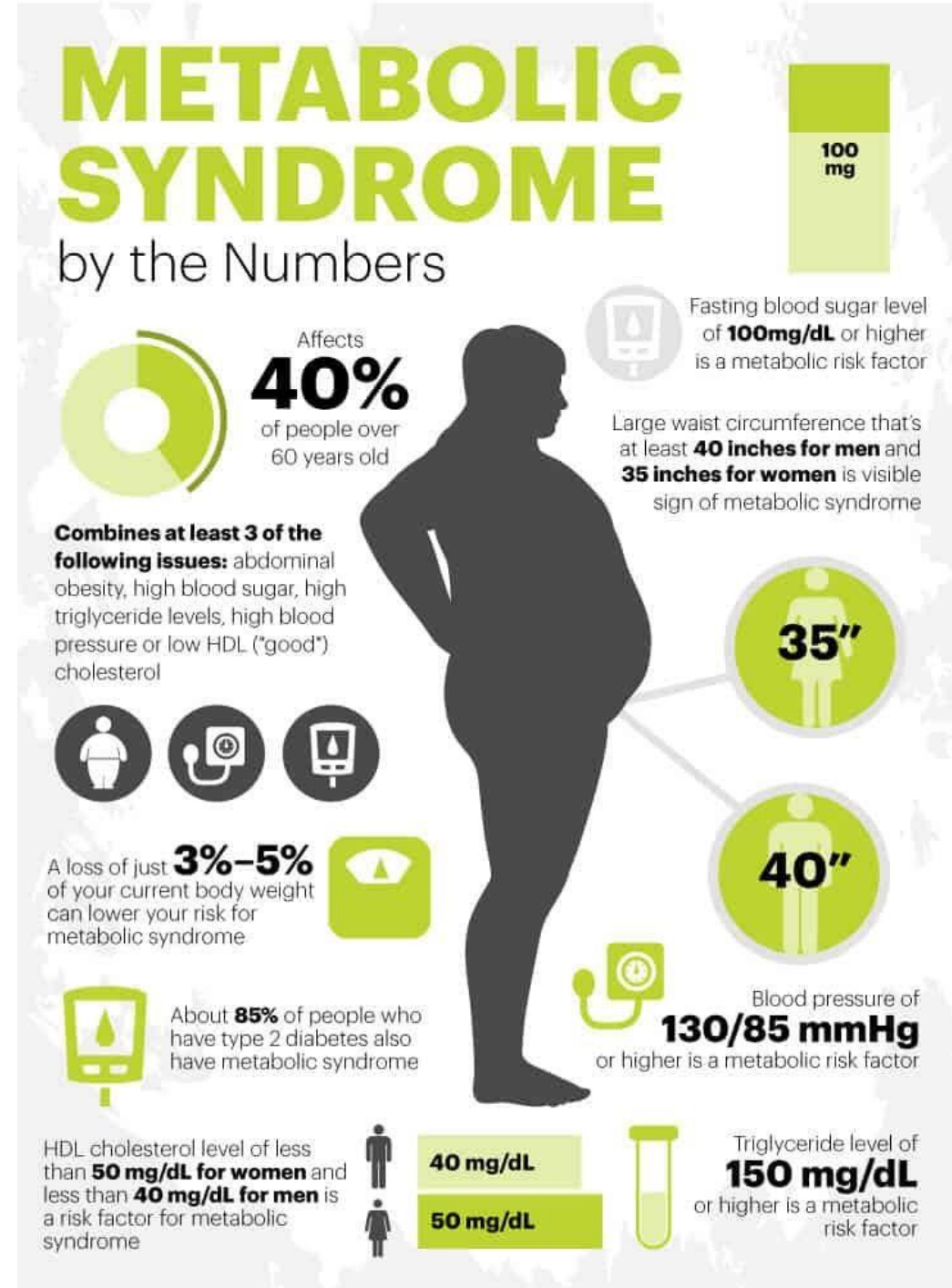


Sugar: So Sweet and So Toxic!

Handouts for class by zoom
Thursdays, 9:30am to 10:45am
May 23-June 13, 2024



SUGAR: SO SWEET AND SO TOXIC!

(Because it causes the METABOLIC SYNDROME)

4 WK. COURSE OUTLINE

1. ENERGY METABOLISM: ELECTROCHEMICAL CAPACITY TO DO WORK.

A. HOW DID I GET INTERESTED IN STUDYING SURGICAL METABOLISM?

B. USEFUL MODELS TO UNDERSTAND METABOLISM AND WHY IS IT FUNDAMENTAL TO HOW THE MIND/BODY WORKS IN HEALTH AND DISEASE?

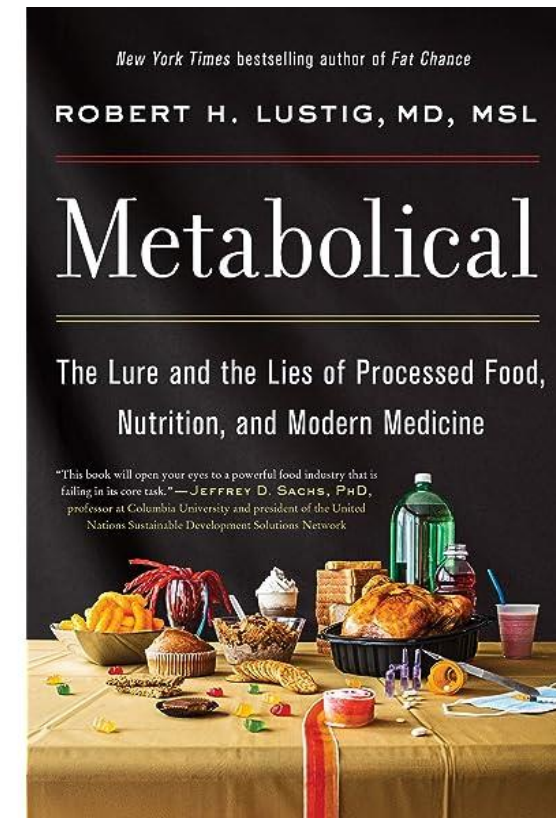
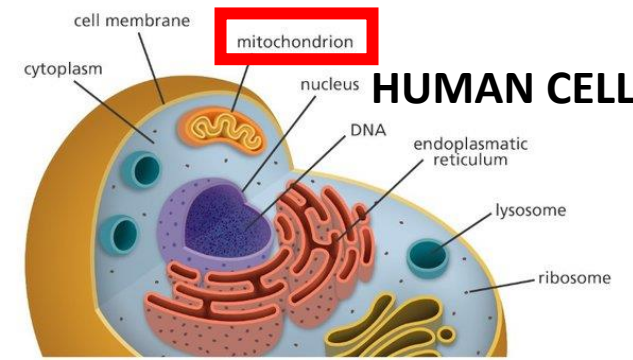
2. TRADITIONAL MEDICINE: SYMPTOMATIC DIAGNOSIS/TREATMENT
HIPPOCRATIC OATH, AND HIS BELIEF THAT

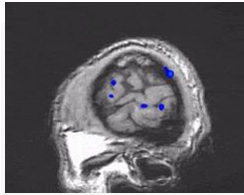
ALL DISEASE ORIGINATES IN THE GUT.

THE MICROBIOME AND MITOCHONDRIAL DYSFUNCTION,
PRODUCING THE METABOLIC SYNDROME.

3. FUNCTIONAL MEDICINE: FOCUS ON ROOT CAUSES FOUND IN
ULTRA PROCESSED FOODS. WE ARE WHAT WE EAT.

4. 8 CELLULAR PATHOLOGIES OF THE METABOLIC SYNDROME.
FEED THE GUT (WITH WHOLE FOOD/FIBER), PROTECT THE LIVER
(FROM FRUCTOSE/ALCOHOL) AND SUPPORT THE BRAIN.





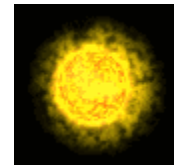
Z Axis: Information

X Axis: Matter

Y Axis: Energy

C, N, O, H,
P, Na, K, Cl

ENERGY METABOLISM: ATP



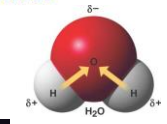
Sunlight

Carbon
Dioxide
 $O=C=O$
Water

Oxygen
 $O=O$

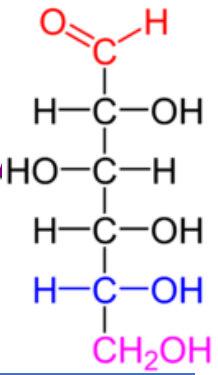
Glucose
 $H-C-OH$

Energy
Source?

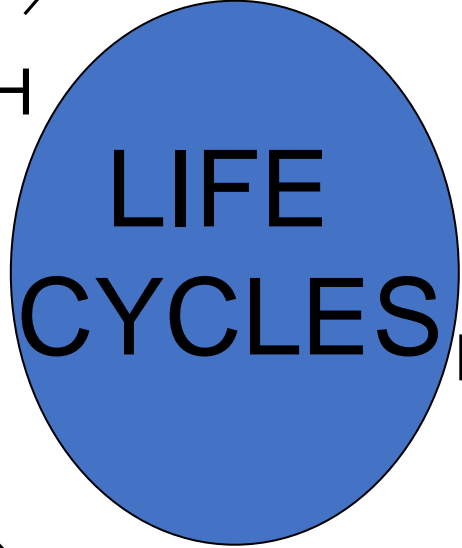


H- FUELS
+ -

**STORED
Energy**



Glucose



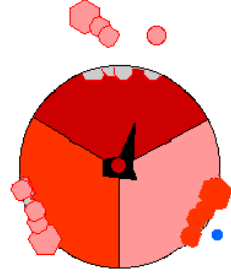
DEATH

DECLINE

MATURITY

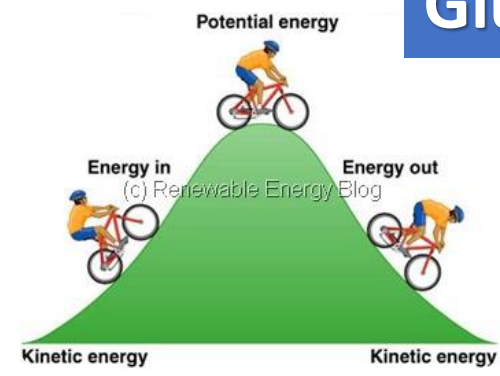
REPRODUCTION

Adenosine
Triphosphate



ATP-Synthase
Machine

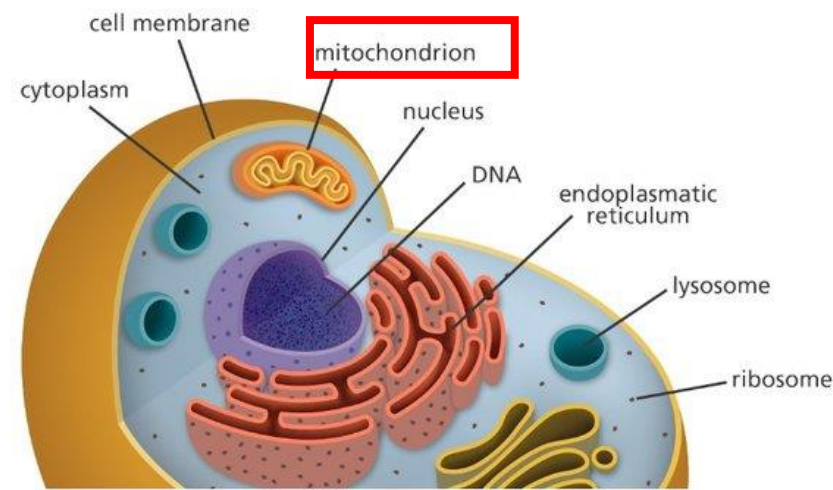
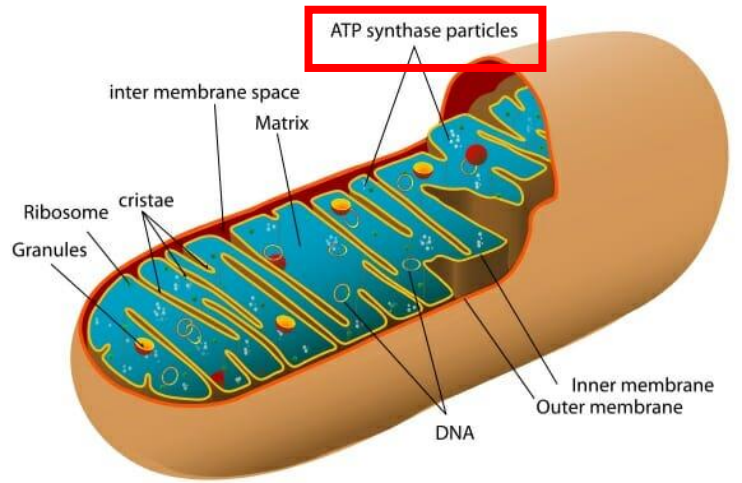
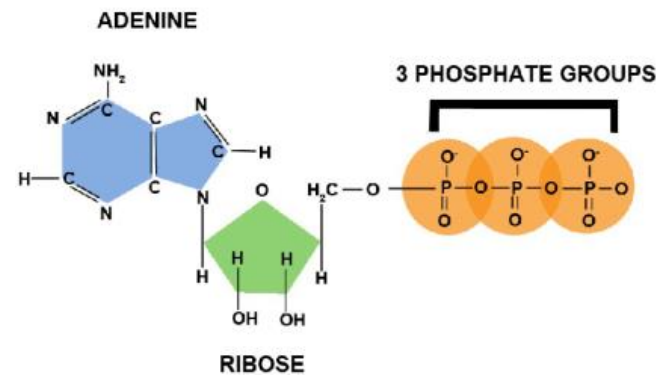
ENERGY NEEDS BLOOD FLOW TO CELLS
TO DELIVER O2 AND FUEL



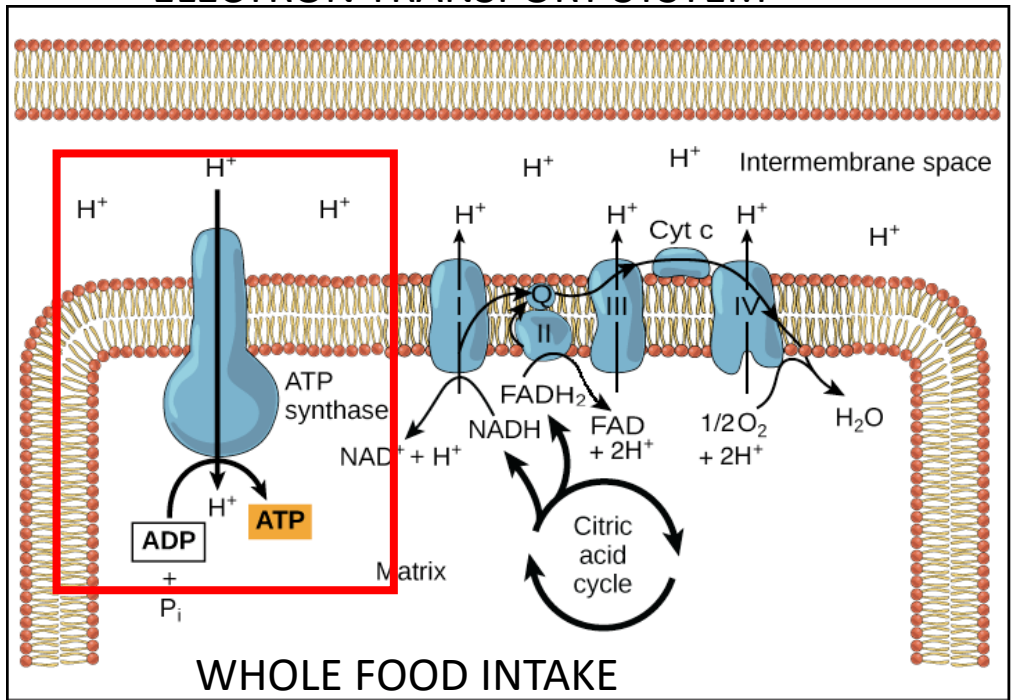
MITOCHONDRIA

~1000 OR MORE/HUMAN CELL MAKE...

An ATP Molecule

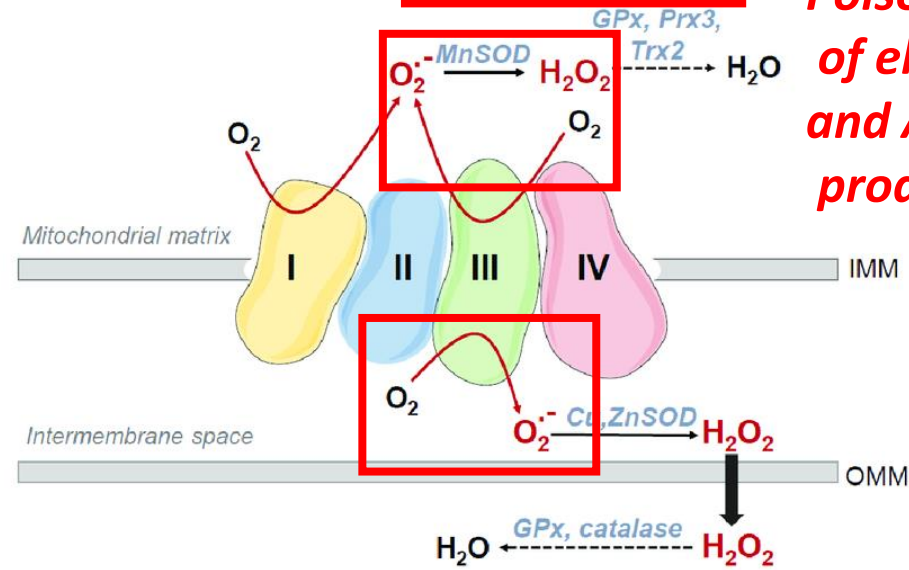


ELECTRON TRANSPORT SYSTEM



ROS, REACTIVE OXYGEN SPECIES

Poisons the machinery of electron transport and ATP energy production falls

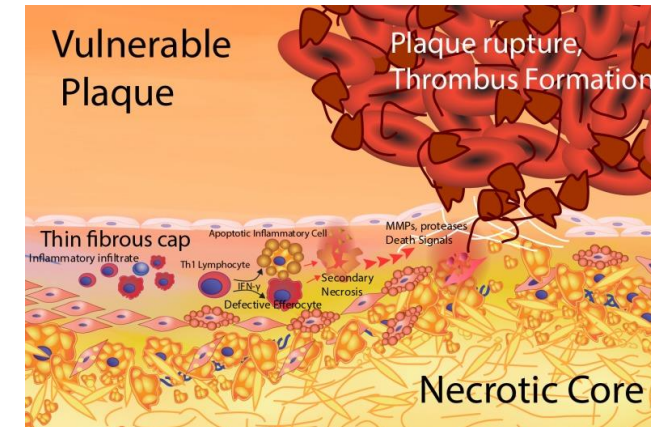
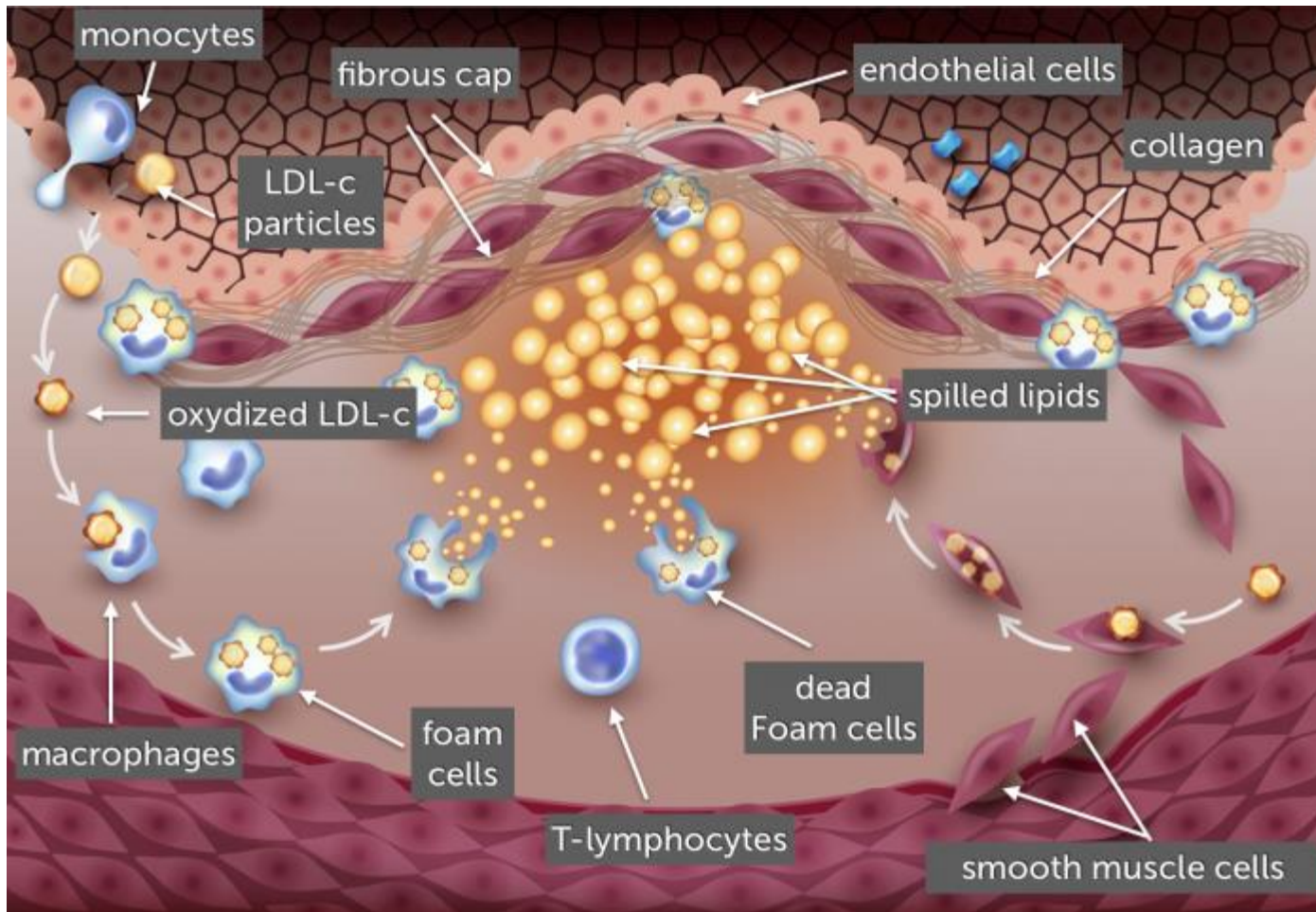


OVER-FEEDING

WHOLE PLANT BASED FOODS PREVENT HEART ATTACKS AND STROKES FROM THROMBOSIS (BLOOD CLOTS)



BUT ENDOTHELIAL DYSFUNCTION IS CAUSED BY EXCESSIVE SUGARS (especially fructose), OILS AND SALT AND POISONS NITRIC OXIDE (antioxidant) PRODUCTION



FOAM CELLS MANUFACTURE METALLOPROTEINASES THAT DIGEST THE CELL MEMBRANE AND RUPTURE THE PLAQUE.

PLATELETS ACCUMULATE CAUSING CORONARY OR CEREBRAL THROMBOSIS (HEART ATTACK OR STROKE)