Hydrogen Peroxide

A Truly Natural Product

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The History

- Pre-Historic Air
  - 35-50% Oxygen
- Today
  - Ideally 20% Oxygen
  - Realistically 10% Oxygen

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The Timeline…

- **1811 Nysten**- Successfully Used Oxygen therapies with Dogs
- **1818 Thenard**- Discovered and Described Hydrogen Peroxide (H_2O_2)
- **1886 Demarquary**- Warned against the use of Oxygen (O_2)
- **1888 Cotelyour**- First to utilize IV infusion of Oxygen
- **1916 Turncliffe and Stebbing**- Described the uses of Oxygen therapies
  - IV H_2O_2
  - O_2 injections
  - O_2 Rectal insufflation
- **1920 Dr T.H. Oliver**- Oxygen therapies published in the Lancet journal
- **1940 Father R Whilhelm**- Began educating thousands of doctors on the benefits of H_2O_2
- **William Douglass II**- Book- H_2O_2 : Medical Miracle

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What happened?

- With the advent of prescription medication and antibiotics, the use of Hydrogen Peroxide decreased.
- Research most likely decreased due to Hydrogen Peroxide being a non-patentable product.

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What about

Free Radicals!?!

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The Story of Free Radicals

- Our bodies create and use free radicals to destroy harmful bacteria, viruses and fungi
- This is controlled and **balanced** through checks of Antioxidants vs Oxidizing agents

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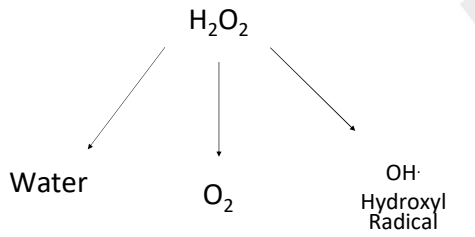
Hydrogen Peroxide Metabolism

3 Main pathways:



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The Catalyst

- It starts as a superoxide dismutase reaction, initiated by NAD

Oxidation: $O_2^{\cdot -} \longrightarrow O_2 + e^-$

Reduction: $O_2^{\cdot -} + e^- + 2H^+ \longrightarrow H_2O_2$

Overall Reaction:

$2\,O_2^{\cdot -} + 2H^+ \xrightleftharpoons{NAD} H_2O_2 + O_2$

superoxide — hydrogen peroxide and dioxygen

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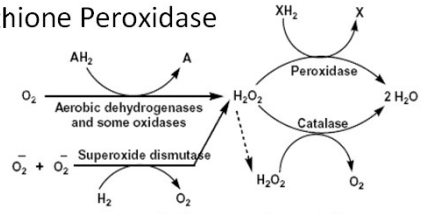
H_2O_2 Reduced to H_2O and O_2

H_2O_2 is reduced to water by 2 enzymes:

1) Catalase
2) Glutathione Peroxidase



Hydrogen peroxide metabolism

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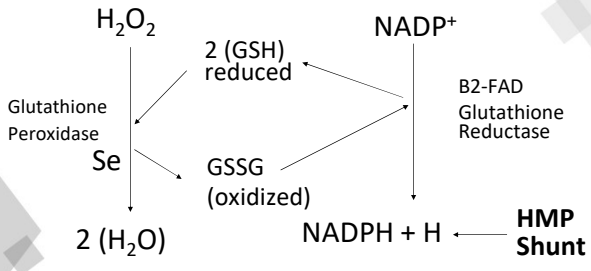
Peroxide and Glutathione

The Peroxide Glutathione Redox Cycle and cofactors



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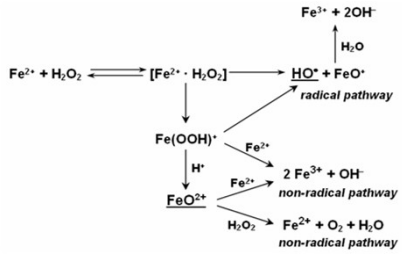
Hydroxy Radical Formed by Fe

- Hydroxy radical formed by radiolysis with Fe



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Formation of Hypochlorous Acid

- H_2O_2 and Chloride use Myeloperoxidase to form Hypochlorous Acid

MPO

1. $H_2O_2 + Cl^- \dashrightarrow HOCl + H_2O$

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Free Radicals

- Hydrogen Peroxide partially reduced or in excess can and will cause damage to the cell
- All of these pathways are controlled by whether or nor the NADPH oxidase is defective or overactive to initiate the reaction. It is also inherent in the glutathione pathways!!

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Enzymatic Review

Found in all metabolic pathways

- Peroxidase
- Cyclo-oxygenase
- Lipo-oxygenase
- Oxidase
- Myeloperoxidase
- Catalase
- Superoxide Dismutase

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REVIEW

- Oxygen destroyed through
  - Air pollution
  - Chlorination
  - Water pollution
  - Antibiotics
  - Over processing foods

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Micro-molar amounts of infused H_20_2 have been found to increase oxidative enzymatic activity to the maximum rate of reaction

1. Increases glutathione oxidation to GSSG (oxidized glutathione) increasing ATP
2. Activates hexose monophosphate shunt
3. Alters Na-K ATPase activity
4. Regulates membrane transport mitochondrial and cellular
5. Regulates thermogenic control

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Major Functions

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Immune

1. Polymorphonuclear leukocytes
   - Respiratory burst through combining O_2 And H_2O creating H_2O_2
   - H_2O_2 converting to HOCL and OH
     - Phagocytosis

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Immune

2. Production of H2O2 from Vit C stimulates production of prostaglandins
   - Clinical effects of Vit C with inflammatory reactions
     - Related to protective action against infections due to H_2O_2

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Immune

3. Lactobacillus produces H_2O_2
   - Beneficial to colon and vaginal areas
   - Aerobic bacteria thrive in the presence of oxygen rich H_2O_2
   - Anaerobic bacteria die in the presence of oxygen and H_2O_2

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Immune

4. WBC's (granulocytes)
   - Create H_2O_2
   - First line of defense to oxidize foreign substances
   - H_2O_2 reacts with catalase in plasma and WBC's
     - Intercellular reactions create increase in O_2 release

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Immune

5. H_2O_2
   - High levels
   - Colostrum
     - highest
   - Breast milk

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Immune

6. H2O2 required for production of Thyroid and reproductive Hormones
   - Iodination of thyroglobulin
   - Regulates formation of hormones
     - Thyroxine
     - Progesterone
     - Prostaglandin
     - Inhibits: dopamine, noradrenalin and serotonin

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Immune

7. Improves glucose utilization of diabetics
   - Increases glycogen production from glucose
   - Type II diabetes stabilizes with infusions of H_2O_2

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Immune

8. Through increasing oxygenation H_2O_2 dilates the blood vessels

In reference to the heart and brain

- Aortic strip relaxation response
- Pulmonary arterial relaxation

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Immune

9. Production of interferon through natural killer cells and monocytes

10. In the presence of CO-Q-10 creates intracellular thermogenesis

11. Detoxification through oxidation of lipid material in vessel walls, reverses atherosclerosis

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Side Effects of Hydrogen Peroxide

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The on-going debate occurs with the cleaving of O_2, leaving a free radical

Free radicals (in excess) have been responsible for all types of diseases, including premature aging. These again are due to deficiencies in nutrients and pathways that have become defective

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Contraindications / Cautions

1. Anemia
2. Thalassemia
   1,2 & 3,4 autoimmune dz
3. Pregnancy
4. Chronic granulomatous diseases/ membrane stability diseases
   a. Sarcoidosis
   b. TB
5. Know your patient: particularly with joint pain and active RA factors, this releases reactive O2 intermediates, leukotrienes, prostaglandins, and H2O2

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Symptomatic Side Effects

1. Herxheimer reaction-migratory aches, nausea, occasional: headaches, mild diarrhea and chills without fever (other cytokine reaction responses)
2. Anxiety
3. Fatigue
4. Skin eruptions
5. Flu like symptoms
6. Vasculitis

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External Products

Inexpensive
Safe

Use common sense
Stay with recommended dose/sig

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TYPES AVAILABLE

GRADES

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3%

- 1 pint equal to 10 pts of O_2
- Available in most drug stores
- Contains stabilizers
  - Not recommended for ingestion
  - Acetanilide, phenol, Na starnate, tetrasodium phos. stabilizers

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6%

- Use
- Beautician shops
- Not recommended for any use

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30% Reagent Grade

- Use
- Scientific experiments
- Contains stabilizers
- Not for internal use

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30-32% Electronic Grade

- Cleaner for electronic parts
- Not for internal use

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35% Technical Grade

- Neutralized by phosphorus in the presence of chlorine
- Concentrated grade form of reagent
- Not for internal use

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35% Food Grade

- USE INTERNALLY – THE ONLY ONE
- Food production, eggs cheese, whey and sprayed on aseptic packaging
- Requires dilution
  - Toxic
  - Fatal
- Best storage: Freezer

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90% Rocket Fuel

- Used in Rocket Fuel

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Considerations

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Oral Ingestion

- 3% grade for diluted oral rinsing, and topical application
- Use only 35% food grade for ingestion

Caution: Excessive dosing and handling can bring about fatal results

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IV Infusions

Advantages:

- Metabolic rate is significantly increased (100% during infusion)
- Dilates small arteries
- O_2 remained in circulation after H_2O_2 infusion
- Increased mental alertness
- Increase in visual acuity
- Improved feeling of relaxation 24 hrs after IV H_2O_2
- T and B cells are increased 20-35%

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IV Infusions

Disadvantages:

- H_2O_2 colitis with H_2O_2 enema (3 cases)
- Thrombophlebitis at infusion site
  - Infused too rapidly
- Adding Vitamin C
- Wrong dosage

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Hydrogen Peroxide Protocols

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Screening Prior to Treatment

- History
- Physical
- LABS:
  - Chemistry Screen (FBS)
  - CBC
  - G6PD
  - UA
  - Thyroid

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EQUIPMENT

- Basic Solution
  - D_5W or NS (normal saline)
  - 250cc Reduced plasticine (DHEP)bags
  - Filtered
  - Vented Tubing (glass only)

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Basic Protocol

			1st	2nd	3rd	4th
5th	6th					
H_2O_2 3%	0.5ml	1	1.5	2	2.5	3

- **Increase ONLY 0.5 cc per tx**
- **3cc max infusion**
- 0.5-1 mg Manganese
- (H_2O_2 + Mn H_2O + Mn0)
- 1-5ml Magnesium Sulfate 500 mg/mL/ or adjusted amount for Chloride 200 mg/mL
- DMSO 50% 1ml ……5ml
- 2ml HCL - IVP

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Farr Triox Protocol

- Vitamin C (oxidative. High dose)
- Chelation – EDTA
- Hydrogen Peroxide
- Note: Infuse each IV on separate days

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RATE of INFUSION

1 ½ hours

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Shelf Life

- Lack of refrigeration: 1% dismutation per month
- Heat greater than 120 degrees spontaneous dismutation

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THERAPEUTIC USES

Reprinted from
Hydrogen Peroxide, Medical Miracle
by William Campbell Douglass, MD

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Therapeutic Uses

"Intravenous hydrogen peroxide is a *universal treatment* because it increases oxygen available to the tissues; it has a truly remarkable range of effectiveness. Because the treatment increases oxygen availability, whether due to the direct effect of the oxygen produced by the hydrogen peroxide or the secondary manufacturing of oxygen by the body in response to the hydrogen peroxide, it is a basic treatment that can be used with almost any other therapy in almost any disease. The peroxide is always given separately and not mixed with other agents".

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Therapeutic Uses

The following disease conditions and infecting agents are candidates for hydrogen peroxide therapy:

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Therapeutic Uses

- Peripheral Vascular Disease
- Cerebral Vascular Disease
- Alzheimer's
- Cardiovascular Disease
- Coronary Spasm (angina)
- Cardio-conversion
- Arrhythmias
- Chronic Obstructive Pulmonary Disease
- Emphysema
- Asthma
- Influenza
- Herpes Zoster
- Herpes Simplex
- Temporal Arteritis

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Therapeutic Uses

- Systemic Chronic Candidiasis
- Chronic Recurrent Ebstein-Barr Infection
- Diabetes Type II
- HIV Infection
- Metastatic Carcinoma
- Multiple Sclerosis
- Rheumatoid Arthritis
- Acute and Chronic Viral Infections
- Chronic unresponsive Bacterial Infection
- Parasitic Infections
- Parkinsonism
- Migraine Headaches
- Cluster Headaches
- Vascular Headaches
- Chronic Pain Syndromes (multiple etiologies)
- Environmental Allergy Reactions (universal)

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BACTERIA
Therapeutic Uses

- Legionella pneumophila
- Treponema pallidum
- Escherichia coli
- Salmonella typhimurium
- Mycobacterium leprae
- Staphylococcus aureus
- Pseudomonas aeruginosa
- Campylobacter jejuni
- Salmonella typhi
- Group B Streptococci
- Bacillus cereus
- Actinobacillus
- Actinomycetermoncomitans
- Bacteroides
- Neisseria gonorrhoeae

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FUNGI
Therapeutic Uses

- Histoplasma capsulatum
- Candida albicans
- Coccidioides
- Paraoccidioides
- Blastomyces
- Sporothrix
- Mucoraceae
- Aspergillus fumigatus
- Coccidioides immitis

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PARASITES
Therapeutic Uses

- Pneumocystis carinii
- Plasmodium yoelii
- Plasmodium berghei
- Toxoplasma gondii
- Nippostrongycus brasiliensis
- Naegleria fowleri
- Leishmania major
- Schistosoma mansoni
- Chlamydia psittaci
- Trichomonas vaginalis
- Tepanosoma cruzi
- Endameba histolytica

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TUMOR TYPES
Therapeutic Uses

- Enrlich carinoma
- Neuroblastoma

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VIRUSES
Therapeutic Uses

- Human Immunodeficiency Virus
- Cytomegalovirus
- Lymphocytic choriomeningitis virus
- Tacaribe virus

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CONCLUSION

- IV hydrogen peroxide is a universal tx
- Increasing oxygen availability to tissues
- Due to direct oxygen production by H_2O_2
- Secondary manufacturing by the body in response to H_2O_2

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