

The Science of Pressure: A Guide to Hyperbaric Oxygen Therapy (HBOT)

THE PHYSICS OF HYPERBARICS: HENRY'S LAW



Beyond Red Blood Cells:
HBOT drives oxygen directly into plasma, bypassing hemoglobin limits.



1200% OXYGEN INCREASE:
At 2.4 ATA, plasma oxygen increases up to 12 times sea-level conditions.

Leveraging Henry's Law:

As pressure increases, more gas dissolves into liquid.

CORE PHYSIOLOGICAL BENEFITS



REDUCED CHRONIC INFLAMMATION:

Downregulates pro-inflammatory cytokines (IL-1 β , IL-6, TNF- α), upregulates anti-inflammatory (IL-10).



STEM CELL MOBILIZATION:

Single session boosts circulating stem cells by 600%, full protocol significantly increases bone marrow release.



STIMULATING ANGIOGENESIS:

Increases VEGF production, triggering new vessel formation in damaged tissue.

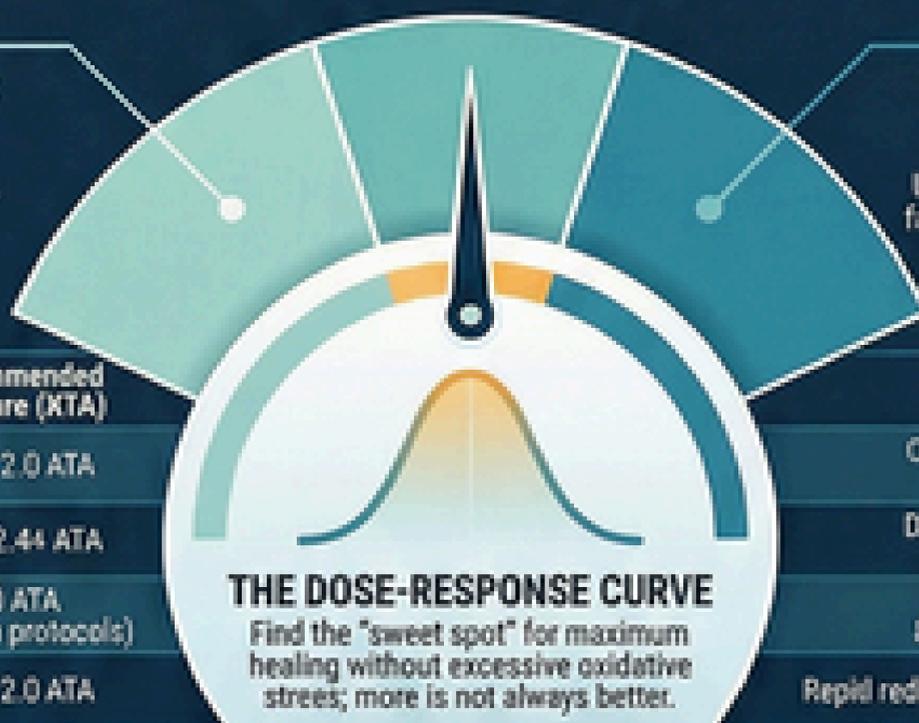
THE GOLDILOCKS ZONE: FINDING THE RIGHT PRESSURE

NEUROLOGICAL RANGE: 1.3 – 2.0 ATA

Optimized for brain oxygenation, stroke, TBI, higher pressures can cause vasoconstriction.

SYSTEMIC RANGE: 2.0 – 3.0 ATA

Utilized for systemic inflammation, fatigue, wound healing, and "killing" oxygen-sensitive bacteria.



Condition Category	Recommended Pressure (ATA)
Neurological (Stroke, TBI, Autism)	1.3 – 2.0 ATA
Systemic (Lyme, Infections)	2.0 – 2.44 ATA
Regenerative (Longevity, Stem Cells)	2.0 ATA (3-month protocols)
Acute Injury (Sports, Post Surgery)	1.3 – 2.0 ATA

Primary Mechanism
Optimized CNS blood flow & neuroplasticity
Direct anti-microbial effect & high oxygen infusion
Telomere lengthening & senescent cell removal
Rapid reduction of swelling & inflammation

KEY CLINICAL APPLICATIONS



STROKE & NEUROLOGICAL RECOVERY

Significantly improves cognitive function and quality of life for chronic stroke patients by regenerating brain tissue.



SPORTS RECOVERY & PERFORMANCE

Reduces muscle soreness, increases VO2 max, accelerates recovery from soft tissue injuries like Achilles sprains.



LONGEVITY & ANTI-AGING

Proven protocols can lengthen telomeres and reduce senescent "zombie cells" contributing to aging.



ADVANCED WOUND HEALING

Enhances inflammation, proliferation, and remodeling phases; gold standard for diabetic foot ulcers.