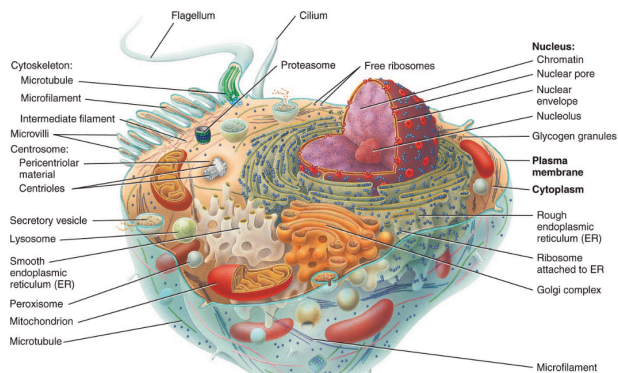


CELLULAR HEALTH

Nutrients, detoxification, hormone balance, and more ...



Sectional view
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HEALTHY CELLS

- efficiently make energy
- maintain healthy membranes
- communicate properly
- repair damage
- and carry out their specific functions in the body.

WHAT HARMS CELLS

- smoking
- chronic inflammation
- oxidative stress
- nutrient deficiencies
- mitochondrial dysfunction
- toxin exposure
- chronic hyperglycemia
- severe sleep deprivation.

HEALTHY CELLS CONTINUOUSLY:

- repair proteins
- recycle organelles
- replace membranes
- repair DNA
- adapt metabolism

Processes involved include:

- autophagy
- DNA repair
- antioxidant responses
- protein quality control

OXIDATIVE BALANCE

Cells naturally produce reactive oxygen species (ROS).

Healthy cells maintain balance between:

- ROS production
- antioxidant defenses

Excess oxidative stress can damage:

- DNA
- proteins
- lipids
- mitochondria

Cell nutrition depends heavily on healthy cell membranes because membranes regulate the transport of nutrients, minerals, signaling molecules, and waste products into and out of cells.

HEALTHY CELLS RESPOND TO:

- hormones
- neurotransmitters
- immune signals
- growth factors

This depends on:

- membrane receptors
- intracellular signaling pathways
- gene regulation

FOODS THAT SUPPORT HEALTHY CELL MEMBRANES

- Choline
- Omega-3 fatty acids
- Healthy fat sources
- Amino acids and protein
- B vitamins
- Magnesium
- Antioxidant rich foods