HyperMED NeuroRecovery

Treatment Protocols

Patient: Date

At HyperMED NeuroRecovery we are dedicated to improving the quality of life of individuals suffering neurodegenerative disorders through innovative clinical applications and research. Clinical applications include but not limited to Hyperbaric Oxygenation (HBOT), assertive physical therapies including Lokomat (Robotic Gait Assisted Walking) and emerging stem cell related applications. HyperMED Australia has recently installed the Australia first Lokomat; it is anticipated that eventually approximately 8-10 Lokomats will be established in HyperMED NeuroRecovery centers across Australia.

Hyperbaric Oxygenation is the 'catalyst' driving Oxygenation into the deeper hypoxic tissue | Lokomat and integrated physical therapy (vibration, electrical nerve stimulation) retrains and re-validates neural connections and neural pathways.

What is Hyperbaric Oxygenation (HBOT) and how does it work? HBOT safely delivers 100% Oxygen to the brain and spinal cord structures while inside a pressurized chamber. Hyperbaric Oxygenation for neurodegenerative brain and spinal cord patients differs from the traditional applications using *lower* pressures but *longer* time period of exposure. HBOT designed for delayed wounds, gangrene, osteomyelitis requires higher pressures at shorter intervals ie 2.8 ATA or greater which is not considered appropriate for neurological patients.

Hyperbaric works by increasing the saturative effect of dissolved oxygen into the blood and surrounding tissue structures that have been deprived of vital oxygen (hypoxic tissue). The pressure inside the chamber causes the Oxygen breathed to be dissolved at greater levels in the blood. Recent studies have reported that HBOT results in about a 15-20 fold increase in oxygen saturation. This is about a 2,000% increase of dissolved oxygen into the brain and spinal cord structures!

Approximately 20-30% of the body's consumption of Oxygen occurs within 3-5% of the body mass - the brain and spinal cord. These structures are extremely sensitive to Oxygen deficiency, and can have the most dramatic results with the use of HBOT. This increased tissue Oxygenation significantly accelerates the rate of healing, stabilization and repair. *The healing begins …*

Initial Saturation Hyperbaric Oxygenation acts as a catalyst promoting neurovascular salvage and repair. Typically most brain and spinal cord patients require an absolute intensive base line of between 100-150 hours combined with Lokomat and assertive physical therapy programs. Complex conditions may require several hundred hours to penetrate the deeper neurovascular structure with blocks of sessions coordinated every 4-6 months after the initial saturation.

Generally simple uncomplicated cases require an initial HBOT introduction around the 40-60 hours mark to commence some form of healing and stabilization – patients typically report a positive change in their initial presentation indicating the condition is heading in the right direction. However complex and chronic clinical conditions may require several hundred hours before functional gains are observed. Unfortunately there is NO hard and fast rule and we cannot give unconditional guarantees!

Why an 'initial base line' of between 40-60 hours? In healthy studies: Hyperbaric Oxygenation (HBOT) mobilizes and elevates the patients own circulating CD34+ progenitor Stem Cells**.** [American Journal Physiology - Heart and Circulatory Physiology (Nov 2005)] reports a single 2-hour exposure to HBOT at @ 2 ATA doubles circulating CD34+ progenitor stem cells and at approximately 40-hours of HBOT; circulating CD34+ cells increases eight fold (800%)! Complex neurological disorders require greater impact for appropriate immune responses.

Lokomat Robotic Gait Assisted Walking is based on the principle of neuroplasticity (the ability of the neurons in the nervous system to develop new connections and 'learn' new functions). *HBOT is the fuel and acts as a catalyst to the central issue (hypoxia); Lokomat and other forms of intensive physical therapy validate; retrain and reconnects function. This combined approach 'awakens' dormant neural pathways and Lokomat provides accurate functional neurological repetition enhancing and validating neural connections and pathways in the brain and spinal cord*. Patients have the ability to regain walking ability or learn to walk!

How long will the course of therapy take? The average patient attending requires an initial *three to four months intensive saturation* and will undergo around 100-150 hours of Hyperbaric Oxygenation and approximately 60-hours Lokomat. Typically patients attend and receive up to 4-hours of Hyperbaric Oxygenation and 1-hour of Lokomat each day attending. In addition other forms of appropriate physical therapy are provided based on the individual requirement of each patient. Each patient is re-evaluated at appropriate intervals; the HyperMED physicians and therapists will make any adjustments to the number of days per week and talk about the goals for the next phase of your treatment.

Initial Saturation 50-100-150 HBOT | 20-40-60-80 Lokomat | 2-4 Hrs HBOT/day | 1-2 Lokomat/day | 1-2-3-5 days week
Reconstructive Phase 2-4 Hrs HBOT/day | 2-3 days every 2-3-4-6 weeks | 2-3-4-5 months.
Boosters - short blocks intensive 1-2-3 weeks | 2-3-4-6 months