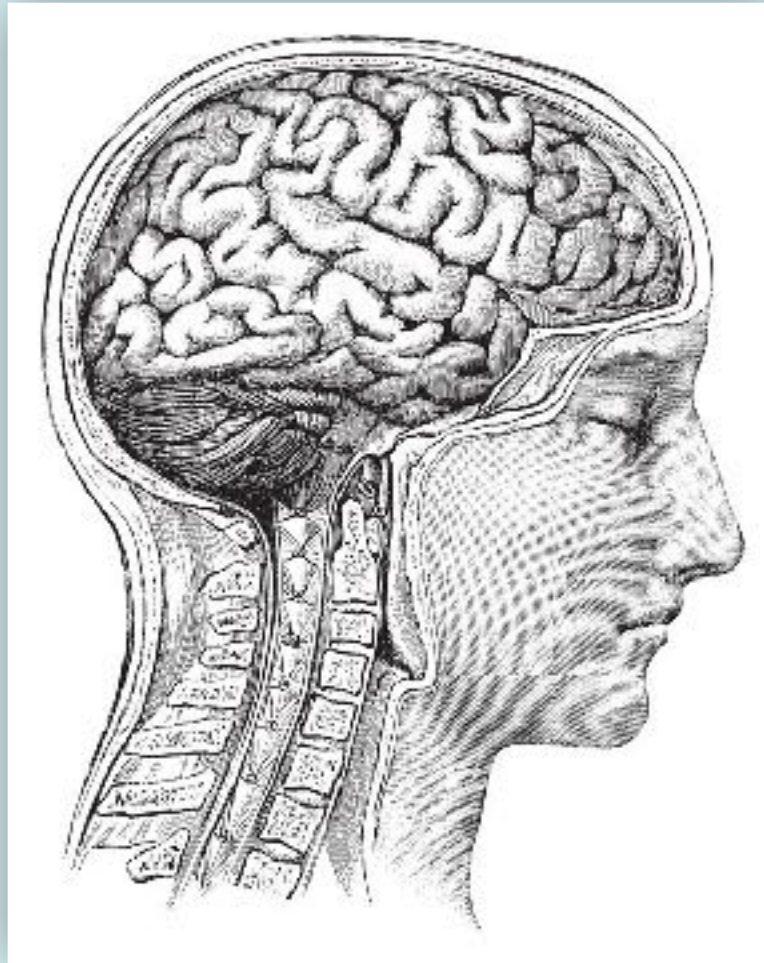




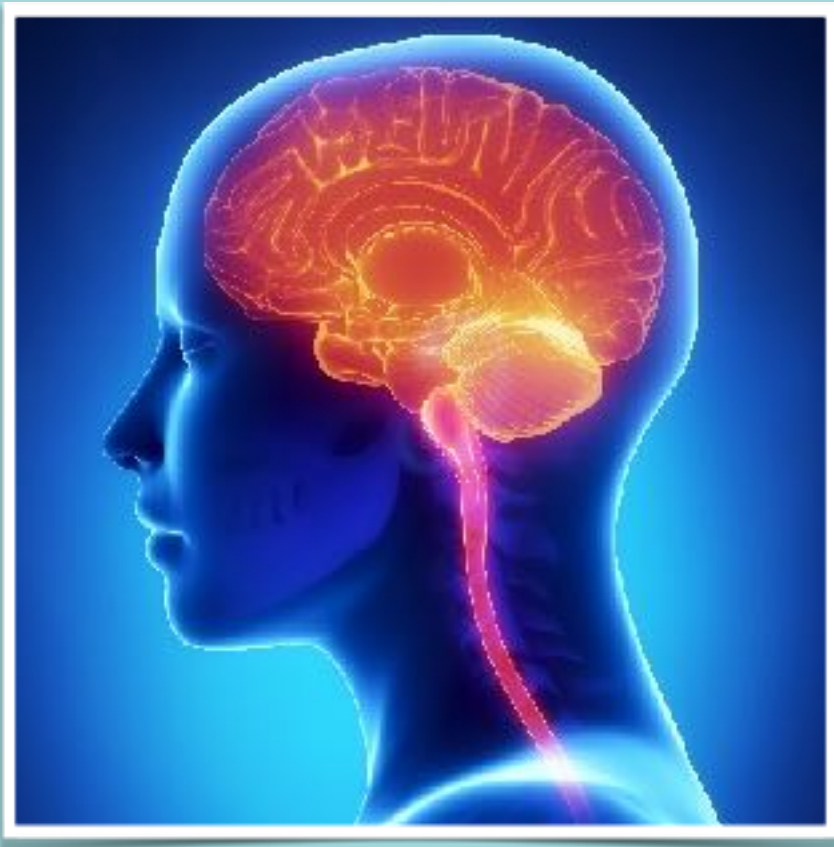
Cynthia Libert, M.D.
Functional Medicine for the
Brain & Body

The Brain Protection Plan:
Jumpstart Metabolism
Improve Mitochondrial Health
& Energy Production

36+ Holes in Your Roof



UNCOVER THE ROOT CAUSES OF BRAIN & BODY DYSFUNCTION

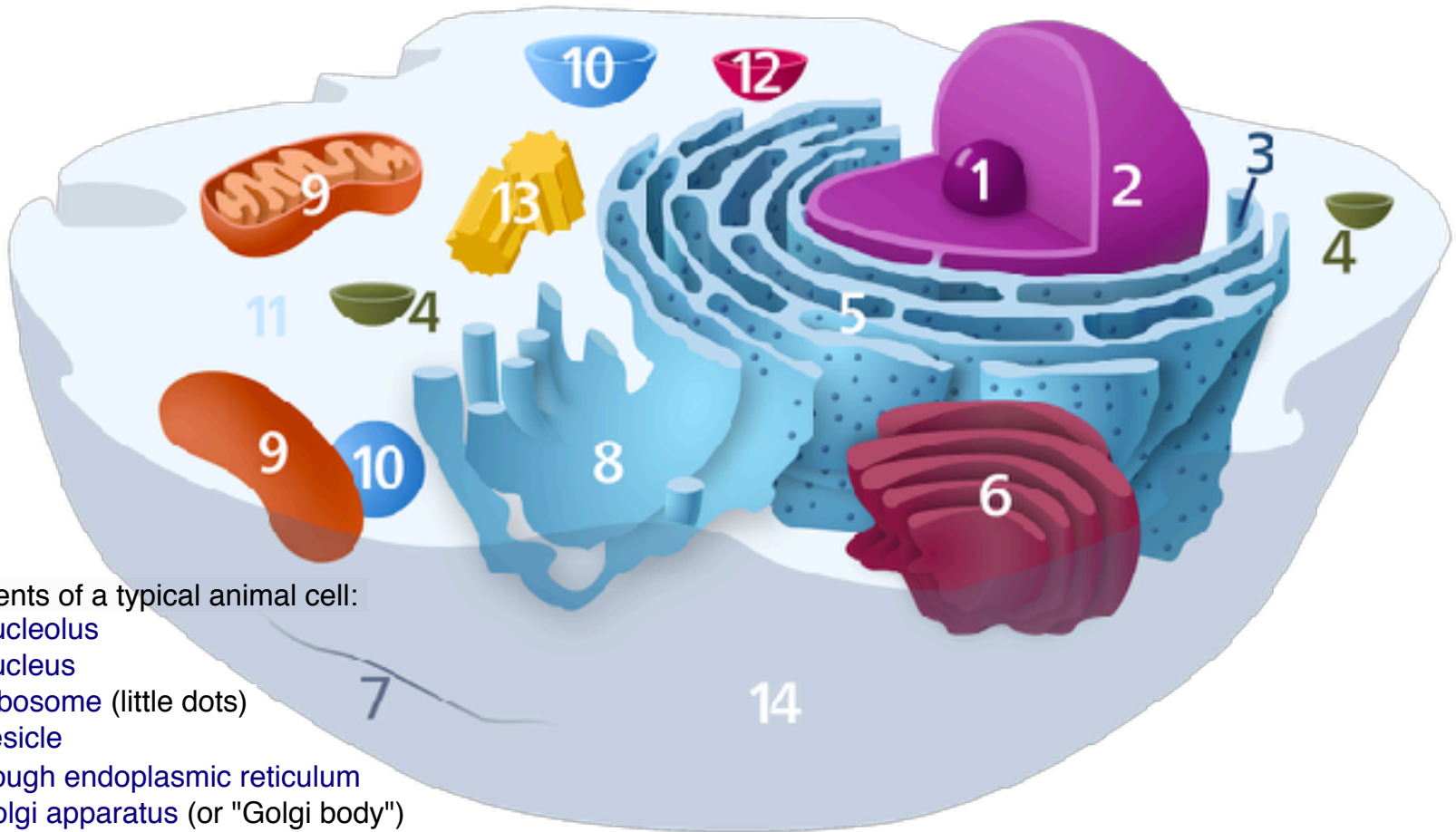


- Inflammatory
- Infectious
- Glycotoxic
- Atrophic
- Toxic
- Vascular
- Traumatic

7 Keys to Restoring Brain Health

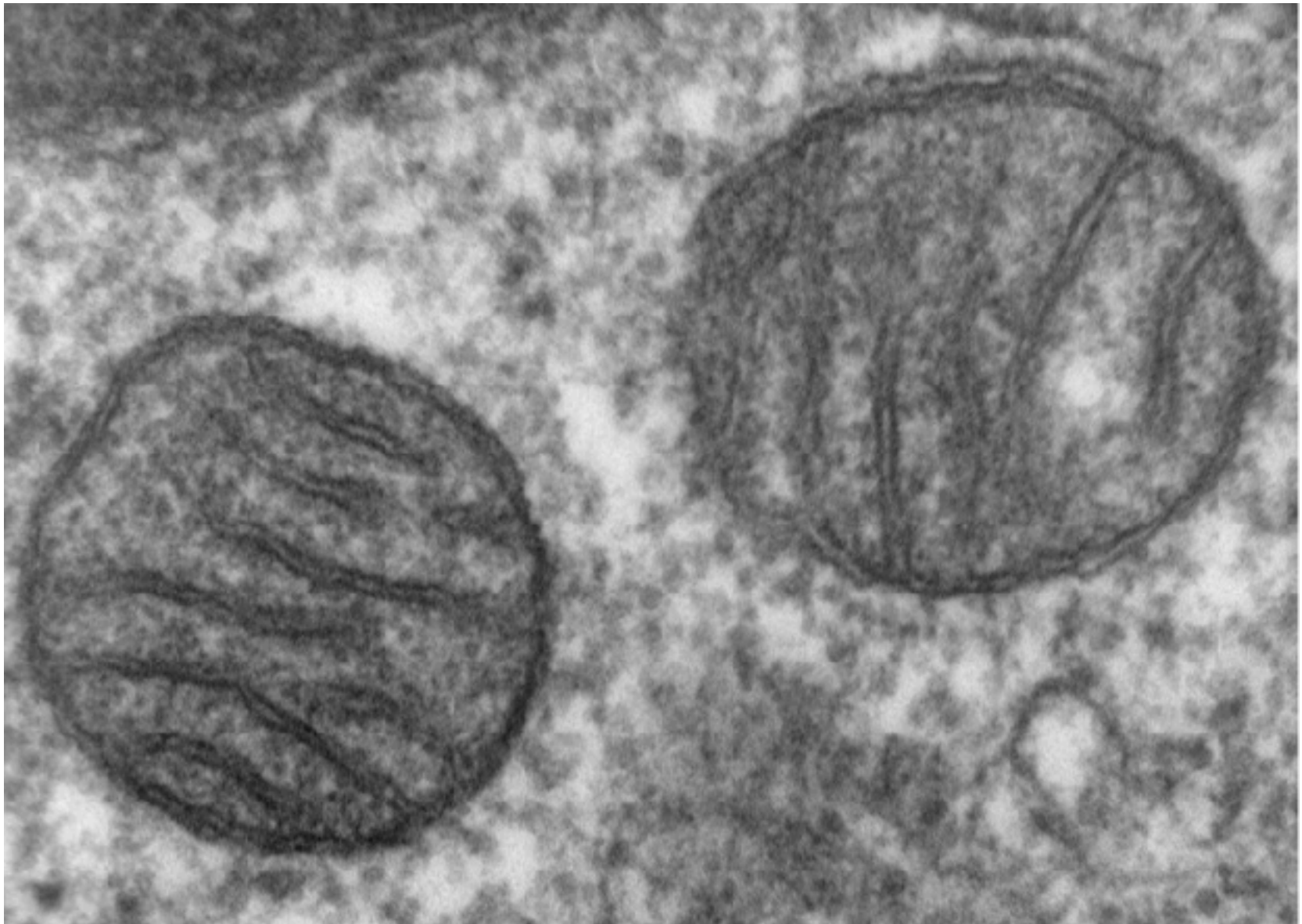


- Optimize Nutrition
- Calm your Brainwaves
- Heal your Gut
- Restore Hormonal Balance
- **Jumpstart Your Energy Systems**
- Put out the Fire of Inflammation
- Enhance Detoxification



Components of a typical animal cell:

1. Nucleolus
2. Nucleus
3. Ribosome (little dots)
4. Vesicle
5. Rough endoplasmic reticulum
6. Golgi apparatus (or "Golgi body")
7. Cytoskeleton
8. Smooth endoplasmic reticulum
9. **Mitochondrion**
10. Vacuole
11. Cytosol (fluid that contains organelles, comprising the cytoplasm)
12. Lysosome
13. Centrosome
14. Cell membrane



50 nm

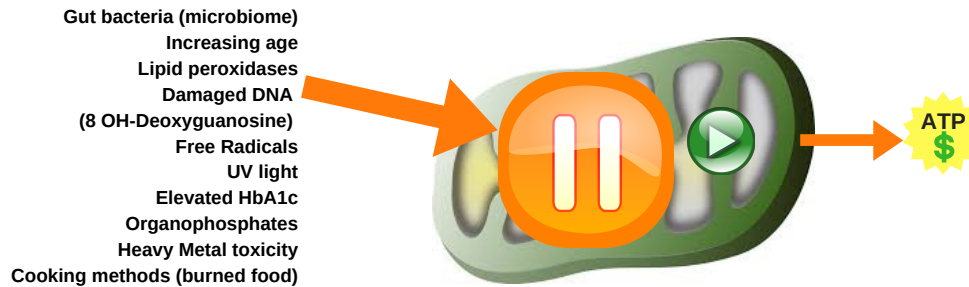
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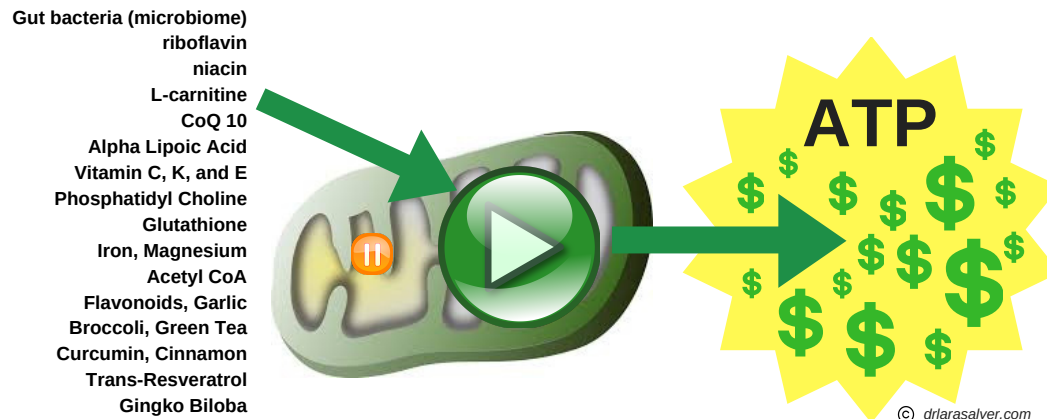
Meet Your Mitochondria

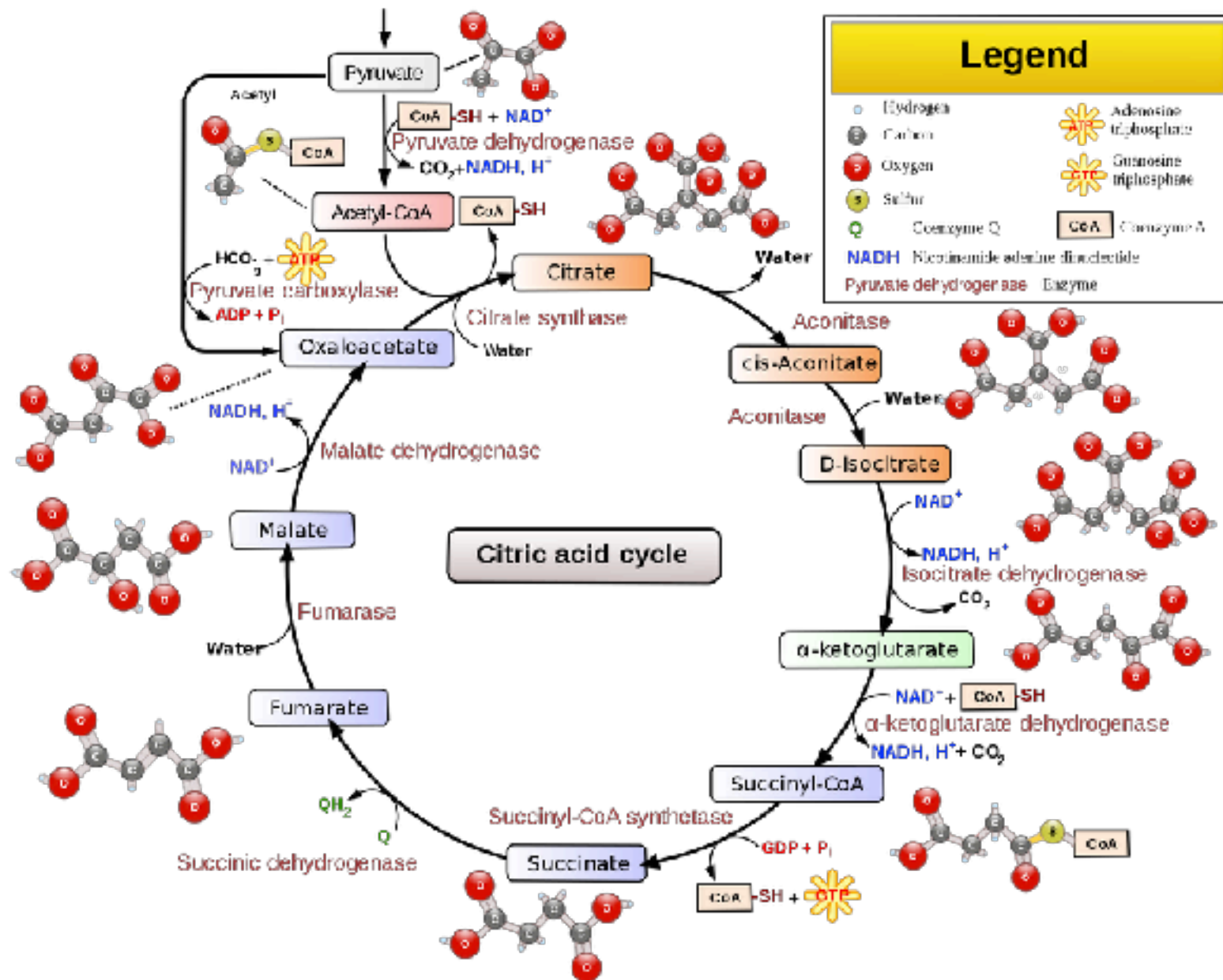


INFLAMMATION AND OXIDATIVE STRESS: TURNS ON TNF alpha & NF-kB



ANTI-OXIDANTS, ANTI-INFLAMMATORY: TURNS ON NRF-2





3 Lamellæ

3.1 Inner membrane

3.11 Inner boundary membrane

3.12 Cristal membrane

3.2 Matrix

3.3 Cristæ

4 Mitochondrial DNA

5 Matrix granule

6 Ribosome

7 ATP synthase

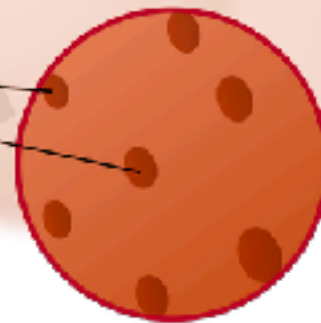
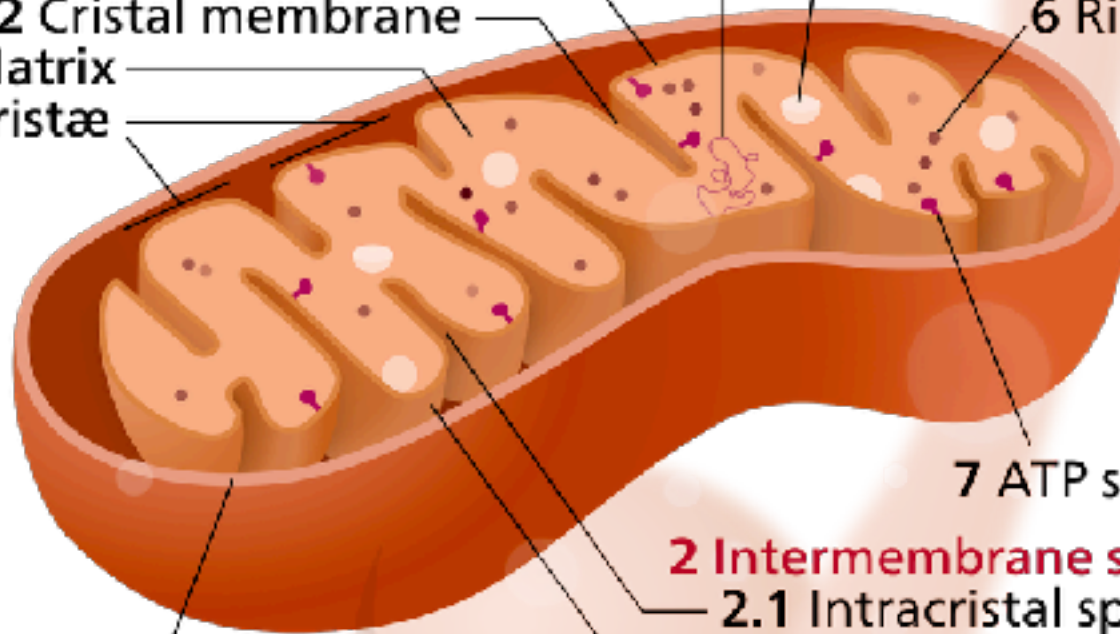
2 Intermembrane space

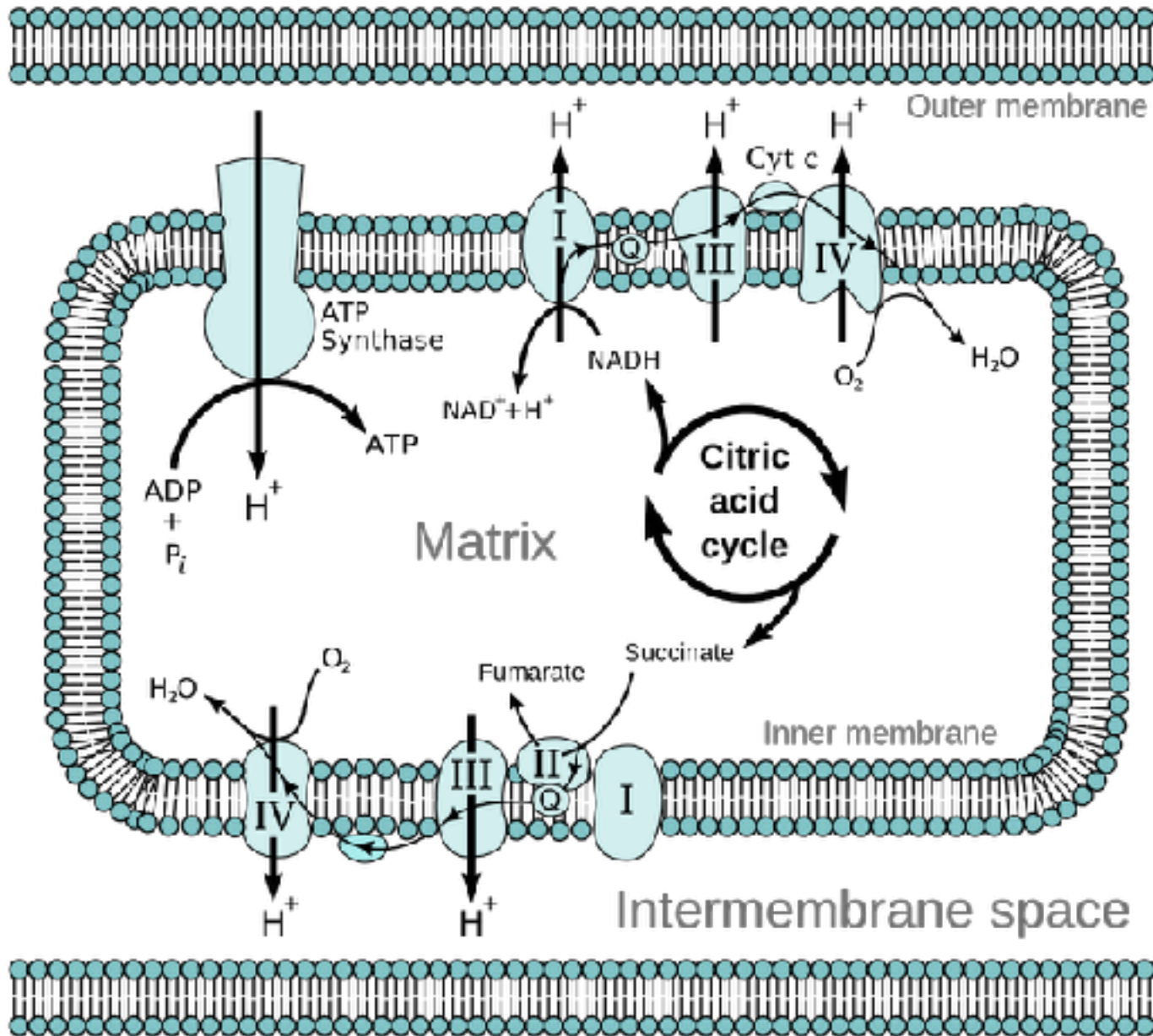
2.1 Intracristal space

2.2 Peripheral space

1 Outer membrane

1.1 Porins





Essential Nutrients for ATP Production



b-Oxidation of fats

- FAD (riboflavin), NADH (niacin), CoQ10
- Carnitine to transport fatty acids

Citric acid cycle

- Iron, magnesium, manganese
- B1, B2, B3
- Cysteine (glutathione)
- lipoate

ETC

- CoQ10 (transports high-energy electrons)
- Riboflavin (complex II)
- NADH (niacin)
- Magnesium (final ATP production)

Why is mitochondrial health important?



- Increases energy
- Enhances longevity
- Improves detoxification
- **Prevents neurodegeneration - the brain uses 70% of our ATP!**
- Helps prevent and improve chronic diseases



- Diseases & Symptoms
- Physical exam clues
- Diagnostic testing



Do you have mitochondrial dysfunction?



- Neurologic
- Cardiovascular
- Liver/Kidney
- Muscles
- Gastrointestinal
- Endocrine
- Systemic



Recognizing Energy Dysfunction

Energy Dysfunction & Neurological Disorders

A decorative white circle with a teal outline is positioned below the title and above a horizontal dashed teal line.

- Depression
- Autism
- Migraines
- Seizures
- Peripheral neuropathy
- Neurodegenerative disorders

Energy Dysfunction & Neurodegenerative Disorders



- Alzheimer's disease (AD)
- Parkinson's disease (PD)
- Multiple Sclerosis (MS)
- Amyotrophic Lateral Sclerosis (ALS)
- Traumatic Brain Injury (TBI)
- Post CVA Brain Injury (PCVABI)
- Non-Alzheimer's Cognitive Decline (NACD)

Energy Dysfunction & Cardiovascular Disorders



- Congestive Heart Failure (CHF)
- Oxidized LDL
- Postural orthostatic tachycardia syndrome (POTS)
- Tachycardia
- Heart block

Energy Dysfunction and Liver & Kidney Disorders



- Liver failure
- Nephrotic syndrome
- Nephropathy related to type 2 Diabetes mellitus
- Low blood sugar

Energy Dysfunction & Muscle Symptoms



- Weakness
- Cramping
- Muscle wasting

Energy Dysfunction & Gastrointestinal Disorders



- GERD
- Irritable bowel syndrome
- GI dysmotility
- Exocrine pancreatic dysfunction
 - Steatorrhea
 - Diarrhea
 - Stomach Pain
 - Flatulence and Bloating
 - Malnutrition and Vitamin Deficiency
 - Unintentional Weight Loss

Energy Dysfunction and Endocrine & Systemic Disorders

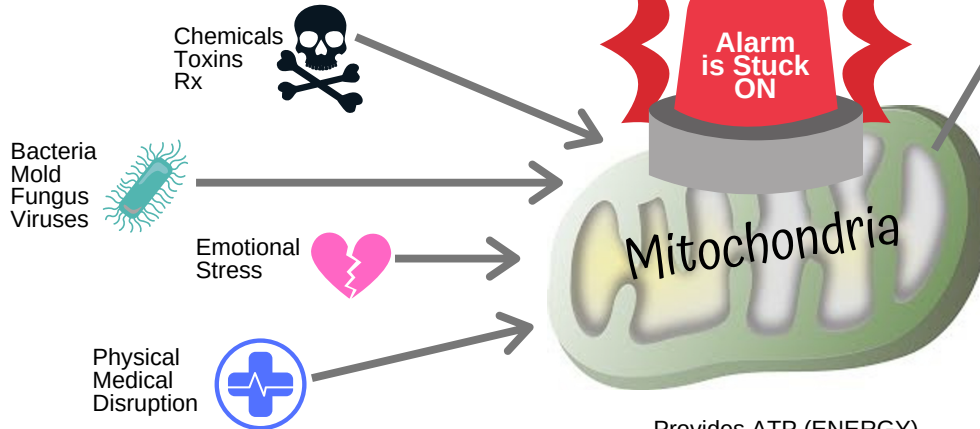


- Fatigue, Chronic Fatigue Syndrome
- Fibromyalgia
- Chronic Pain
- Sleep Apnea
- Type 2 Diabetes
- Hypothyroidism

The Cell **DANGER** Response



The **cell danger response** is a natural process by which our mitochondria protect and defend themselves and our bodies from threats such as infections, toxins, physical and psychological trauma and other environmental stressors. It's the way we heal after an injury.



Our our cells respond to multiple triggers. They all "**ring the same bell**". But instead of completing the cycle of healing to return to normal, the alarm can get "stuck" on and will impact cellular functioning. Our cells divert their precious resources to try and heal from an internal "fire" that is no longer a threat.

Provides ATP (ENERGY). Mitochondria can move from being a Powerplant (making energy) to Battleship (defensive fighting). When the alarm is "on", mitochondria can get stuck in one of three phases:

- CD1 Fight (attack)
- CD2 Flight (growth)
- CD3 Freeze (adaptive)



Illness is caused by a **prolonged biological REACTION** to the injury, but **not necessarily the specific** initial agent of insult. This results in exhausting the cell's resources to preserve function, leading to:

- Leaky cell membranes
- Depleted nutrients
- Altered enzymes
- Epigenetic changes
- Tissue damage
- Hormonal shifts

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Eventually, these deep cellular signs of inflammation will cluster to form patterns of recognizable symptoms and diagnoses such as:

- Chronic Fatigue
- Autoimmune disease
- Fibromyalgia
- Cortisol/hormonal imbalance
- Glucose imbalance (Type 2 DM, metabolic syndrome)
- MAST cell/Histamine problems
- *and many more.....*

“Research now shows that the primary source of oxidative stress in cells is leakage of oxygen and high- energy electrons from the mitochondria. This leakage increases when key nutrients/protective molecules are missing, such as the dose-dependent depletion of CoQ10 in patients taking statin drugs — a problem that has been known for a long time.”

Mitochondria—Fundamental to Life and Health, Joseph Pizzorno, ND,
Editor in Chief Integrative Medicine • Vol. 13, No. 2 • April 2014



- Neurological Exam
- Mental Status Exam
- Peripheral Nerves
- Skin/Hair/Nail Exam



Physical Exam Clues to Energy Dysfunction



- CBC, CMP
- Iron, Ferritin
- GGT
- HgbA1C
- Omega 3:6 fatty acid ratio
- Insulin
- hs-CRP
- Homocysteine
- TSH, FT4, TT3, RT3
- Micronutrients
- CoQ10
- Glutathione
- RBC Magnesium
- Organic Acid Test
- Genetic SNPs



Diagnostic Testing



- How are you sleeping? Do you feel well rested when you wake up?
- Are you able to exercise? What type? How often? how much? How do you feel during and afterwards?
- What are you eating? Do you get hangry? Sleepy after eating?
- Are you inflamed?
- How do you feel? Do you have enough energy to do all that you desire?
- How's your mood? Do you suffer with depression or chronic pain?



Life is Diagnostic



Sleep



Exercise



Regulate Blood Sugar



Address Inflammation



Brassica and Allium

- Improve detoxification
- Increase glutathione production
- Increase GABA production
- Enhance Neuroprotection
- Improve endothelial function

- **Mito Eating Plan**
- **Intermittent Fasting**
- **Nutritional Supplementation**



Optimize Nutrition



**Minimize Exposure to
Environmental Toxins &
Pharmaceutical Drugs**



Support Liver Health

Mental

Emotional

Spiritual



E-Mail Your Questions in Advance



HELP@CARINGFORTHEBODY.ORG

OR

VIA YOUR PATIENT PORTAL

OR

CALL THE OFFICE AT (828)490-1545



COVID 19 Update Questions & Answers

What you may be dealing with...



- Anxiety, worry and fear
- Concern about your health, loved ones and finances
- Uncertainty
- Frustration
- Anger
- Boredom
- Ambivalence
- A desire to use drugs or alcohol
- Symptoms of mental illness

Protect Yourself & Our Community



- Wash hands frequently with soap and water, and for at least 20 seconds each time.
- Avoid touching your eyes, nose and mouth with unwashed hands.
- Avoid close contact with people who are ill.
- Cover your mouth and nose with a tissue when you cough or sneeze.
- Do not reuse tissue after coughing, sneezing, or blowing your nose.
- Clean and disinfect surfaces that are frequently touched.
- Avoid crowds.
- Stay at home if you are sick.

Take care of yourself



- Get plenty of sleep.
- Find ways to relax and have fun.
- Talk it out.
- Laugh often!
- Breathe, stretch, meditate, pray and keep a gratitude journal.
- Get outside in the sunshine. Exercise.
- Eat nutritious foods.
- Consider nutritional supplements.
- Take steps to manage your chronic conditions.
- Do not allow yourself to go into fear mode.
- Draw on your faith tradition and the support of loved ones.

Recommendations for High Risk Individuals



People at high risk include anyone:

- Over 65 years of age, or
- with underlying health conditions including heart disease, lung disease, or diabetes, or
- with weakened immune systems.

Stay at home to the extent possible to decrease the chance of infection.

Protect Your Mental Health



Minimize watching, reading or listening to news that causes you to feel anxious or distressed; seek information only from trusted sources and mainly to take practical steps to prepare your plans and protect yourself and loved ones.

- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public/myth-busters>
- <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
- <https://www.ncdhhs.gov/divisions/public-health/coronavirus-disease-2019-covid-19-response-north-carolina>
- https://www.buncombecounty.org/Governing/Depts/Health/news_detail.aspx?newsid=18491

Working Together



Protect yourself and be supportive to others. Assisting others in their time of need can benefit the person receiving support as well as the helper.

For example, check-in by phone on neighbors or people in your community who may need some extra assistance. Working together as one community can help to create solidarity in addressing Covid-19 together.

Emergency Warning Signs



If you develop emergency warning signs for COVID-19 get medical attention immediately. Emergency warning signs include*:

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

*This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning.

What to do and when to seek medical evaluation and advice:



- If you or your child have fever AND cough, call your healthcare provider or an urgent care center.
- Do NOT show up at your healthcare provider's office or the urgent care without calling first.
- Do NOT go to the emergency room for mild to moderate symptoms. Emergency rooms need to be able to serve the most critically ill.
- If you are having a medical emergency, call 9-1-1 and tell them your symptoms.
- You can also call 828-250-5109 to speak with a Communicable Disease (CD) nurse at BCHHS. Leave a message and a CD nurse will return your call as quickly as possible.

Talk to Your Doctor



- I am available via Telemedicine to address your concerns about COVID 19 prevention and for advice about treatment options.
- I will do my best to connect with you beyond my normal business hours.
- E-mail me at help@caringforthebody.org and I will contact you as soon as I am able to do so.

Be kind



Practice kindness, compassion, forgiveness and have patience with your fellow humans.

Cynthia Libert, M.D.

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