


Hyperbaric Oxygenation for Near Hanging: Does it make a difference?



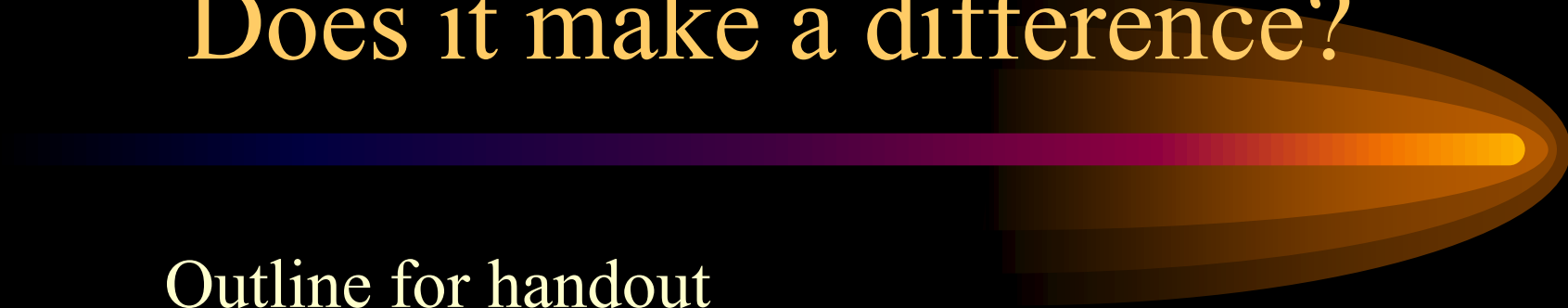
A Lecture for the Critical Care team of the
University of Florida by

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Hyperbaric Oxygenation for Near Hanging: Does it make a difference?



Outline for handout

Handout, include references, and abstracts, pathophysiology, pathogenesis, and rational for treatment.

HBO Rx and Near Hanging: Does it make a difference?

Outline

- Background:
 - FACILITY AND PATIENTS
- Evidence:
 - STUDY AND LITERATURE
- Unanswered Questions
- Opportunities for Future RESEARCH
- DISCUSSION

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

- FACILITY AND PATIENTS

- University of Maryland and MIEMSS:

- Where the uncommon is common, and the bizarre is not a surprise.

- A FEW PHOTOS/DESCRIPTION MIEMSS

- Facility and Patients

- Roy Myers and Brain Resuscitation

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

- Background

- A FEW PHOTOS/DESCRIPTION MIEMSS

- Where do the patients come from and who are they? (Circa 1992)

- Streets, Hospitals and Prisons

- Blunt outside the City of Baltimore

- Some penetrating and blunt from the City of Baltimore

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

- Patient Population by Cooperative Agreement and Continuous Communication With Other Baltimore and Regional Trauma Centers
 - Blunt outside the city of Baltimore and North of DC
 - Some penetrating and blunt from the city of Baltimore

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

- Background

- A FEW PHOTOS/DESCRIPTION MIEMSS

- Facility
 - Patients
 - Records

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

- Background

- Roy Myers / Director Hyperbaric Medicine
- MFM
 - EXPERIENCE
 - HBO Rx Interest
 - Brain Resuscitation Interest
- Review of Records and Databank

HBO Rx and Near Hanging: Does it make a difference? Background: MIEMSS

–Review of Records:

- BOTTOM LINE

–APPROXIMATELY FOUR NEAR
HANGING CASES PER YEAR AND
TREATMENT WAS VARIABLE

–SOME WITH HBO Rx

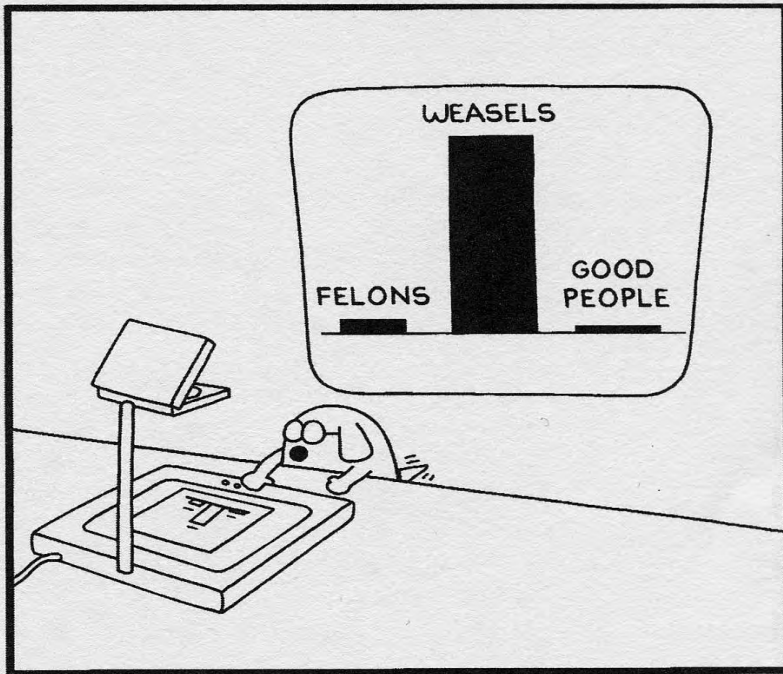
DILBERT AND THE WAY OF THE WEASEL



SCOTT ADAMS

**BASED UPON
FUNDAMENTAL
PRINCIPLES IN
THIS TEXTBOOK**

*To err is human.
To cover it up is weasel.*

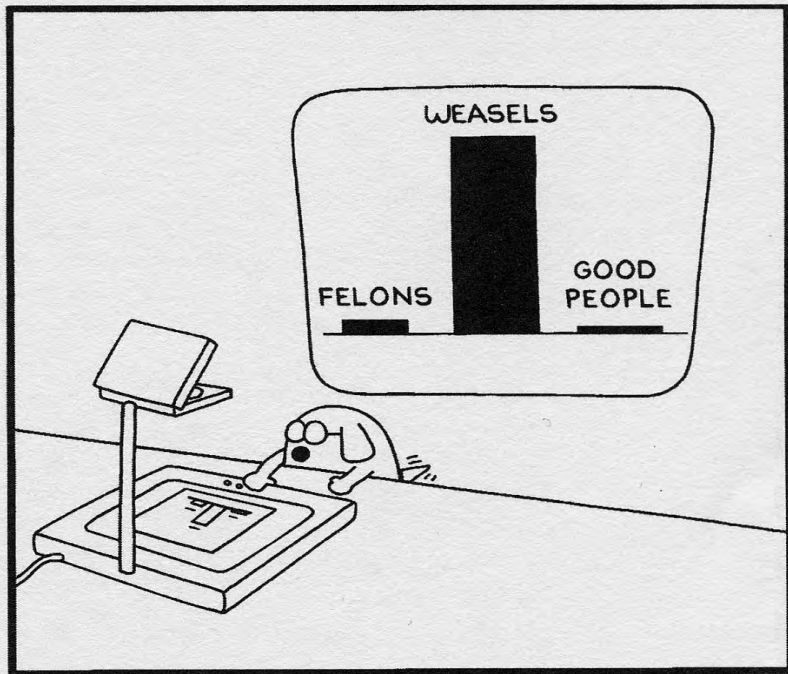


WHILE

**TRYING TO AVOID
THE
WEASEL AND FELON
COLUMNS,
AND
TRYING TO DO THE
RIGHT THING.**

COMPLIMENTS OF SCOTT ADAMS WITH PERMISSION

*To err is human.
To cover it up is weasel.*



**RECOGNIZING THAT:
FREQUENTLY THERE ARE
NO Rx ERRORS!
ADVERSE OUTCOME IS
NOT USUALLY CAUSED BY
ERRORS IN CARE.
STUFF HAPPENS!
OPPORTUNITY
TO CAPITALIZE ON
DIFFERENCES IN
CARE AND OUTCOME
BASED
ON STATE OF “ART”.
EXAMINE THE
DETAILS AND FIGURE
HOW TO MAKE IT
BETTER NEXT TIME.**

HANGING AND NEAR- HANGING: MORBIDITY, MORTALITY AND THE EFFECT OF HYPERBARIC OXYGEN THERAPY ON OUTCOME:

A RETROSPECTIVE REVIEW OF THE
MIEMSS EXPERIENCE. M.F. Mascia, R.A.M.,
Myers. Maryland Institute for Emergency
Medical Services Systems (MIEMSS)

HBO Rx and Near Hanging: Does it make a difference?

THE STUDY

WHERE DID THE IDEA COME FROM? COMPARISON: THE FRENCH EXPERIENCE

The role of hyperbaric oxygen in the treatment of near hanging victims remains controversial. Mathieu et. al. have suggested that hyperbaric oxygen reduces morbidity and results in optimal outcome if started within 3 hours of the hanging.

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

WHAT DID WE DO?



This review of near hanging victims treated at the Shock Trauma Unit of the Maryland Institute for Emergency Medical Services Systems is compared to the experience of Mathieu et. al.

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

WHAT DID WE DO?



We examined MIEMSS data on hanging and near hanging through retrospective chart review and review of Trauma Registry data prior to January 1993

HBO Rx and Near Hanging: Does it make a difference?

THE STUDY

WHAT DID WE DO?

Preliminary review disclosed forty-two case (42) cases between July 1, 1983 and January 1, 1993.

HBO Rx and Near Hanging: Does it make a difference?

THE STUDY

WHAT DID WE DO?

Fifteen (15) patients were neurologically intact upon admission and one (1) had a Glasgow coma scale of 13. These 16 patients required no specific treatment.

HBO Rx and Near Hanging:

Does it make a difference?

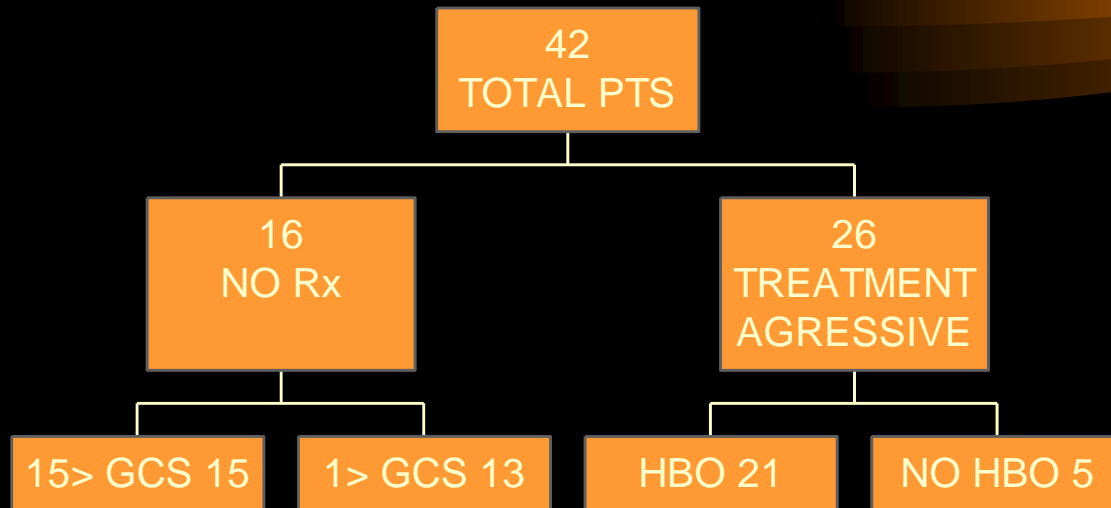
THE STUDY

WHAT DID WE DO?

All others (26) had Glasgow coma score less than 13 and were treated aggressively. Treatment included endotracheal intubation and mechanical ventilation (before or upon admission) in all cases and hyperbaric oxygen in (21).

HBO Rx and Near Hanging: Does it make a difference?

THE STUDY WHAT DID WE DO?



HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

WHAT DID WE DO?

Hyperbaric oxygen treatment was variable, dictated by response to early treatment, stability of the patient and identified pathology.

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

WHAT DID WE DO?

Population characteristics, morbidity, mortality and overall outcome observations are discussed and compared to the experience of Mathieu et. al.

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS



The population consisted of 39 males
and 3 females

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Age range of the treated group was between 9 and 62 years with a mean of 25, median 20 and mode of 15 years

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Overall mortality was 21% (9/42)

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS


All patients who died had initial Glasgow coma scale of 5 or below, one was noted to have a "central cord" lesion, and one was noted to have a C2 fracture.

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS



Length of hospital stay for survivors ranged between 1 and 68 days

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Discharge Glasgow coma scale ranged between 9 and 15 with 11 treated patients final Glasgow coma scale 15

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Seven patients with initial Glasgow coma score of 5 or below had final Glasgow coma score of 15

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Several patients with low initial Glasgow coma scale were noted to "wake up" during their first or second hyperbaric oxygen treatment

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

Information sufficient to determine interval between hanging and first HBO treatment was available for 11 of 21 patients. Within this group, admission GCS ranged from 4 to 9 and discharge GCS ranged from 0 (death) to 15

HBO Rx and Near Hanging:

Does it make a difference?

THE STUDY

RESULTS

All patients with delay in treatment greater than 300 minutes died while 5 patients with admission GCS less than 6 who were treated within 300 minutes achieved discharge GCS of 15

HBO Rx and Near Hanging:

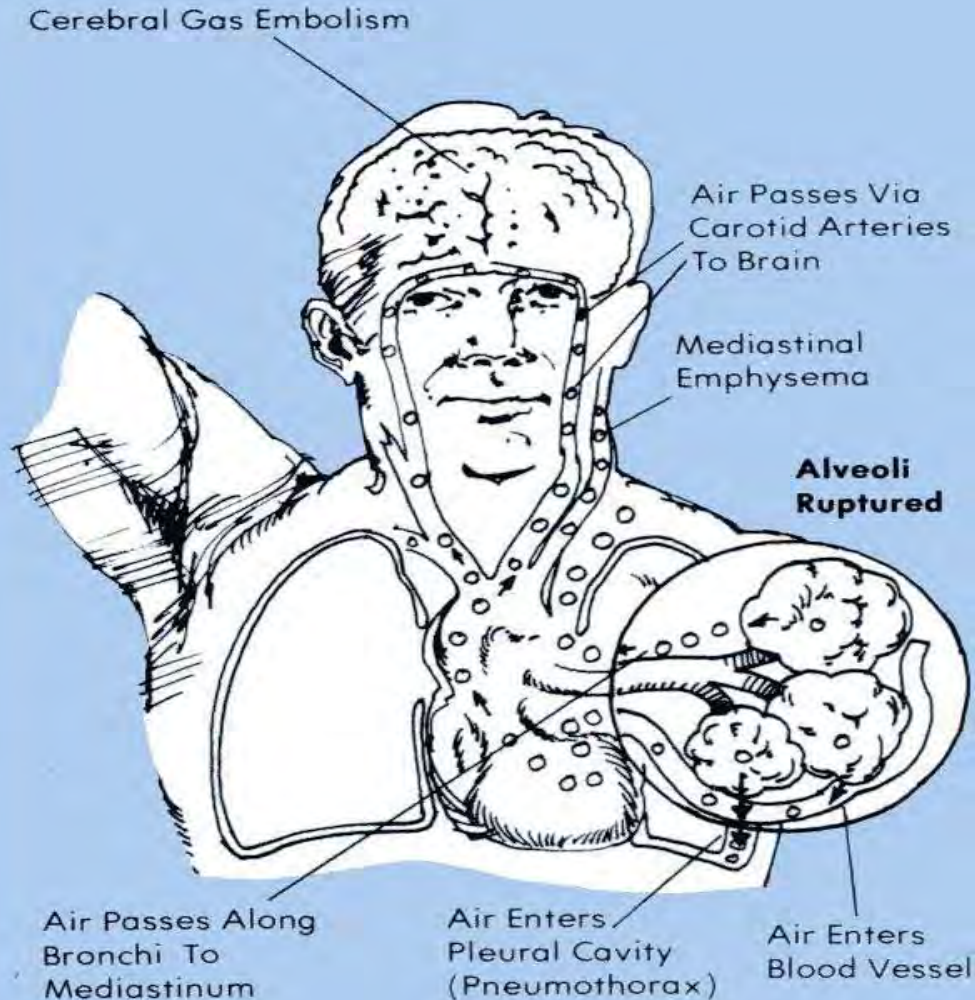
Does it make a difference?

THE STUDY CONCLUSIONS

Near hanging (non judicial) produces a constellation of pathology that depends upon methods and duration. Hyperbaric oxygen therapy appears to have a beneficial effect upon the outcome of survivors. A comprehensive database and multicenter trial will be necessary to establish optimal hyperbaric oxygen treatment for near hanging victims.

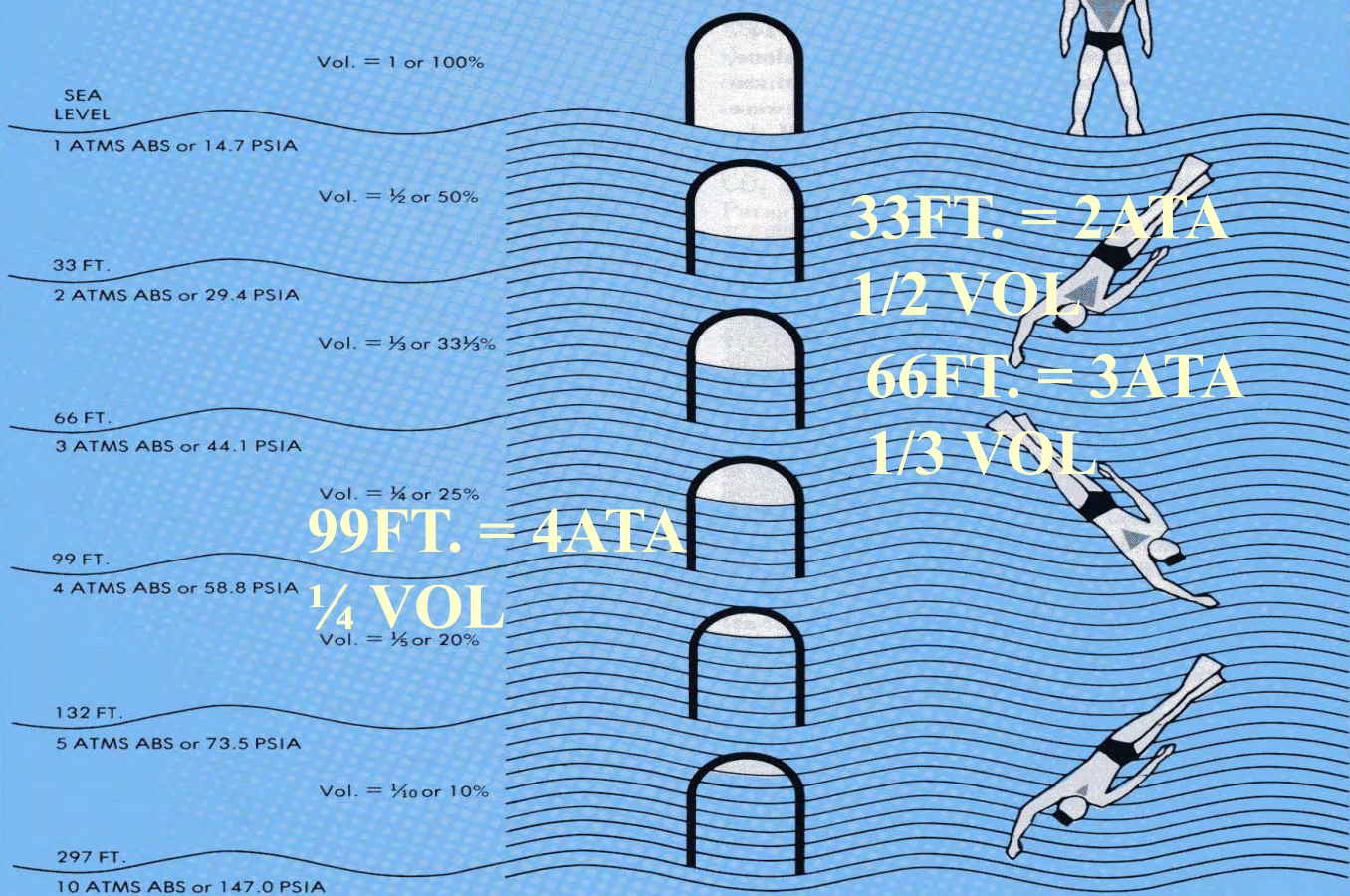
Figure 2-9
Complications From Expansion
of Air in the Lungs During Ascent

NOAA DIVE MANUAL SECOND EDITION



**HYPERBARIC
OXYGENATION:
TRADITIONALLY USED
FOR TREATMENT OF
AIR/GAS
EMBOLISM AND
DECOMPRESSION
SICKNESS.
WHY WOULD IT BE
USED AND EFFECTIVE
FOR TREATMENT
OF NEAR HANGING?**

WHAT IS DECOMPRESSION SICKNESS? SEA LEVEL



Boyle's law applied to depth versus volume and pressure.

PHYSICS AND PHYSIOLOGY OF HYPERBARIC OXYGENATION

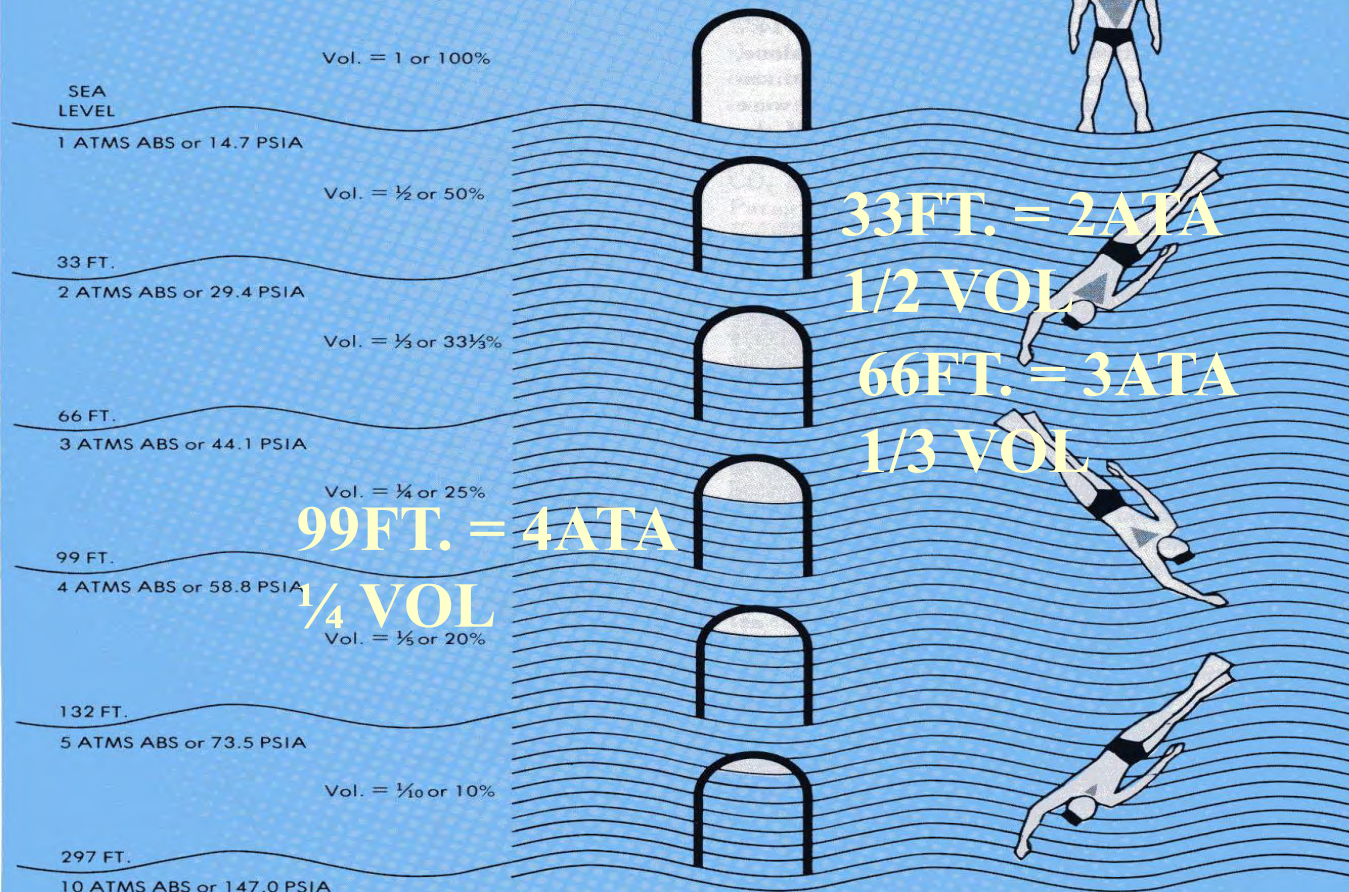
TREATMENT OF GAS EMBOLISM



SUCK OUT THE GAS ... IF POSSIBLE ON THE VENOUS SIDE, BUT

ON THE ARTERIAL SIDE, 100% OXYGEN AND PRESSURE IS THE TREATMENT

SEA LEVEL



Boyle's law applied to depth versus volume and pressure.

NOAA DIVE MANUAL SECOND EDITION

TREATMENT OF GAS EMBOLISM



**PHYSICAL AND PHARMACOLOGIC
EFFECTS OF HYPERBARIC
OXYGENATION**

**TREATMENT OF
GAS EMBOLISM AND
DECOMPRESSION SICKNESS
MAY OVERLAP WITH
ISCHEMIA AND
REPERFUSION**

**PHYSICS: MAKE BUBBLES
SMALLER**

**PHARMACOLOGY: ABORT
REPERFUSION INJURY**