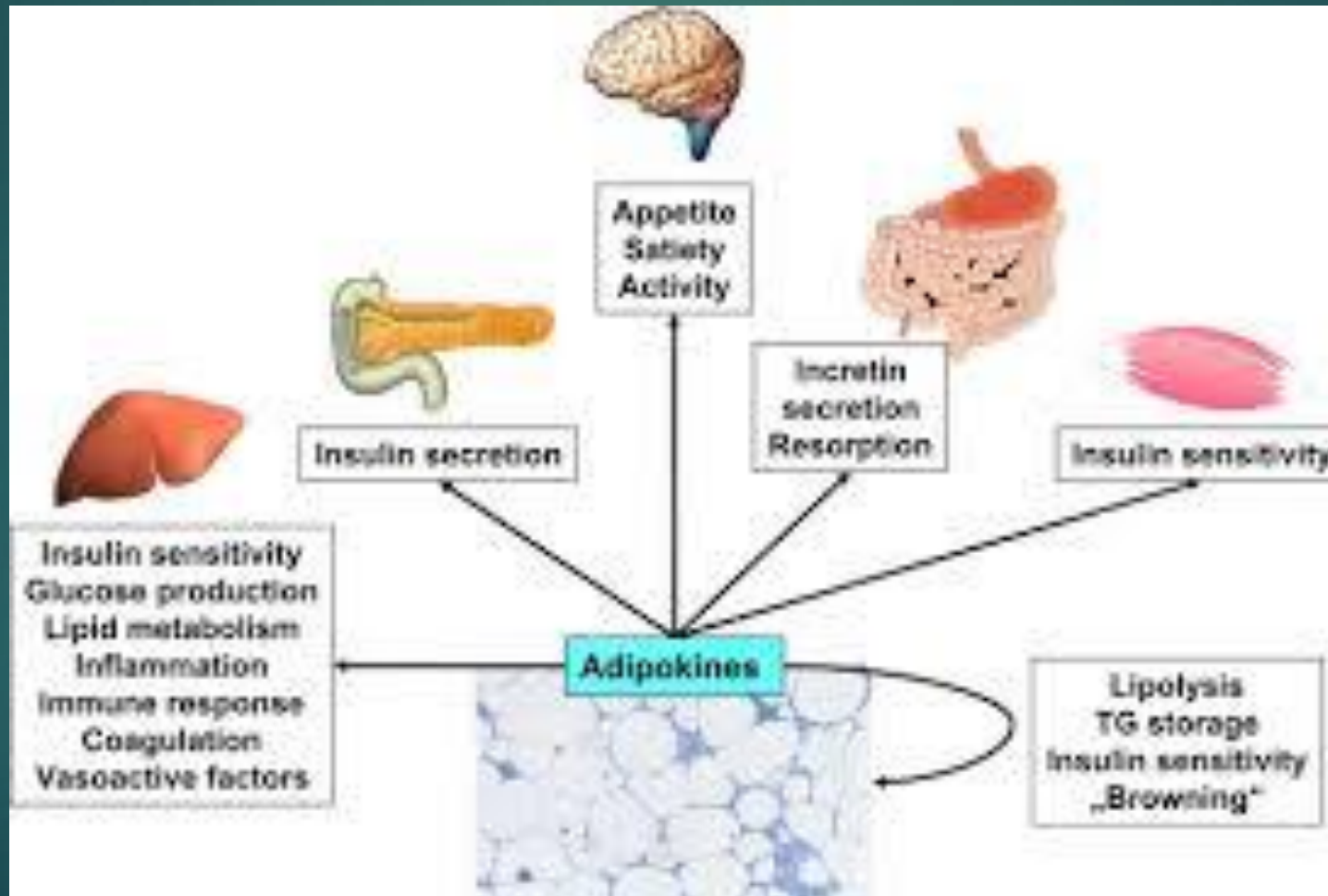


UNLIKE S.Q. FAT (under the skin),
VAT (Belly Fat) IS A COMPLEX
INFLAMMATION-GENERATING
FUNCTIONING BATTERY

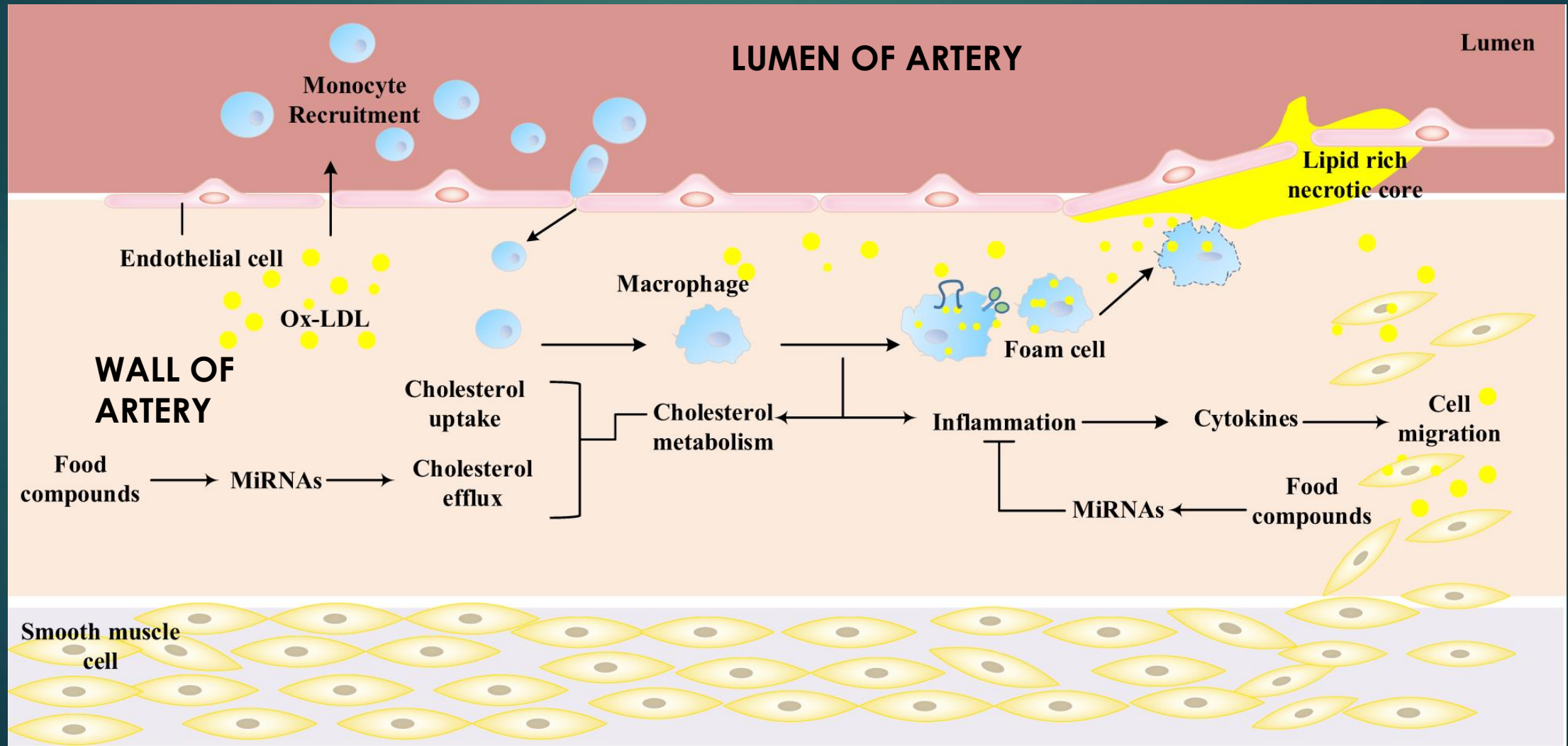
(MUCH MORE THAN CELLS STORING FAT)

CHEMICALS GENERATED FROM VAT INFLAMMATION SPREAD INFLAMMATION SYSTEMICALLY:

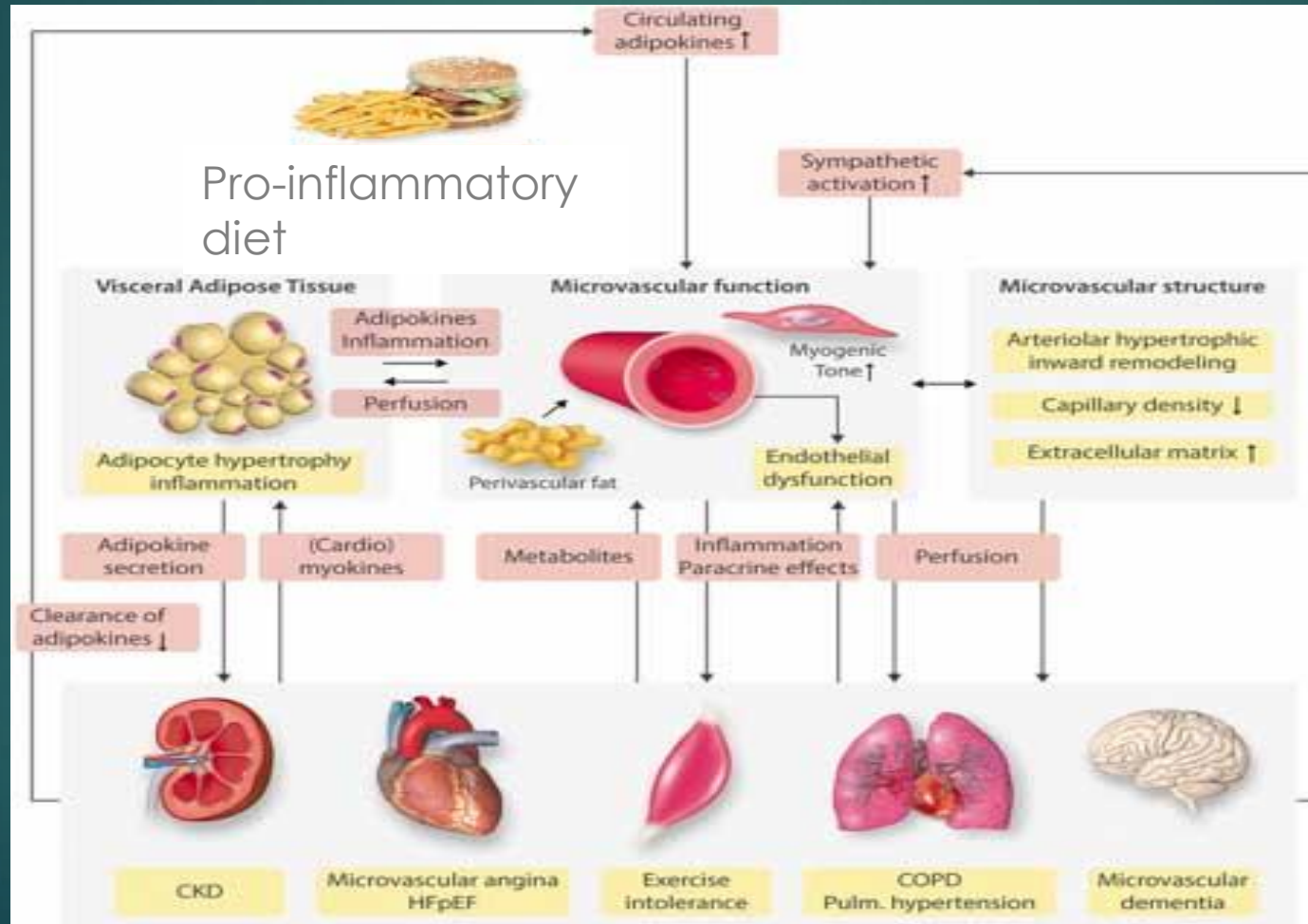
Blood sugar and bad fats rise, brain satiety sensors blocked



CHEMICALS OF INFLAMMATION (“adipokines” and “cytokines”) ALSO DAMAGE WALLS OF ARTERIES



INFLAMMATION in WALLS OF ARTERIES LEADS TO SYSTEMIC (whole body) ORGAN DAMAGE



COMPLICATED BUT SIMPLE:
EAT FIBER TO FEED GOOD BACTERIA to PRODUCE
BUTYRATE NEEDED TO BLOCK INFLAMMATION





ORIGINS: 3 Body Problems

What we Don't Do

Foods we Don't Eat

Foods we Do Eat

HOW OTHER COMPONENTS OF ULTRA-PROCESSED FOODS CONTRIBUTE TO METABOLIC SYNDROME?

- ▶ All **emulsifiers** damage endothelial cell wall integrity
- ▶ All **preservatives** have been associated with dysbiosis (alter the beneficial bacteria)
- ▶ All **sweeteners and excess salt** promote overconsumption (incl artificial)—excess calories increase size of VAT battery (bigger nest)

MANY NAMES FOR EMULSIFIERS

- ▶ ACACIA (GUM ARABIC)
- ▶ ACETEM (ACETIC ACID ESTERS)
- ▶ AMMONIUM PHOSPHATIDE
- ▶ BROMINATED VEGETABLE OIL
- ▶ CARBOXYMETHYLCELLULOSE
- ▶ CARAGEENAN
- ▶ DATEM (DIACETYL TARTARIC ACID ESTERS)
- ▶ DEXTRIN
- ▶ GUAR GUM
- ▶ LACTEM (LACTIC ACID ESTERS)
- ▶ MAGNESIUM STEARATE
- ▶ MONO- DI- AND TRIGLYCERIDES
- ▶ PHOSPHATES (SODIUM PHOSPHATE, POTASSIUM PHOSPHATE)
- ▶ PGE (POLYGLYCEROL ESTERS)
- ▶ POLYSORBATE
- ▶ PROPLYLENE GLYCOL ESTERS OF FATTY ACIDS
- ▶ SODIUM STEAROLYLACTYLASE
- ▶ SORBITAN MONOSTEARATE
- ▶ SUCROSE ACETATE ISOBUTYRATE
- ▶ SUCROSE FATTY ACID ESTHER
- ▶ XANTHUM GUM

MANY NAMES FOR SUGAR

Agave nectar Agave syrup Barley malt **Beet sugar** Brown rice syrup
Brown sugar Buttered syrup Cane sugar Cane juice Cane juice crystals
Carob syrup Confectioner's sugar Corn syrup **High fructose corn syrup**
Corn sugar Corn sweetener Corn syrup solids Crystalized fructose
Date sugar **Dextran** Dextrose Diatase Diastatic malt Evaporated cane juice

WHERE'S ALL THAT SUGAR HIDING?

Fructose Fruit juice Fruit juice concentrate Glucose Glucose solids
Golden sugar Golden syrup **Grape sugar** Grape juice concentrate Honey
Invert sugar **Lactose** Malt Maltodextrin Maltose **Maple syrup** Molasses
Raw sugar Refiner's syrup Sorghum syrup Sucanat Sucrose **Sugar**
Turbinado sugar Yellow sugar

But Wait—There's More!

What else is in foods we now eat that promote inflammation?

IMMUNE SYSTEM'S JOB:

Attack ANYTHING not a natural part of human metabolism:

- Artificial colors (non-self)
- Artificial sweeteners
- Plastics –byproducts and micro- (non-self, 4-ever)
- Pesticides, Herbicides
- Harmful fats/oils (saturated/hydrogenated, n-6>>n3, PUFA)

REVERSING METABOLIC SYNDROME: 3 EVIDENCE BASED STEPS

- ▶ Prevent harm

- ▶ Repair damage

(Another talk:

- ▶ Ancillary measures e.g. probiotics, weight loss strategies, exercise, sleep, stress, mindfulness, fasting, etc)

REVERSING METABOLIC SYNDROME: 3 EVIDENCE BASED STEPS

- ▶ Prevent harm

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(Another talk:

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FIRST--DO NO HARM!

AVOID “ULTRAPROCESSED” FOODS



Nutrition Facts	Amount Per Serving		%Daily Value*	
Serving Size 4 pieces (54g)	Total Fat 20g	31%	Total Carbohydrate 24g	8%
Servings Per Container about 9	Saturated Fat 5g	25%	Dietary Fiber 1g	4%
Calories 280	Cholesterol 10mg	3%	Sugars 14g	
Calories from Fat 180	Sodium 180mg	8%	Protein 2g	
	Vitamin A 0%	• Vitamin C 0%	• Calcium 0%	• Iron 6%

PARTIALLY HYDROGENATED VEGETABLE SHORTENING (SOYBEAN, COTTONSEED), SUGAR, UNBLEACHED ENRICHED WHEAT FLOUR (FLOUR, MALTED BARLEY FLOUR, REDUCED IRON, NIACIN, THIAMIN MONONITRATE (B1), RIBOFLAVIN (B2), FOLIC ACID), WATER, COCOA (PROCESSED WITH ALKALI), HIGH FRUCTOSE CORN SYRUP, EGG YOLKS, LEAVENING (BAKING SODA, SODIUM ACID PYROPHOSPHATE, SODIUM ALUMINUM PHOSPHATE), DEXTROSE, SOY FLOUR, NONFAT MILK, NATURAL & ARTIFICIAL FLAVORS, MONO- AND DIGLYCERIDES, SALT, CORN SYRUP SOLIDS, WHEAT STARCH, SOY LECITHIN, SORBITAN MONOSTEARATE, GUAR GUM, POTASSIUM SORBATE (PRESERVATIVE), GLYCERINE, ANNATTO COLOR, CELLULOSE GUM, KARAYA GUM, MODIFIED TAPIOCA STARCH, TAPIOCA DEXTRIN, TURMERIC COLOR, XANTHAN GUM, POLYSORBATE 60, CARAMEL COLOR.

RBS2050 RICH FROSTED POPEMS 809

READ THE LABELS!!!!

AVOID ANY INGREDIENTS YOU WOULDN'T NORMALLY STOCK ON A FOOD SHELF

STOP LEAKS!



STOP LEAK—EAT FIBER DAILY

(processed foods don't have much)

- ▶ Legumes (beans, lentils, peas, chickpeas, etc)
- ▶ Vegetables: e.g. Broccoli, greens (eg. collard greens, kale, chard, turnip greens, spinach), squash, sweet potatoes, potatoes with skin
- ▶ Fruits: e.g. Berries, Apples, Avocados, pears, mango, tomatoes
- ▶ Brown over white (whole grains), flax, bran, chia, etc
- ▶ Seeds and Nuts(higher in fats): Walnuts, Almonds, Pecans, etc

(High fiber FOODS also bring vitamins, antioxidants, micronutrients)



SOURCES OF DIETARY FIBERS

SOLUBLE FIBRES

LEGUMES



BLACK BEANS



LENTILS



KIDNEY BEANS



PEAS



PEANUTS

GRAINS



OATS



OAT MEAL



OAT BRAN



RICE



BARLEY

FRUITS



GRAPEFRUITS



APRICOT



MANGOES



ORANGES



DRIED FIGS



POTATOES



PEAR



BANANAS



PAPAYA



YAMS



MASHROOMS

VEGETABLES



BRUSSELS SPROUT



AVOCADOS



SWEET POTATOES



CARROTS



FLAX SEEDS



BEETS



PUMPKINS

INSOLUBLE FIBRES



WHOLE WHEAT
WHEAT FLOUR OR BREAD



WHEAT BRAN



NUTS & SEEDS



BERRIES



BEANS & LANTILS



PINEAPPLE



APPLE



DATES



PRUNES



MELONS



GREEN LEAFY
VEGETABLES



GREEN PEAS



CELERY



OKRA



BROCCOLI



CAULIFLOWER



TOMATOES



CUCUMBER



SPROUTS



CABBAGE



ONION



EGG PLANT



EAT FIBER EVERY DAY

- ▶ Eat a salad every day
- ▶ Eat whole grains vs refined flour products when available
- ▶ Eat at least two other portions of vegetables every day and/or fresh fruit
- ▶ Eat foods with beans—lentils, chickpeas (e.g. hummus)—these keep in the refrigerator for several days!
- ▶ Can supplement with oatmeal or other whole oats product such as low sugar muesli as an alternative, or even take psyllium/flax/chia when all else fails

REVERSING METABOLIC SYNDROME: 3 EVIDENCE BASED STEPS

- ▶ Prevent harm

- ▶ Repair damage

(Another talk:

- ▶ Ancillary measures e.g. probiotics, weight loss strategies, exercise, sleep, stress, mindfulness, fasting, etc)

REPAIR THE DAMAGE WITH n3FA (we can't prevent every leak)



SEAFOODS



Extra Virgin Olive Oil (low temp)



Avocado Oil (high temp)

REPAIR PLAN: n-3FAs

(e.g. seafood, EVOO, avocado oil)

Anti-inflammatory

n-3 FAs: “damage repair plan” of leaky colon/systemic inflammation:

- ▶ Decrease migration of inflammation from gut to VAT
- ▶ Protect against elevated blood sugars
- ▶ Protect against fatty liver disease
- ▶ Reduce harmful fats in the blood
- ▶ Reduce inflammation throughout our body (reduced “CRP”)

Seafood is the best meat source for n-3FAs—consider eating seafood at least three times a week

EVOO is best (low temp--use avocado oil for high temp)

2010 CELL, 2012 NATURE

Other Meat Protein Advice

- ▶ If eat beef, choose grass fed and finished
- ▶ Other meats (pork, chicken, lamb, etc) choose pasture-raised—want to avoid animals raised on corn and soy

Beyond Ultraprocessed

Other pro-inflammatory substances to avoid:

- ▶ Plastics (chemicals & micro)—steer away from plastic bottles and wrapping
- ▶ Pesticides/herbicides—aim towards organic foods

MITIGATE MetSyn

“DIETING” or DRUGS

NOT the long term alternative
to EATING a HEALTHY DIET

“Dieting” or Drug Problems



UNPLEASANT RESTRICTIVE DIETS



DRUGS

“GOING ON A DIET” DOES NOT WORK LONG TERM

- ▶ >90% of short term weight loss weigh more @ 3-5years
- ▶ Monotonous, Punitive—Not sustainable (punishment-reward ctr)
- ▶ Adaptive Thermogenesis—Not durable
- ▶ MetSyn returns with a vengeance (without sensible change in overall approach to food)

GLP1-Agonists DRUG RISKS

SHORT TERM

Abdominal pain, nausea, diarrhea, fatigue, constipation, dizziness, \$\$\$

LONG TERM—NOT YET FULLY KNOWN

Dependence—you can't stop;

Other risks (loss of lean body mass, bone loss?, Cancers?) not known

QUANTITY, NOT QUALITY:

DOES NOT GET AT THE ROOT CAUSE OF THE SYSTEMIC INFLAMMATION OF METABOLIC SYNDROME



PUBLIC HEALTH COSTS GLP1

GLP1 agonists soon \$100 billion/yr and growing

HOW MUCH LESS EXPENSIVE MIGHT IT COST US FOR
PUBLIC INITIATIVES TO SUPPORT A HEALTHIER,
AFFORDABLE, CONVENIENT FOOD SUPPLY?

CHOOSING A NAMED DIET as GUIDELINE FOR SENSIBLE FOOD PLAN

- ▶ Life-long dietary plan that naturally steers us to consume healthier foods:

High Fiber, High Omega 3 Fatty Acids, Not-Ultraprocessed

- ▶ Evidence-based proven efficacy re: Metabolic Syndrome and longevity
- ▶ Pleasurable/enjoyable, not punitive food choices

MEDITERRANEAN DIET

One of the best named diets

- ▶ European and Middle Eastern
- ▶ Easy to follow
- ▶ Promotes fiber (vegs, fruits, whole grains, legumes)
- ▶ Include emphasis seafood
- ▶ EVOO (n3FA)
- ▶ Tasty options
- ▶ Significantly reduces markers of inflammation **even in absence of wt loss over time**
- ▶ **Caveat**--No ultraprocessed foods, e.g. pepperoni



Traditional Asian(esp. JAPANESE) Diet

- ▶ Japan has even greater life expectancy
- ▶ Emphasis on Seafood and Vegetables
- ▶ Low in Ultraprocessed foods



BEST NEW DIET NAME?

- ▶ **Mediterranean-Asian? Japa-terranean?**
- ▶ Best diet does not need to be a named diet



SUMMARY: MOST ESSENTIAL DIETARY GUIDELINES FOR HEALTHY EATING

- ▶ Avoid chemicals in ultra-processed foods (read all labels)
- ▶ Eat **fiber every day**: Legumes/beans, whole grains, vegetables, fruits
- ▶ Eat **Seafood** at least **three times a week**
- ▶ Use Extra Virgin Olive Oil for room temperature use (dressings); Use Avocado Oil for high temperature cooking

PRACTICAL DIETARY ADVICE

- ▶ **No ultraprocessed food:** NO preservatives, emulsifiers, sweeteners, refined—**READ ALL LABELS**
- ▶ **Daily fiber:**
 - ▶ Vegetables of various colors for antioxidants, micronutrients, vitamins 2x DAILY
 - ▶ Salad at least once daily
 - ▶ Fresh fruits: e.g. blueberries, grapes, apples, tomatoes
 - ▶ Whole unrefined grains, legumes/beans, lentils, hummus, muesli, flax/chia
- ▶ **Seafood** at least three times weekly
- ▶ **Red meat limited**
 - ▶ Feathered > 4-Footed, 100% grass fed/finished, 100% pasture-raised
- ▶ **Seeds and nuts:** limit to 30 gm/day (calorically dense)
- ▶ **Extra Virgin Olive Oil** low heat; **Avocado Oil** high heat
- ▶ **Red wine** not to exceed 2 glasses/day (Alcohol is caloric, makes you hungry, and leads to bad choices—inhibits good judgement)
- ▶ **Limit sweets**
- ▶ **Handy names: Mediterranean or Asian (Mediter-Asian? Japa-Terranian?)**



PORTION CONTROL:

Eat to be not hungry, not to be full...

AND MOVE MORE

ANY movement helps—don't be completely sedentary

REVERSING METABOLIC SYNDROME: 3 EVIDENCE BASED STEPS

- ▶ Prevent harm

- ▶ Mitigate damage

(Another talk:

- ▶ Ancillary measures e.g. probiotics, weight loss strategies, exercise, sleep, stress, fasting, etc)

CONFOUNDERS: WHY EVEN BEST DIETARY PLANS FAIL

- ▶ Social milieu—Friends, often well-meaning (food is sociable)
- ▶ Effort/Consciousness-RESISTING TEMPTATION NOT EZ!
- ▶ ETOH--<inhibition, activates brain hunger, caloric
- ▶ “See food”
- ▶ Hidden ingredients—sugar, preservatives, emulsifiers, antibiotics, herbicides

OFFICE PRODUCT CHECKOUT LINE “SEE FOOD”



PROCESSED vs ULTRAPROCESSED

▶ PROCESSED:

▶ CHANGED in any way

▶ Not necessarily unhealthy:

Washed, canned, cooked, dried, frozen, mixed with other ingredients, ground or pureed

▶ ULTRAPROCESSED:

▶ Good components removed

▶ HARMFUL CHEMICALS ADDED:

Corn syrup (high fructose), emulsifiers, preservatives, artificial colors

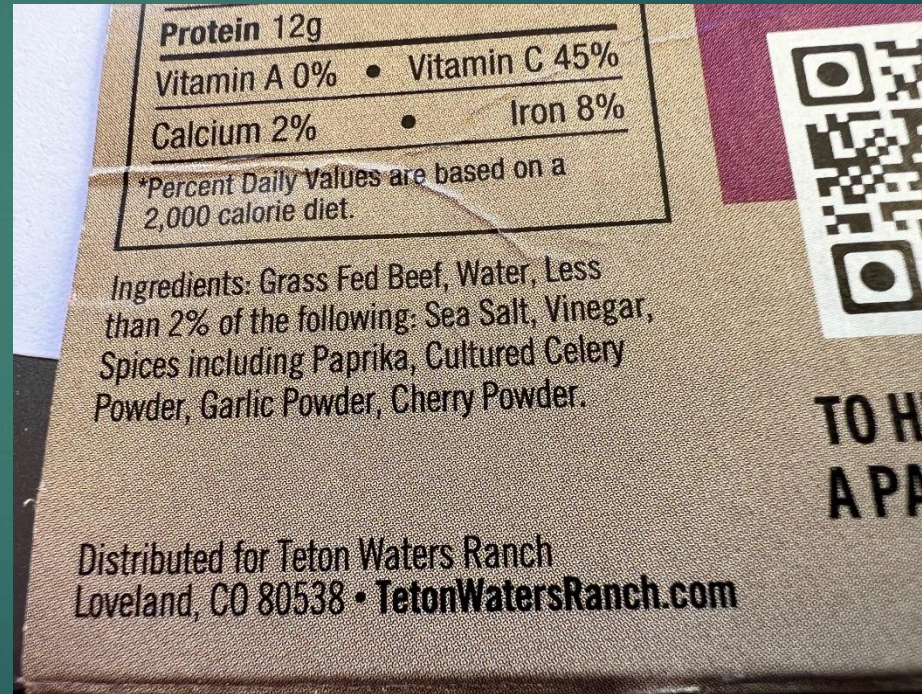
PROCESSED or ULTRAPROCESSED?



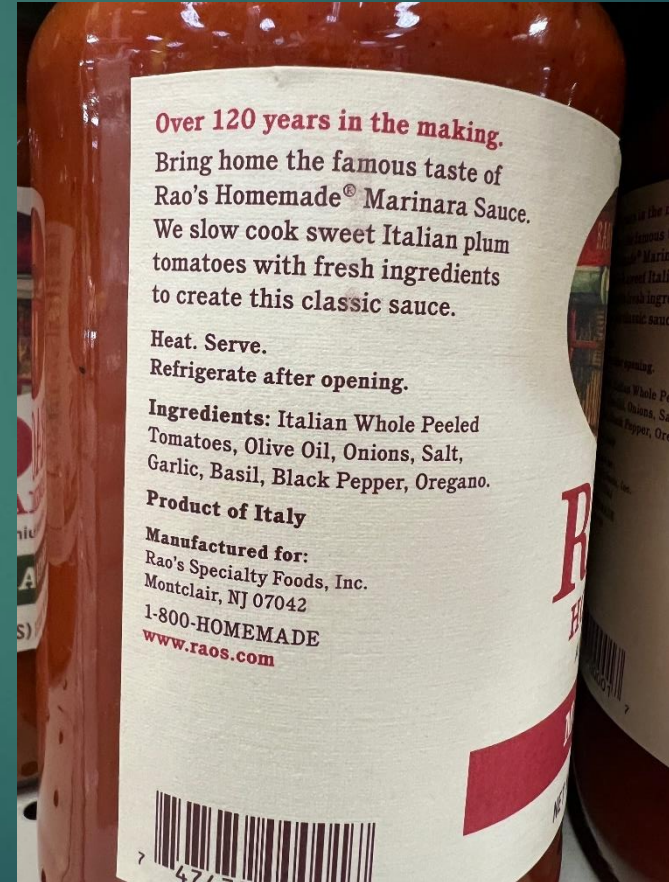
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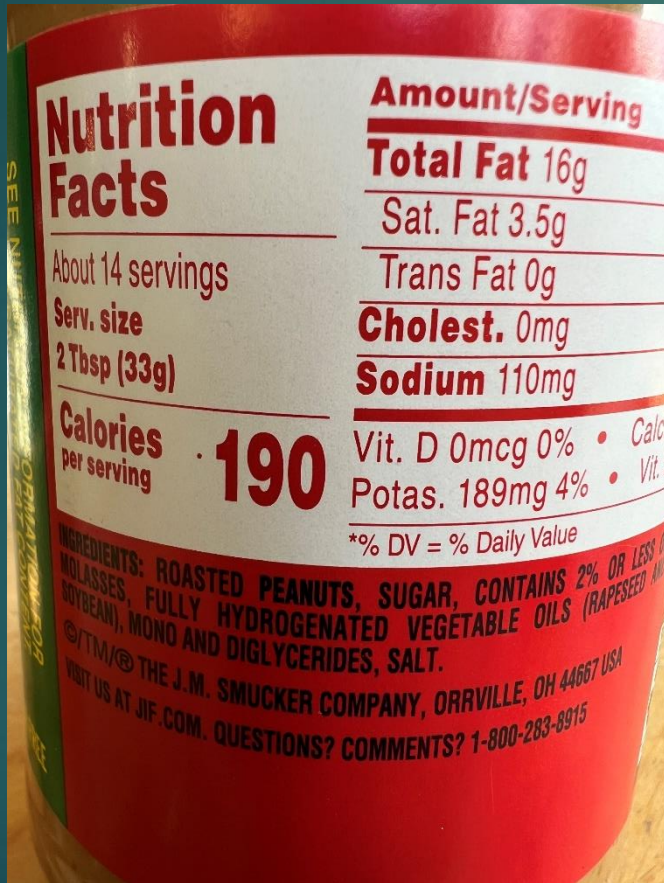
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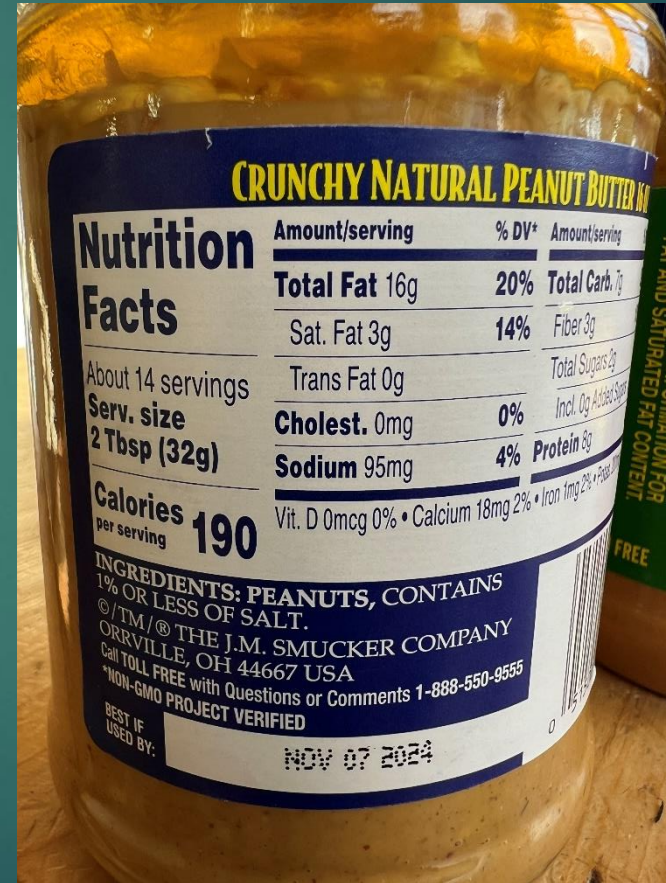
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WHICH SMUCKER'S PEANUT BUTTER SHOULD YOU CHOOSE?



JIF



ADAMS

THANK YOU!

21 year old cat



101 year old mother

