

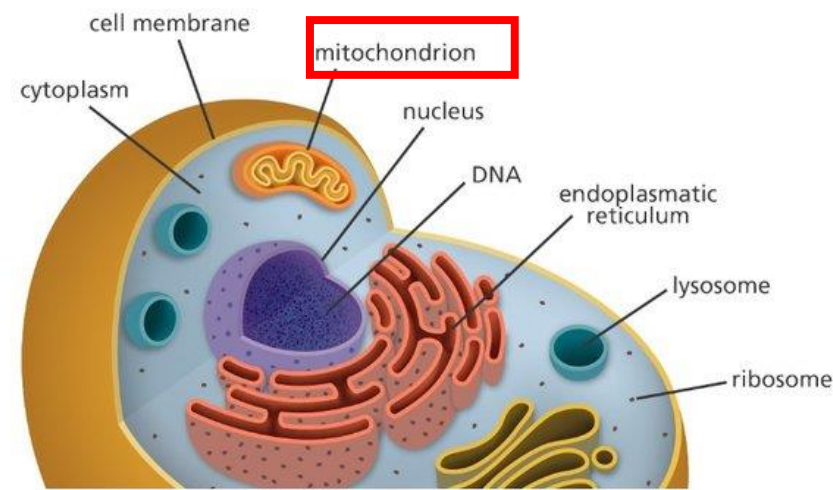
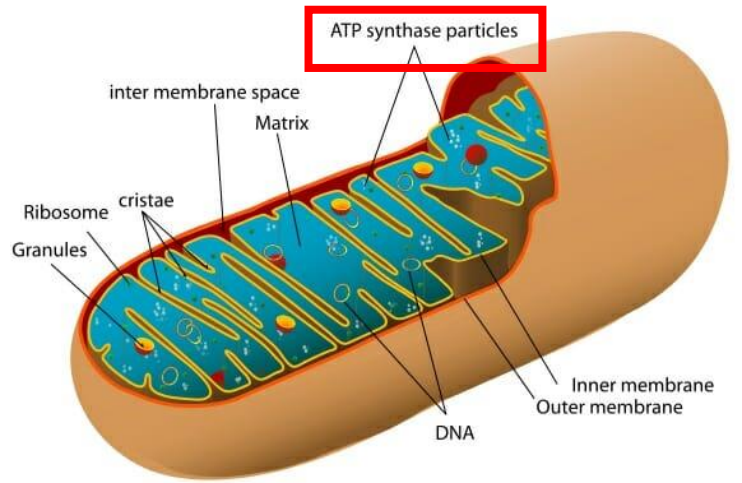
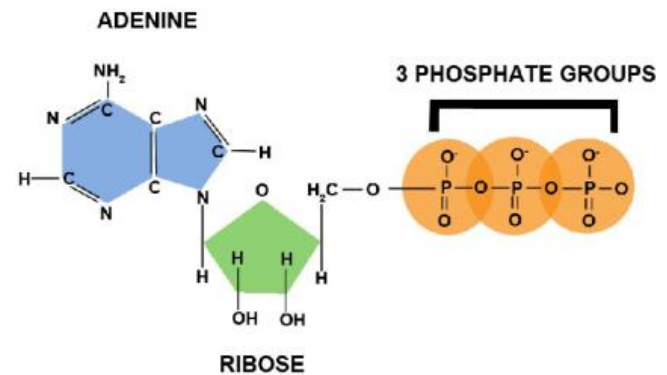
HANDOUTS 4

TO REVIEW BEFORE CLASS 4
ON SUGAR SO SWEET AND TOXIC

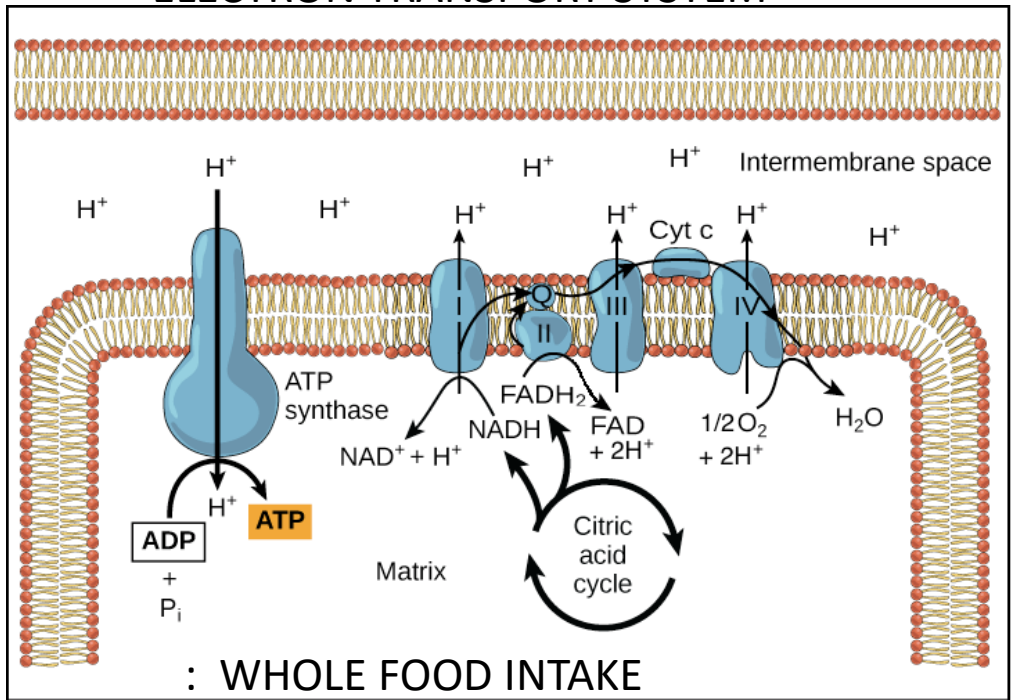
MITOCHONDRIA

~1000 OR MORE/HUMAN CELL MAKE...

An ATP Molecule



ELECTRON TRANSPORT SYSTEM

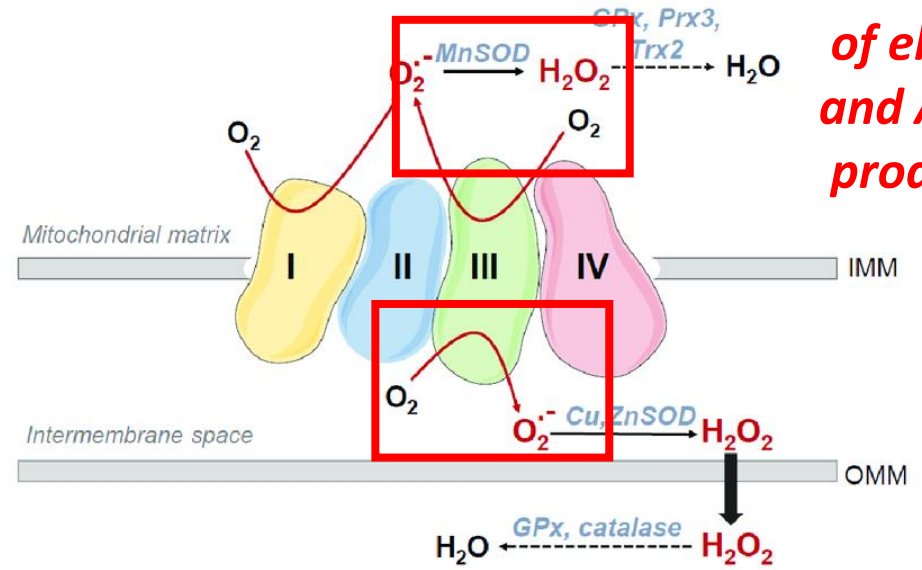


: WHOLE FOOD INTAKE



ROS, REACTIVE OXYGEN SPECIES

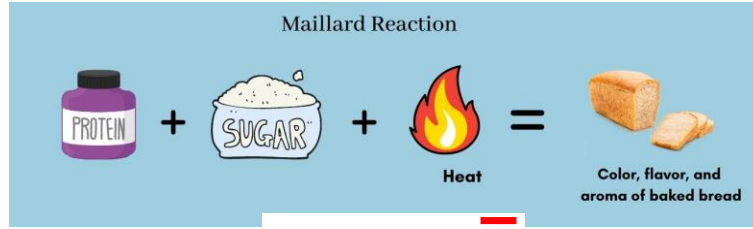
Poisons the machinery of electron transport and ATP energy production falls



OVER-FEEDING

8 UPF-DISEASES OF OUR 10 TRILLION CELLS THAT CAUSE THE METABOLIC SYNDROME

1. GLYCATION:



ATHEROSCLEROSIS
CATARACTS
AGEs

2. OXIDATIVE STRESS:



GLYCATION
OXIDATIVE PHOSPHORYLATION
IRON METABOLISM

3. MITOCHONDRIAL DYSFUNCTION:
=CHRONIC DISEASE

4. INSULIN RESISTANCE:

UPF → ROS → URIC ACID → FATTY LIVER → INSULIN RESISTANCE

(RECEPTOR MISFOLDING)

5. MEMBRANE INTEGRITY:

UNSATURATED FATS ANGULAR, HEAT- VULNERABLE

6. INFLAMMATION:

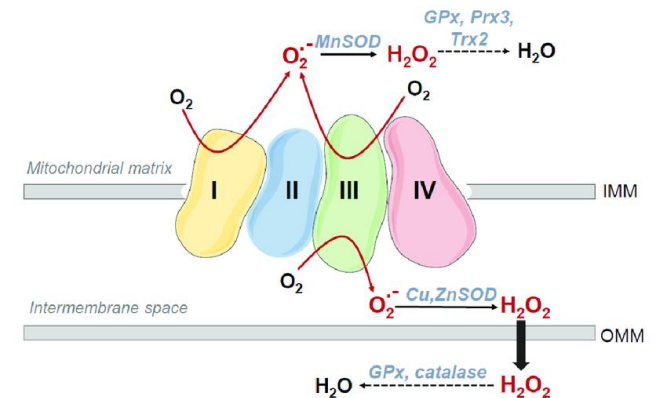
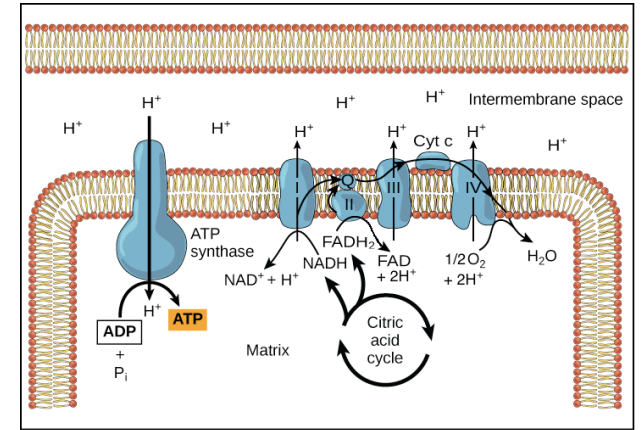
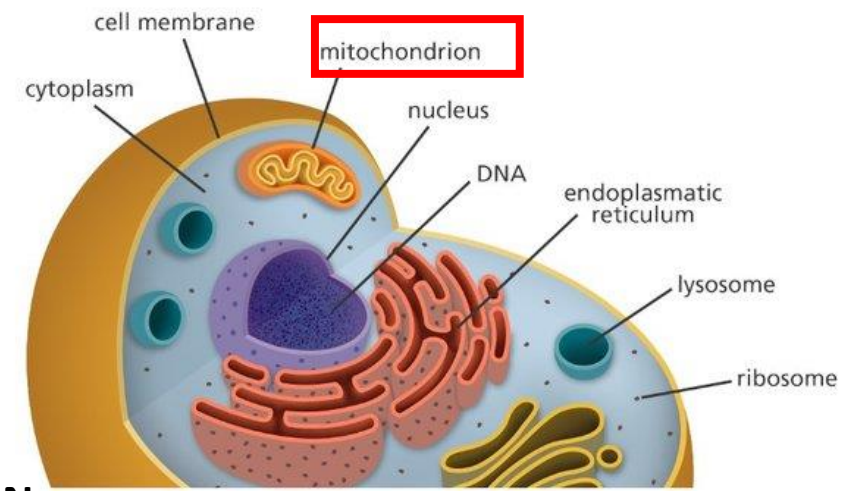
DYSBIOSIS AND LEAKY GUT

7. EPIGENETICS:

MITOCHONDRIAL GENETIC SWITCHES

8. AUTOPHAGY:

TAKE OUT THE GARBAGE (CELL DEATH)
SLEEP INTERMITTANT FASTING



ULTRA PROCESSED FOODS, UPFs, DEFINED

EDIBLE SUBSTANCES INDUSTRIALLY PRODUCED/MODIFIED (NOT REAL FOOD) THAT...

- 1. STIMULATE OVEREATING/HUNGER, WEIGHT GAIN
THROUGH ATTRACTIVE TASTE, SIGHT, SMELL, TOUCH, AND**
- 2. ARE CHEAP OR PROFITABLE AND DON'T REQUIRE REFRIGERATION, AND**
- 3. KEEP PEOPLE ALIVE BUT UNHEALTHY
(HYPERTENSION, DIABETES, HEART DISEASE, DEMENTIA,
LEAKY GUT AND NEW ALLERGIES, AUTOIMUNE DISEASE,
INFLAMMATION. THROMBOTIC CARDIOVASCULAR LETHALITY,
EARLY AGING), AND**
- 4. PRODUCE INEQUITY, AND**
- 5. POLUTE THE ENVIRONMENT
(CLIMATE DUE TO CO2 FROM MEATS AND UPF WASTE,
LAND-USE AND WITH PLASTICS , AND PRODUCE ANTIBIOTIC RESISTANCE).**

Rethinking Diabetes: What Science Reveals About Diet, Insulin, and Successful Treatments 2024

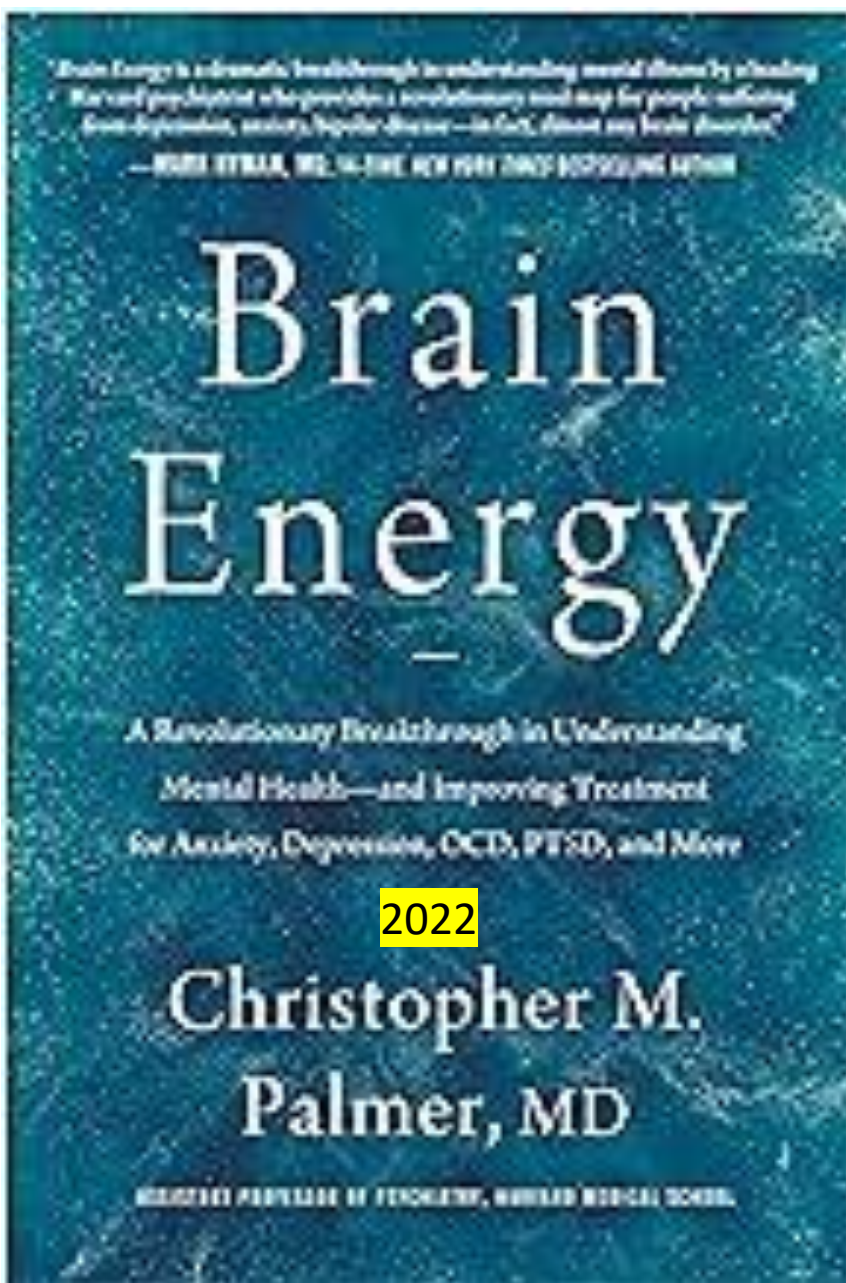
GARY TAUBES, SCIENCE WRITER

DIABETES: A FOOD BORN DISEASE

**RARE: TREATMENT FROM GERMANY MEAT FAT DIETS WORK TO CONTROL
SWEET URINE AND POLYURIA
HARVARD STARTS FIRST USA DIABETIC CLINIC**

INSULIN DISCOVERED IN 1921,

**WHEN RANDOMIZED CONTROLLED STUDIES WERE USED,
INSULIN CONTROLLED BLOOD SUGAR
BUT NOT HEART ATTACKS OR STROKES.**



PREVENTIVE MEASURES FOR DEMENTIA AND MENTAL ILLNESSES THAT ARE HOPEFUL

**Brain Energy, Mitochondria, Metabolism
and Mental Health
with Dr. Chris Palmer**

<https://www.youtube.com/watch?v=oC-sQogfh3Q&t=42s>

HARVARD PSYCHIATRIST