

**The 5th International Symposium For
Hyperbaric Oxygen And The Recoverable
Brain**

Fort Lauderdale, Florida, USA

July 19-22, 2006

Introduction

F. Gerstenbrand

**The Pressurized Environment
is Not New**

**The 1st Recorded Use in
History was a Diving Bell
Alexander the Great Used in
the Siege of Tyre in 332 B.C.**

Oxygen was Discovered by
Priestly in 1774

He Cautioned Increased
Pressure May Be Toxic

This Held the Field Back
Many Years

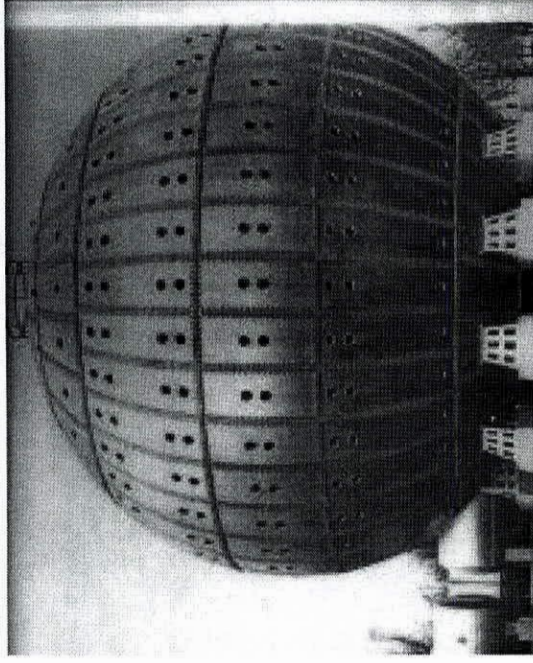
1885 - The Confidence This
Treatment Deserves Might Be
Lost By Over Emphasizing Its
Value

British Medical Journal
Dr C. Theodore Williams
Brompton Hospital

1920s – 30s Remarkable
Clinical Results Were
Obtained by
Orville Cunningham,
Professor of Anesthesia,
Univ. of Kansas

1928 - The 6 Story Stainless
Steel Domicilium Was Erected
For Cunningham by Timken
Ball Bearing Company in
Cleveland

Cunningham's Domicilium



Cunningham was Destroyed by
the AMA and the Magnificent
Domicilium was Sold For Scrap
During WWII

Hyperbaric Oxygen Therapy is the use of 100% Oxygen at greater than atmospheric pressure

Pressurized O₂ adheres to all gas laws of physics

Henry's Law states there is a direct relationship between pressure and the amount of gas dissolved in solutes

Under HBOT O₂ is Increased
in the:

- Bone
- Urine
- Plasma
- Lymph
- And Most Importantly the
Cerebrospinal Fluid

How is O₂ handled
in the body ?

Under pressure free
molecular oxygen is
delivered directly to the cell
for immediate metabolic
use without energy
exchange.

Edward Teller, Ph.D.

Oxygen is a Drug With a
Specific Dose for Each
Diagnosis

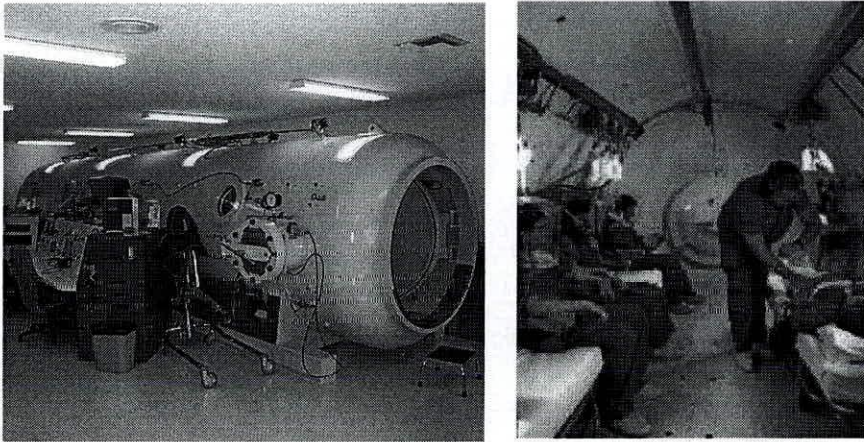
Dose Equals

- Depth of Pressure
- Time (length) of Exposure
- Frequency
- Total Number of Treatments

How Administered - Pressure Vessel

- Multiplace Chamber
- Monoplace Chamber
- Low Pressure Portable Chamber

Multiplace Chamber



Monoplace Chamber



Proper Protocols

- For Insurance Reimbursement
20 – 60 treatments may be recommended
- Some Patients May Require
Hundreds of Treatments

Oxygen toxicity does not occur when administered properly, and, in fact, hyperbaric oxygen works as a scavenger of free radicals.

Effects of Pressurized Oxygen in Acute Brain Insult (I)

- Reduces cerebral edema & ICP
- Limits the ischemic cascade
- Reduces CNS lactate peak in hypoxia
- Neutralizes toxic amines
- Deaggregation of platelets
- Increases Phagocytic activity of PMN cells (white blood cells)

Effects of Pressurized Oxygen in Acute Brain Insult (II)

- Reduces Adhesiveness of WBCs to endothelium
- Perfuses all tissue spaces
- Life sustaining O₂ available via retrograde perfusion in absence of a trickle phenomena
- Delivers metabolically available O₂ without chemical energy transfer –
Enough to sustain life without blood

Effects of Pressurized Oxygen in Acute Brain Insult (III)

- Under pressure O₂ adheres to all the gas laws of physics
- Displaces all other gases in the body:
 - N₂, CO
- Follows the Law of Mass Action
- Completely saturates hemoglobin
- Increases plasma O₂ by 2000%
- Dissolves in cerebrospinal fluid, lymph, bone and urine

Effects of Pressurized Oxygen in Chronic Brain Insult (I)

- Reactivates idling neurons
- Enhances plasticity
- Efficiently elevates diffusional driving force for O₂ thereby increasing tissue oxygen availability
- Promotes phagocytosis (internal debridement)
- Ameliorates multiple biochemical changes

Effects of Pressurized Oxygen in Chronic Brain Insult (II)

- Restores the integrity of the blood brain barrier and cell membranes
- Improves cell respiration, Reduces cell byproducts – cytokines
- Promotes Neovascularization
- Promotes Epithelization

Effects of Pressurized Oxygen in Chronic Brain Insult (III)

- Acts as scavenger of free radicals
- Bacteriostatic effects, synergizes with certain antibiotics
- Neutralizes certain Toxins:
Clostridium, anaerobes
- Stimulates the adaptive immune system, especially in elderly (mice)
- Activates the dendrite system

SHOWGUIDE

JULY 18-22, 2006 FORT LAUDERDALE, FLORIDA



The 1st International Symposium For The Use Of
Hyperbaric Oxygenation In Neurosciences

Presented by

HB Ocean Hyperbaric
O₂ Neurologic Center
Hyperbaric Oxygenation Treatment

Co-Sponsor: World Federation of Neurology,
Research Group on Space and Underwater Neurology,
Subdivision Hyperbaric Oxygenation.