REBORN HEROES

Our Approach to PTSD Treatment using Vestibular Rehabilitation Therapy.

Once candidates are identified, Reborn Heroes will do the rest. Treatments are scheduled, candidates are guided through the process, and all costs are covered through generous donations.

Reborn Heroes will undertake connecting veterans with the closest clinic which offers VRT treatment. Time constraints are anticipated to require the veteran to undertake either part-time or full-time commitments to treatment. Part-time or full-time commitment will depend on a variety of factors including geographical location of treatment centers and patient proximity, physical and psychological patient restrictions, and the time constrains of family, work, and other prioritized personal obligations.

VRT Treatment Approach to PTSD by Participating Clinics

Example of Diagnostic and Treatment: FULL-TIME (Please note, that full-time and part-time treatment will vary according to the veteran's time constraints)

Patient will come and be treated each day for two weeks (10 visits)

Monday - Initial exam on Monday including Diagnostic Testing and creation of treatment protocol
Thursday - Repeat diagnostics (30 min) and Follow up with doctor (30 Min)
Monday - Repeat diagnostics (30 min) and follow up with doctor (30 Min)
Thursday - Repeat Diagnostics (30 min) and follow up with doctor (30 Min)

Three treatments per day involving:

Vestibular Rehabilitation (GyroStim) (9 days)
Cold Laser tissue healing (9 days)
SSEP (9 days)
Brain Specific Exercises to be performed at home and in the clinic 3-8 x's a day
Hyperbaric Oxygen Therapy (HBOT) - as needed and/or tolerated by patient

Nutritional Support through Supplementation:

Neurotransmitter Supplement (Dopatone™ Active, Acetyl-CH™ Active, Serotone™ Active, or Gabatone™ Active)
Neuro-PTX™
NeuroFlam™
Nitric Balance™ or NeurO2™
RepairVite™ or GlycemoVite™
Other Supplements or dietary guidelines as needed

Daily Treatment Plan Description:

Day 1

- Paperwork
- Patient will perform 3 diagnostic tests: (30 Min and may vary depending on which day patient starts treatment)
    1. Saccadometer
    2. Computerized Posturography (CAPS)
    3. Videonystagmography (VNG)

After diagnostic testing is performed the patient will meet with the Doctor. During this appointment the Doctor takes time to listen, build a case history, review test results, perform complex neurological physical exam, and build a custom treatment plan. The specific treatment plan for each patient which may include: Brain therapies to correct abnormalities, nutritional support for the brain and body, Hyperbaric Oxygen Therapy (HBOT), Somatosensory Evoked Potential therapy (SSEP), Cold Laser therapy, Rebuilder therapy, any blood lab work, X-rays or Scans, and nutritional, physical, social or neurological exercises or therapies. (1 hour)

Patient will start on Supplements and Brain Specific Exercises.

Patient will come three visits a day throughout the remaining days.

Day 2 & 3

- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 4

- Patient will repeat all diagnostic testing to track any functional change that has happened. (30 min)
- Patient will meet with Doctor to review results from test, progress throughout the week, and Brain Specific Exercises. (30 min)
- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 5

- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 6

- Patient will repeat all diagnostic testing to track any functional change that has happened. (30 min)
- Patient will meet with Doctor to review results from test, progress throughout the week, and Brain Specific Exercises. (30 min)
- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 7 & 8

- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 9

- Patient will repeat all diagnostic testing to track any functional change that has happened. (30 min)
- Patient will meet with Doctor to review results from test, progress throughout the week, and Brain Specific Exercises. (30 min)
- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Day 10

- Patient will do SSEP and Cold Laser treatment. (20 min, each visit)
- Patient will do GyroStim. (15 min, one-two visit per day only)
- Patient will do one Dive in HBOT as needed/tolerated. (1 hour, one visit per day only)

Patient will continue treatment plan at home, which includes:

- Stay on supplements for 3 months.
- Continue Brain Specific Exercises for 3 months.
- Once a month follow up phone/skype appointment.
- Come back in three months for retest and follow up. (If needed)

Technical Descriptions of Tests:

Saccadometer

The Saccadometer was developed in close collaboration between a team at the Institute of Biocybernetics and Biomedical Engineering, Polish Academy of Sciences, led by Dr. Jan Ober and Prof. Roger Carpenter from the United Kingdom. It is an international innovation, bringing together recent achievements in understanding the neural systems controlling eye movements, the latest development in eye movement measurement technology, as well as advances in microelectronics and signal processing technology.

Saccades or Saccadic movements are Rapid eye movements. The Saccadometer allows us to perform strict quantitative evaluations of saccadic/rapid eye movements. Saccadic movements are controlled by neural structures comprised of nearly every level of the brain. Many neurological and physiological disorders have a variety of effects on saccadic eye movement. The importance of measuring saccadic movements is that the movements or break down of the movements are characteristic of the disease or dysfunction. By these measurements we can diagnose functionality and connectivity between of the neural structures and hemispheres in the brain to help determine best treatment to improve the area of the brain experiencing dysfunction.

How the test is performed: Saccadometer band will be placed around the patient's head and the Saccadometer rests on the nose and forehead. A laser light shines on a surface (wall) in front of the patient and the patient watches the target as it moves from position A to position B and the Saccadometer sensors measure the eye position, latency, and velocity. Upon completion of test the Saccadometer is removed.

Videonystagmography (VNG)

VNG identifies abnormalities within the vestibular and oculomotor systems. All living organisms monitor their environment, and one critical aspect of that environment is gravity and the orientation of the body with respect to gravity. The vestibular system performs essential tasks. It engages a number of reflex pathways that are responsible for making compensatory movements and adjustments in body position. It also engages pathways that project to the cortex to provide perceptions of gravity and movement.

The eyes and the oculomotor system are the only sensory system that gives input to every area of the brain. Some of those areas are involved in regulating posture, movement, balance and sensory input. It is composed of pathways connecting various parts of the brain dealing with controlling emotions, heart rate, breathing, sleeping, vision, personality, higher thinking and much more.

The VNG test measures the brain by tracking eye movements such as gaze holds, pursuits, saccades, nystagmus, and optokinetic reflexes that are controlled by specific areas of the brain. The test data collected helps objectively document abnormal eye movements caused by many factors including: Traumatic Brain Injury (TBI), Benign Paroxysmal Positional Vertigo (BPPV), Vestibular Neuronitis, Internuclear Ophthalmoplegia, and other peripheral vestibular and central neurological pathologies. These abnormalities in eye function are due to lesions/breakdowns in specific areas of the brain. By finding breakdowns in eye movement we know exactly what part of the brain is not functioning and therefore know what is causing the symptoms a patient is facing and how to fix the dysfunctional area.

Each of these eye functions are controlled by specific parts of the brain. By determining which eye movement is functioning correctly, we know which area of the brain is not functioning correctly, and therefore know how to correct the dysfunction.

How the test is performed: VisualEyes™ goggles are placed on patient and goggles are aligned. If the patient is female eye makeup must not be worn or must be removed. The test is performed while in the dark and patient tracks a target on a Television screen as the target moves in various directions and speeds. Upon completion of test, the lights are turned on and goggles are removed.

Computerized Posturography (CAPS)

Posturography is a general term that covers all techniques used to measure postural control in an upright stance, in either static or dynamic conditions. Among those techniques is Computerized Dynamic Posturography (CDP), also called test of balance (TOB). CDP is a non-invasive specialized clinical assessment technique used to quantify the central nervous system adaptive mechanisms (sensory, motor, and central) involved in the control of posture and balance, both in normal (such as in physical education and sports training) and abnormal conditions (particularly in the diagnosis of balance disorders and in physical therapy and postural re-education). CDP tests the subjects balance control and postural stability, identifying impairments of the visual, somatosensory and vestibular systems and further pinpointing functional or cognitive brain impairments. These impairments may cause pain in body, anxiety, dizziness, vertigo etc. By finding these impairments we can then correct the problem helping alleviate the symptoms.

How the test is performed: Patient removes shows before beginning test. The patient wears noise cancelling headphones and steps onto the platform. While on the platform the patient will perform a series of tests with eyes open and closed. Patient steps off platform and a perturbation cushion (unstable surface) is placed on the platform. Patient will stand on the platform and perform another series of test with eyes opened and closed and head tilted in various positions to activate different pathways in the brain. Upon completion of test the patient steps off the platform and removes headphones.

Information on GyroStim, SSEP, Laser Therapy, HBOT, and Supplements:

GyroStim

GyroStim's innovative technology is advancing vestibular therapy a quantum leap forward. It provides clinicians and therapists with a technologically advanced system designed to deliver a wide array of automated, powerful, and controllable vestibular therapy in a comfortable and safe environment, no matter how impaired or physically challenged the subject may be.

It brings power, precision, and control to the field of vestibular rehabilitation. Automated and precise therapy profiles allow clinicians to maintain specific control over the intensity of stimulation in each therapy session, enabling the application of strategies that rapidly rehabilitate and retrain. Automating vestibular stimulation allows therapy sessions to be safer, more powerful, and productive than self-guided exercise programs. It extends the effectiveness of vestibular stimulation far beyond the limitations of manually propelled vestibular therapy equipment such as swinging platforms, rolling tubes, and spinning chairs.

GyroStim's patented "pitch inside yaw" design is capable of delivering unique, powerful, and complex motion profiles that provide vestibular stimulation beyond the scope and intensity of what can be achieved with manual therapy methods. GyroStim is capable of rotating subjects continuously through 360 degrees of motion in both pitch (summersault) and yaw (side to side) axis simultaneously for exponentially more complex and effective therapy options.

It has the unique capability of combining vestibular stimulation with interactive multi-sensory exercises and with cognitive challenges, creating an entirely new multi-modal approach to stimulating, challenging, and improving the performance of the most important component of the human body, the brain.

GyroStim promotes neuroplasticity

Neuroplasticity is the brain's ability to reorganize itself by forming new neural connections. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities in response to challenging new situations or to changes in their environment.

Brain reorganization takes place by mechanisms such as "axonal sprouting" in which undamaged axons grow new nerve endings to reconnect neurons whose links were injured or severed. Undamaged axons can also sprout nerve endings and connect with other undamaged nerve cells, forming new neural pathways to accomplish a needed function. (Neuroplasticity definition from www.medicine.net)

Somatosensory Evoked Potential (SSEP)

Sensory Evoked Potential Responses (SSEPs) are minute electrical signals generated by the brain and spinal cord when transmitting and processing responses to sensory stimuli. Somatosensory Evoked Potentials (SSEP, SEP) can be elicited by virtually any sensory stimuli, such as touch or temperature change. Elicitation of this response happens as repetitive minute electrical stimulation of the peripheral, trigeminal, and hypoglossal nerves activates or "wakes up" the nerve to send and receive electrical signals effectively. By so doing we are giving the brain the stimulation it needs to function properly.

How SSEP is performed:

Patient is either lying down or sitting. Conductivity gel is placed on a two-prong instrument. The two prong instrument is placed on specific nerve on forehead, cheek, tongue, neck, wrist, or legs for 15 seconds and repeated three times. The two-prong instrument is then moved to next position and process is repeated. After therapy is concluded conductivity gel is removed.

Multi Radiance Low Level Laser Therapy

Laser light is absorbed by chromophores (cytochrome C), which are little organelles inside the mitochondria. Mitochondria help the biochemical processes of respiration and energy production occur. When excited, these chromophores produce adenosine triphosphate (ATP). This is the energy our bodies run off. This process provides 96% of the energy we use every day and by using laser we increase the efficiency of this process and are better able to help patient absorb nutrients, excrete toxins, and repair cell tissue and healing is accelerated. The super pulsed laser that we use at The Neuro Clinic produces high-powered light in billionth-of-a-second pulses. The power of each pulse drives the photons, or light energy up to 10-13cm (4-5 inches) deep into the target tissue. The laser's power of up to 50,000mW also creates a high photon density, strongly reducing pain and improving microcirculation.

How laser is performed:

The patient is sitting or lying down and one to two emitters/wands are placed on patient's body. The light is turned on for 5 - 10 minutes. If needed the emitters are scanned or moved around the area of the body until completion.

Hyperbaric Oxygen Therapy (HBOT)

Oxygen is one of the most important elements required to sustain life. Without it, our health begins to suffer and/or we die. Unhealthy or weak cells due to improper metabolism lose their natural immunity and are thus susceptible to viruses and lead the way to all kinds of serious health problems. Your body's tissues need an adequate supply of oxygen to function. When tissue is injured, it requires even more oxygen to survive. Hyperbaric oxygen therapy increases the amount of oxygen your blood can carry. An increase in blood oxygen temporarily restores normal levels of blood gases and tissue function to promote healing and fight infection. Your blood carries this oxygen throughout your body. This helps fight bacteria and stimulate the release of substances called growth factors and stem cells, which promote healing. Furthermore, neurons need constant supplies of oxygen to maintain healthy mitochondrial machinery. Severe deprivation of oxygen leads to brain injury and death. But mild losses of oxygen potentially also promote unhealthy neuronal function.

How HBOT is performed:

Pure oxygen can cause fire if a spark or flame ignites a source of fuel. Because of this, no metals are to be worn and items such as lighters or battery-powered devices prohibited in the hyperbaric oxygen therapy chamber. In addition, to limit sources of excess fuel, you may need to remove hair and skin care products that are petroleum based and potentially a fire hazard. Patient lies down inside Hyperbaric Oxygen therapy chamber. Patient places oxygen mask over nose and mouth. Chamber is zipped up and oxygen compressor is turned on. Chamber is filled, which takes about 8 minutes. The air pressure in the chamber is about two to three times normal air pressure. The increased air pressure will create a temporary feeling of fullness in ears similar to what you might feel in an airplane or at a high elevation. The patient can relieve that feeling by yawning or swallowing. Patient lies in chamber for one hour. When hour is complete, the chamber is depressurized and a patient revives as the process is happening. When chamber is fully depressurized the chamber is unzipped, mask is taken off, and patient exits the chamber.

Supplement Information:

Serotone™ Active - This product provides nutrients that support healthy serotonin activity and provide targeting amino acids and cofactors required for serotonin production. Research show Serotonin can lead to depression, as well as obsessive-compulsive disorder, anxiety, panic, and even excess anger. We use this in conjunction with Gabatone™ Active and Acetyl-CH to promote calming effects in patients with anxiety, depression, PTSD, obsessive-compulsive disorder, and even excess anger.*

Serotone™ Active is intended to support the serotonergic system using nutrients, targeted amino acids, and cofactors. This formula includes high-potency vitamin B12, vitamin B6, and niacin, and it is an excellent source of folate. Key ingredients include SAMe; 5-HTP; and high-quality, standardized St. John's wort extract.*

Gabatone™ Active - This product provides nutrients that support healthy GABAergic activity and provide targeted amino acids and cofactors required for GABA production. GABA is the neurotransmitter in the brain that is classically considered inhibitory. It counteracts the neurotransmitter glutamate, which is excitatory. We use this in conjunction with Serotone active and Acetyl-CH to promote calming effects in patients with anxiety, depression, PTSD, obsessive-compulsive disorder, and even excess anger.*

Gabatone™ Active is designed to support the GABAergic system using specially selected nutrients, amino acids, and cofactors. Key ingredients include L-taurine and high-quality, standardized valerian and passion flower extracts. It incorporates high-potency vitamin B6 and manganese, as well as a high amount of zinc.*

Acetyl-CH™ Active - This product provides botanicals that support healthy cholinergic activity and provide essential cofactors and precursors for acetylcholine synthesis. Acetylcholine is the chief neurotransmitter in the brain responsible for learning, memory, thought and synaptic plasticity. Increasing levels of acetylcholine can result in improved perception, concentration, memory recall, verbal fluency, and better overall cognitive function.*

Acetyl-CH™ Active supports the cholinergic system and acetylcholine synthesis through the use of cofactors and precursors.* Key ingredients include alpha-GPC, N-acetyl L-carnitine, and Huperzine A, as well as high-potency pantothenic acid.*

Dopatone™ Active - This product provides nutrients that support healthy dopamine activity, support health dopaminergic neurons, and provide targeting Dopamine is a precursor (forerunner) of adrenaline and a closely related molecule, noradrenaline. We use it for excitatory purposes to help patients with depression and hypokinetic disorders like Parkinson's disease.*

Dopatone™ Active helps to support the dopaminergic system through a blend of nutrients, targeted amino acids, and cofactors. Key ingredients include Mucuna Pruriens extract and DL-phenylalanine. This product also offers high-potency vitamin B6 and is an excellent source of selenium.*

Neuro-PTX™ - This product provides targeting nutrients to support healthy neuronal mitochondrial activity and to support neurons with important antioxidants to better buffer free radical activity. This formula contains the main ingredients that have been shown in published studies to support the brains nutritional balance in this regard.*

Neuro-PTX™ is designed to support the brain with specially selected ingredients, such as N-acetyl L-cysteine, alpha lipoic acid, and high-potency vitamin E. This formula may also support intracellular glutathione and neuronal metabolism. Additionally, this product includes ingredients that may be involved in antioxidant processes.*

NeuroFlam™ - This product provides key ingredients that support healthy microglial functions and activation. This is important because microglial cells are the immune cells in the brain. It is also a rich source of antioxidants which support brain tissue health.*

NeuroFlam™ is intended to support the brain-immune system with phenols and flavonoids. This formula also incorporates ingredients that may be involved in antioxidant processes. Key ingredients include resveratrol and catechins (for targeted immune support), as well as curcuminoids, baicalin, and apigenin.*

NeurO2™ -Scientifically selected phytonutrients, as well as vinpocetine and cayenne, make this a unique product that supports healthy circulation useful for general brain metabolism. With better circulation the body can get essential nutrients to tissue for growth and healing.*

NeurO2™ is a unique product intended to nutritionally support the brain with specially targeted phytonutrients in high-quality, standardized extracts, such as ginkgo, as well as vinpocetine and cayenne pepper. This formula incorporates important ingredients that can support circulation and cellular energetic activity. It also includes high-potency riboflavin and is a good source of magnesium.*

RepairVite™ - This product is a part of a dietary program that supports restoration and healthy maintenance of intestinal tract and intestinal lining. This unique formula provides flavonoids and saponins, carotenoids, phytochemicals, and antioxidants to support tissue health, especially during intestinal discomfort. It also provides glycoproteins to support development of a healthy mucus membrane and contains extracts mucilage content to sooth and support intestinal health. Additionally, the product includes plant sterols and ferulic acid esters to help support a healthy enteric nervous system with intestinal motility with secretion of digestive enzymes.

RepairVite™- Primary ingredients include L-glutamine, deglycyrrhizinated licorice, and aloe vera extract.*

Nitric Balance™ - This scientifically developed formula provides key nutrients that are used in the system for healthy expression of e-NOS and n-NOS, as well as for the balance of i-NOS. It contains targeted nutritional support for tissue health, a healthy anti-inflammatory response, and a healthy immune response. It further supports healthy peripheral blood flow to the brain, hands feet and sexual organs. The ingredients found in this advanced formula support brain endurance, brain function and focus, and supports metabolic endurance used for exercise and rehabilitation.

GlycemoVite™ - helps support sugar metabolism through a complex formula that incorporates minerals, fibers, branched chain amino acids, and plant sterols.* It can also be used to support the peripheral utilization of sugars and to maintain blood sugar levels already within the normal range.* This formula further includes ingredients intended to support nutritional alkalization, as well as high-potency thiamin, riboflavin, niacin, vitamin B6, pantothenic acid, manganese, and chromium.*

** This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.*

Additional Information:

Why does this work?

A neuron needs three things to survive: oxygen, glucose, and stimulation. Stimulation is important for neuronal health and stimulation of neurons promotes the production of protein, which keeps cells healthy and functional. A healthy neuron has a negative transmembrane potential due to its level of intracellular protein and ion ratios. The neuronal elements that are responsible for healthy neuron function are sodium, potassium, chloride, and calcium ions. Excitation of neuron leads to mitochondrial activation and the development of intracellular proteins. A healthy neuron will have many intracellular proteins and sufficient mitochondria for ATP production, as well as sufficient protein metabolic machinery for substance production, repair and other activities.

When neurons are not stimulated, they become unhealthy due to their loss of intracellular protein production. When neuron lacks stimulation, its mitochondrial machinery is reduced, leading to less intracellular protein, less ATP production, and decreased internal negativity. These changes bring the neuron closer to threshold and promote a neuron that is easily excited but without endurance to meet that demand.

Neuronal Healthy is strongly dependent on stimulation, and healthy stimulation is dependent on healthy transmitter substance such as acetylcholine, GABA, serotonin, dopamine, etc.

Besides stimulation and healthy transmitter substance for activation, a neuron needs a steady supply of glucose. Between 20-25% of the body's entire glucose load is used by the brain. The brain is very metabolically active and needs a constant energy supply. The failure of constant and stable healthy glucose delivery promotes unhealthy neuronal and function and degeneration.

Lastly, neurons need constant supplies of oxygen to maintain healthy mitochondrial machinery. Severe deprivation of oxygen leads to brain injury and death. Mild losses of oxygen potentially also promote unhealthy neuronal function. It is very common to see low metabolic activity systemically and especially diminished brain capacity and endurance in patients with anemia.

By utilizing the application of functional neurology we address three basic fundamental activities present and necessary in all neurons.

These activities include:

1. Adequate gaseous exchange, namely oxygen and carbon dioxide exchange. This includes blood flow and anoxic and ischemic conditions that may arise from inadequate blood supply.

2. Adequate nutritional supply including glucose, and a variety of necessary cofactors and essential compounds.

3. Adequate and appropriate stimulation in the form of neurological communication, including both inhibition and activation of neurons via synaptic activation. Synaptic activation of a neuron results in the stimulation and production of immediate early genes and second messengers within the neuron that stimulate DNA transcription of appropriate genes and the eventual production of necessary cellular components such as proteins and neurotransmitters. In other words, by giving the brain the correct stimulation in the correct way, nutritional support, and needed oxygen we help restore the brain to proper functioning.