



Q₂
HealthLab

The logo for Q2 HealthLab is centered on a light blue background. It features a large white 'Q' with a smaller white '2' positioned to its right and slightly below. Above the 'Q' are three small white circles of varying sizes, arranged in a slight arc. Below the 'Q2' symbol, the words 'HealthLab' are written in a clean, white, sans-serif font.

HEALTH SPAN PROGRAM



SCIENCE-BASED HEALTH SPAN PROGRAM

- Revolutionary new research made major breakthroughs in the search to reverse aging and extend quality of life
- Published peer-reviewed medical study found for the first time, the reversal of biological aging in Humans. Two key genetic markers – the lengthening of Telomeres and removal of Senescent cells were dramatically enhanced via a specific 3-month, 5-days a week Hyperbaric Oxygen Therapy protocol
- O2 Health Lab has scientifically duplicated and supercharged the studies protocol by integrating additional cutting-edge wellness therapies.
- These include Red Light Photobiomodulation and NanoVi Cellular Repair. When combined with Hyperbaric Oxygen Therapy these adjunctive therapies are designed to boost outcomes and provide even greater wellness



HYPERBARIC OXYGEN EFFECT ON TELOMERE LENGTH AND CELLULAR SENESENCE - A STUDY BY DR SHAI EFRATI SAGOL CENTER, ISRAEL

- Aging is characterized by the progressive loss of physiological capacity.
- At the cellular level, two key hallmarks of the aging process include telomere length (TL) shortening and cellular senescence. Repeated intermittent hypoxic exposures, using certain hyperbaric oxygen therapy (HBOT) protocols, can induce regenerative effects which normally occur during hypoxia.
- The aim of the current study was to evaluate whether HBOT affects telomere and senescent cell concentrations in a normal, non-pathological, aging adult population.
- Methods: Thirty-five healthy independently living adults, aged 64 and older, were enrolled to receive 60 daily HBOT exposures. Whole blood samples were collected at baseline, at the 30th and 60th session, and 1-2 weeks following the last HBOT session. Peripheral blood mononuclear cells (PBMCs) telomeres length and senescence were assessed.

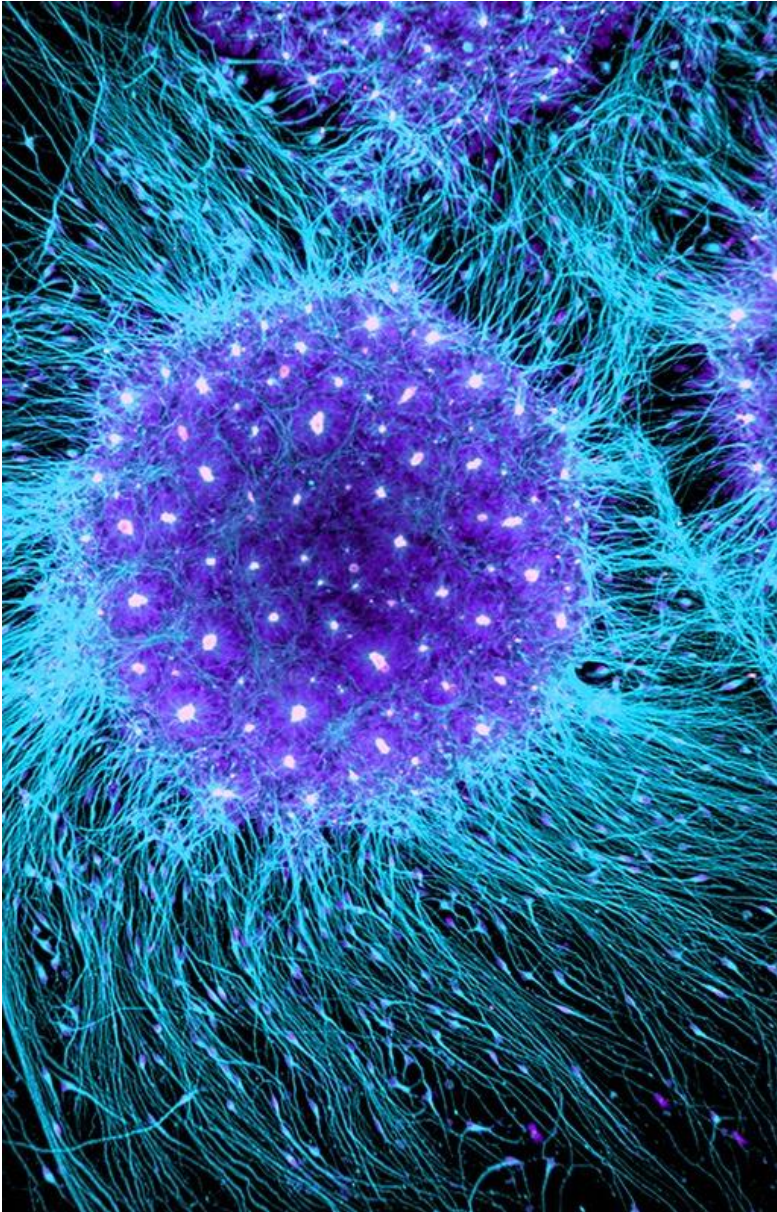


SHAMIR
MEDICAL
CENTER

TOPLINE STUDY RESULTS

- Telomeres length of T helper, T cytotoxic, natural killer and B cells increased significantly by over 20% following this HBOT protocol.
- The most significant change was noticed in B cells which increased at the 30th session, 60th session and post HBOT by $25.68\% \pm 40.42$ ($p=0.007$), $29.39\% \pm 23.39$ ($p=0.0001$) and $37.63\% \pm 52.73$ ($p=0.007$), respectively.
- There was a significant decrease in the number of senescent T helpers by $-37.30\% \pm 33.04$ post-HBOT ($P < 0.0001$). T-cytotoxic senescent cell percentages decreased significantly by $-10.96\% \pm 12.59$ ($p=0.0004$) post-HBOT.
- In conclusion, the study indicates that HBOT may induce significant senolytic effects including significantly increasing telomere length and clearance of senescent cells in the aging populations





HBOT AND STEM CELLS

- According to a study published in the American Journal of Physiology-Heart and Circulation Physiology in Dec, 2005, a typical course of hyperbaric oxygen treatments increases by eight-fold the number of stem cells circulating in a patient's body.
- Stem cells, also called progenitor cells are crucial to injury repair. Stem cells exist in the bone marrow of human beings and animals and are capable of changing their nature to become part of many different organs and tissues. In response to injury, these cells move from the bone marrow to the injured sites, where they differentiate into cells that assist in the healing process. The movement, or mobilization, of stem cells can be triggered by a variety of stimuli – including pharmaceutical agents and hyperbaric oxygen treatments.
- Whereas drugs are associated with a host of side effects, hyperbaric oxygen treatments carry a significantly lower risk of such effects. "This is the safest way clinically to increase stem cell circulation, far safer than any of the pharmaceutical options," said Stephen Thom, MD, Ph.D., Professor of Emergency Medicine at the University of Pennsylvania School of Medicine and lead author of the study. "This study provides information on the fundamental mechanisms for hyperbaric oxygen and offers a new theoretical therapeutic option for mobilizing stem cells." (Sciencedaily.com)

HBOT SIGNIFICANTLY REDUCES SWELLING AND EDEMA

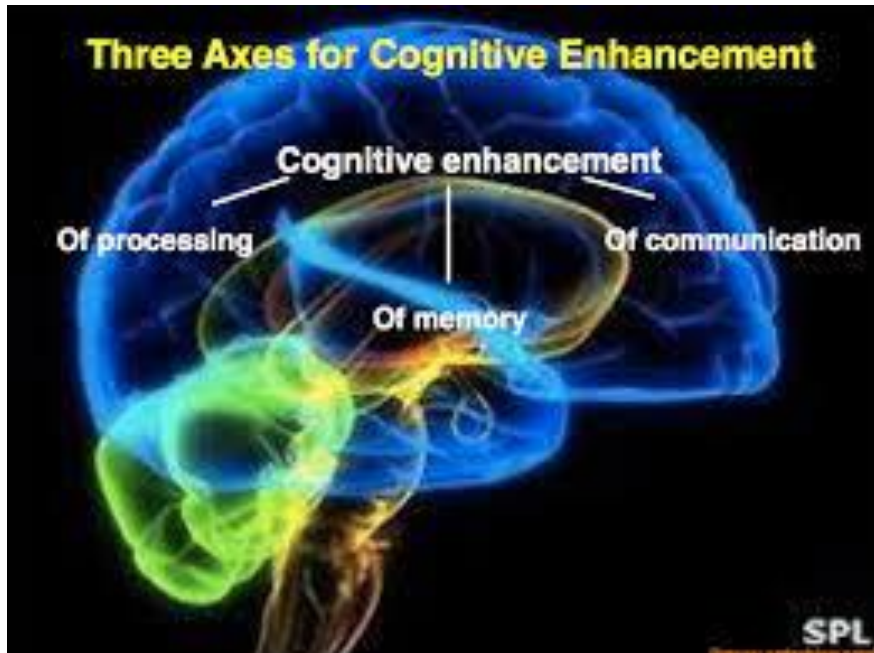
- Dilation or blood vessel widening following damage to tissue results in decreased blood flow. That increase in blood flow couples with revascular permeability (movement of fluid in and out of blood vessels) to increase protein and fluids outside blood vessels reducing tissue swelling.
- As the oxygen supply reduces, blood flow increases which will only serve to exacerbate the swelling and impede the inflammatory process that assists the commencement of healing.
- HBOT significantly reduces swelling, and reduces the pain associated with it.
- Edema (swelling) is caused by a number of factors such as an increase in local blood flow and also damage to local blood and lymphatic vessels.
- Pressure exerted by edema on surrounding structures can compromise circulation.
- When pressure approaches or exceeds that in the blood vessels, then blood flow will slow or cease altogether.
- Swelling also contributes to tissue hypoxia (a shortage of oxygen in the tissues) by increasing the distance between the capillary (smallest blood vessels) and the cells, which impedes cell function, metabolism and the inflammatory process by increasing the diffusion distance (movement of particles from an area of high concentration to an area of low concentration).

HBOT SURGES COLLAGEN PRODUCTION

- Following the initial healing process of the inflammatory response and the prevention or removal of infection, comes the next chapter in tissue/wound healing.
- Collagen is the connective tissue developed and laid down by fibroblasts, the repair cells of the body. Collagen acts as a base layer in the healing wound and assists the wound to close and repair. The formation of collagen and hence wound healing/recovery is highly dependent on the presence of adequate oxygen.
- The actual production of collagen by fibroblasts is also extremely dependent on oxygen availability. As HBOT markedly increases the oxygen available within the blood this in turn enables for a cross-linking or strengthening of the tissues, and fibroblasts to produce increased amounts of collagen required for healing of wounds and anti aging. HBOT also promotes greater tissue strength
- As the oxygen concentration of the blood increases during HBOT, cells further from blood vessels are more adequately oxygenated. Hyperbaric oxygen therapy allows for increased oxygen availability in more extensive areas enabling fibroblasts to carry out their part of the healing process for tissue damage and injury, more rapidly covering larger areas.
- HBOT also saturates the blood plasma with oxygen, this in turn reaches the areas of damage/injury with greater efficiency than red blood cells, providing all cells and tissues with the much-needed agent for healing, oxygen. The cells responsible for the development of scar tissue for healing are then able to carry this out more rapidly and the resulting tissue integrity is stronger



COGNITIVE ENHANCEMENT



- Researchers at the Sagol center for Hyperbaric medicine and research announced for the first time in Humans, they demonstrated in a peer reviewed study that Hyperbaric Oxygen Therapy (HBOT) can significantly enhance cognitive performance in healthy adults.
- The main areas of improvement were attention, information processing speed, and executive function, all of which typically decline with age.
- The study was published July 15,2020 in the journal AGING entitled Cognitive enhancement of healthy older adults using hyperbaric oxygen therapy, a randomized control trial

PHOTOBIOMODULATION STUDY

- Light-emitting diodes (LEDs) are effective in skin rejuvenation
- Seventy-six patients with facial wrinkles were treated with quasimonochromatic LED devices on the right half of their faces. All subjects were randomly divided into four groups treated with either 830nm alone, 633nm alone, a combination of 830 and 633nm, or a sham treatment light, twice a week for four weeks. Serial photography, profilometry, and objective measurements of the skin elasticity and melanin were performed during the treatment period with a three-month follow-up period. The subject's and investigator's assessments were double-blinded. Skin specimens were evaluated for the histologic and ultrastructural changes, alteration in the status of matrix metalloproteinases (MMPs) and their tissue inhibitors (TIMPs), and the changes in the mRNA levels of IL-1 α , TNF- α , ICAM-1, IL-6 and connexin 43 (Cx43), by utilizing specific stains, TEM, immunohistochemistry, and real-time RT-PCR, respectively.
- Objectively measured data showed **significant reductions of wrinkles** (maximum: 36%) and **increases of skin elasticity** (maximum: 19%) compared to baseline on the treated face in the three treatment groups. **Histologically, a marked increase in the amount of collagen and elastic fibers in all treatment groups was observed.** Ultrastructural examination demonstrated highly activated fibroblasts, surrounded by abundant elastic and collagen fibers. Immunohistochemistry showed an increase of TIMP-1 and 2. RT-PCR results showed the mRNA levels of IL-1 α , TNF- α , ICAM-1, and Cx43 increased after LED phototherapy whereas that of IL-6 decreased.



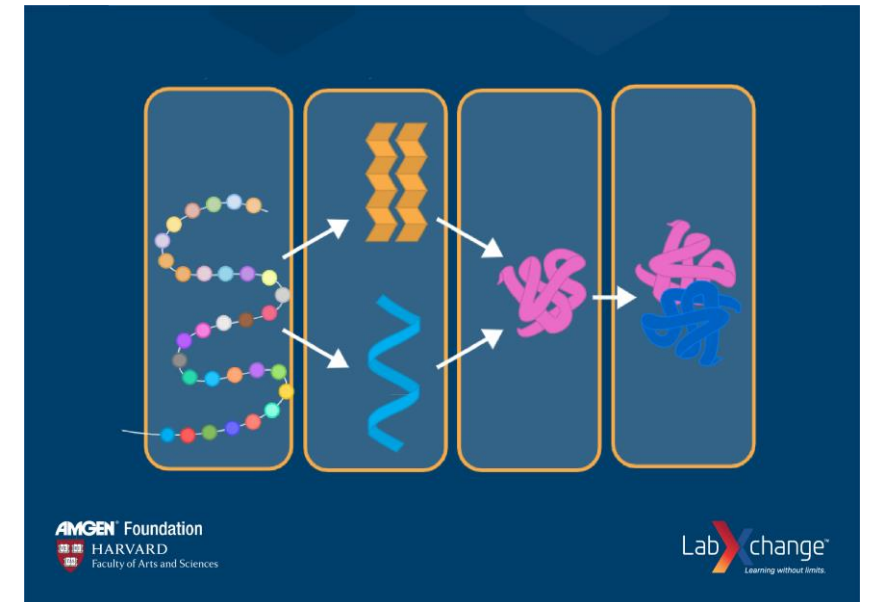
PHOTO- BIOMODULATION AND BRAIN FUNCTION



- The study measured the participants' neuropsychological function and cerebral blood flow. Status was recorded prior to the treatment being started and again within three weeks of the final treatment.
- Neuropsychological function was measured by testing cognitive abilities commonly affected by traumatic brain injury and were used to measure whether cognitive ability was improved by Photobiomodulation.
- Following the predetermined course of treatment, all participants displayed improvement in 14 of the 15 neuropsychological assessments with significant improvement on six of 15 neuropsychological tests including memory, concentration and processing speed.
- The SPECT scan image analysis revealed that eight of the 12 participants demonstrated significant regional cerebral blood flow increases. All 12 participants verbally reported substantial reductions in many of their symptoms.
- To produce such positive results, demonstrated the brain is capable of responding to LED light therapy delivered in this format.
- It is believed that the release of nitric oxide from red blood cells triggers the vasodilation process as well as triggering the manufacture of anti-inflammatory molecules and neuroprotective factors

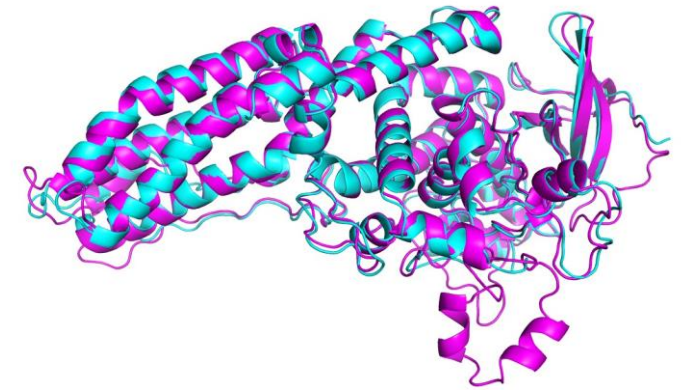
IMPORTANCE OF PROTEIN SYNTHESIS AND FOLDING

- Proteins: The functional units of life Carrying oxygen in red blood cells to our brain, muscles, and other organs Proteins are the workhorses of the body; they perform almost all of the functions that we need to survive, including Sensing touch, taste, sound, smell, sight Muscle contraction
- Protein synthesis and folding • Proteins are synthesized as long chains of different “amino acids,” the order of which specifies the protein • They are then folded into a three-dimensional shape that dictates their function • Some proteins are harder to fold than others; these require “folding chaperones,” other proteins that help them fold



MISSHAPEN PROTEINS – WHEN FOLDING GOES WRONG

1. When chaperones aren't accessible to proteins that need them for folding, they can misfold.
2. Misfolded proteins are nonfunctional.
3. Misfolded proteins can induce other happily folded proteins to misfold.
4. Misfolded proteins tend to stick together. These “clumps” are called aggregates.
5. Aggregation increases as we get older



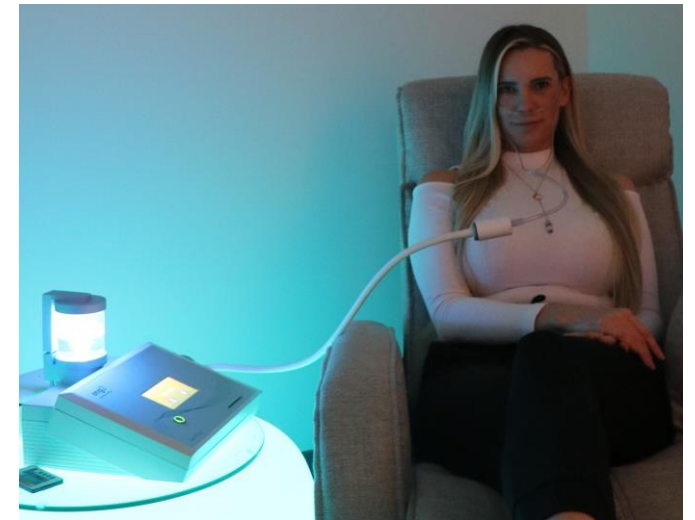
Disease	Primary Aggregated Protein	Symptoms
■ Parkinson's Disease	■ A-synuclein	■ Loss of motor skills, tremors
■ Alzheimer's	■ Amyloid precursor protein Tau	■ Loss of motor skills, dementia
■ Huntington's Disease	■ Huntington	■ Seizures, dementia
■ ALS	■ Many	■ Loss of motor skill, muscle loss

NANOVI PROMOTES PROPER PROTEIN FOLDING

NanoVi provides needed energy to the protein folding process. Not only do DNA molecules repair faster, but all cellular activities improve with proper protein function. By assisting their folding, functions are not lost, but are reinstalled.

How Does NanoVi Work?

- Along with free radicals, signaling molecules known as excited or activated oxygen are generated and emit a specific electromagnetic energy. This energy is absorbed and transferred by water, forming layers of ordered water on its contact surfaces. These layers are also called exclusion zone or EZ-water. It is more densely packed and has a higher energy state. They provide the energy required for proteins to fold. When enough layers surround a protein, the folding happens spontaneously and the protein start functioning.
- This essential biological process is assisted by the patented NanoVi technology. The NanoVi emits the same signal into water droplets in an airstream, leading to the formation of ordered-water vapor.
- Universities and test-facilities verified the signal's quality and intensity as bio-identical, and that the vapor contains EZ water.
- Inhaling NanoVi's ordered-water vapor affects the entire body. Thanks to the unique properties of water, NanoVi's specific energy is transferred from vapor droplets to cells and ultimately to proteins.
- NanoVi is used to address chronic disorders, to slow cellular aging and to recover faster from mental or physical performance.
- NanoVi can enhance vitality by boosting regeneration at the cellular level.





HEALTH SPAN PROGRAM

- Intake Testing and Physician Overview
 - WAVi Brain Scan and Segmental Multi-Frequency Testing
 - Telomere and Blood Panel Testing
 - Targeted Nutraceuticals and Supplements
- Three Month Protocol – 5 Days a Week for 60 Treatments each
- Hyperbaric Oxygen Therapy – 90 Minute Sessions
- Photobiomodulation Therapy – 40 Minute Sessions
- Brain Body Boost (NanoVi Cellular Repair and Avacen Thermo Therapy) – 30 Minute Therapy

