

# CELLULAR ENERGY AND ORTHOPEDICS

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# WHAT CAUSES CHRONIC PAIN?

- Poor circulation to ligaments and joints.
- Aging further decreases both circulation and OU.
- Trauma produces localized edema, inflammation, and depolarized membranes causing a further localized decrease in circulation.
- Decreased circulation from trauma means a further decrease in local OU secondary to decreased oxygen and nutrient delivery.
- This results in increased localized acidosis and free radical production and possibly infection which hurts and perpetuates the cycle of injury!

# SO WHAT CURES CHRONIC PAIN?

## **Break the cycle of injury by:**

- Improving oxygen utilization •
- Stimulating increased circulation •
- Increasing free radical control •
  - Decreasing acidosis •
  - Decreasing inflammation •
  - Eradicating infection •
- Delivering mitochondrial nutrients, bicarb, anti-inflammatories, and oxygen •  
(ozone) = Prolozone

# WHY DON'T THESE LOCALIZED AREAS HEAL?

- An injured area sends out biochemical and neurological signals that draw in stem cells and blast cells.
- These cells will repair the damage if they have what they need.
- They need adequate OU. The same factors that caused the chronic pain in the first place interfere with stem and blast cell growth factor activities.

# WHAT IS MITOCHONDRIAL DEFICIENCY SYNDROME?

- Conditions with reduced energy production
  - Which conditions are relevant?
    - Diabetes
    - Obesity
    - Osteoarthritis
    - Dementia

# WHAT IS PROLOZONE®?

- Glucose, vitamins, and minerals critical for mitochondrial function are provided.
- Ozone stimulates increased O<sub>2</sub> by forming ozonides which oxidize NADH to NAD.
- The result is that the stem and blast cells get what they need, circulation and membrane stability are re-established, pain is reduced, and the healing process is rejuvenated.
- Prolozone compliments stem cell therapy and PRP.

# HOW ALL THE SUBJECTS IN THIS SESSION CONNECT?

- There are indications that each of these treatments
  - PRP
  - Cannabis
  - Exercise
- Activate Body Repair Mechanisms
- Affect diverse conditions
  - Diabetes
  - Osteoarthritis
  - Dementia
  - Heart disease

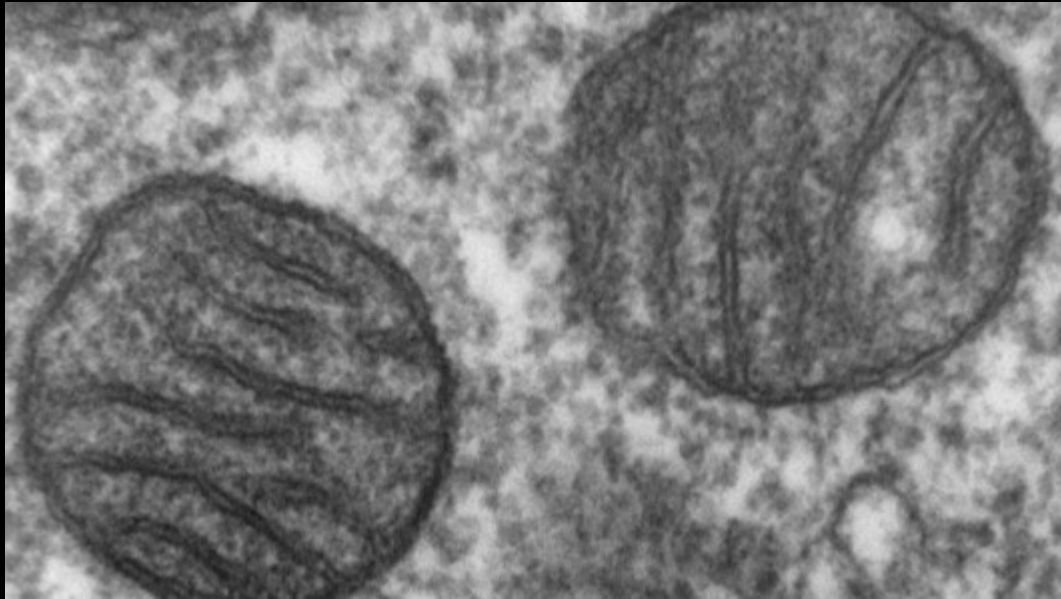


**“The world belongs to the energetic.”**

**Ralph Waldo Emerson**  
*Essayist & Poet (1803-1882)*







# MITOCHONDRIAL FACTS

- **Metabolically active cells contain thousands of mitochondria**, which make up ~40% of the cytoplasm. There are said to be 10 million billion mitochondria in an adult human (i.e. ~10% of our body weight).
- **Mitochondria are not static.** Triggered by a variety of physiological stimuli and differentiation states they are in constant movement within cells, and are constantly changing in size, number and mass.

# Oxygen Utilization

