Millennium Neuro-Regenerative Centers

Applying the sciences of recovery

The Millennium's Primer Series: Healing the Invisible Wounds: Evaluating Treatment Outcomes for TBI and PTSD

Gordon, Mark L. Medical Director, The Millennium Health Centers, Inc. Veterans-TBI Project 2023. Based upon a presentation to the Texas Office of Acquired Brain Injury Management. March 8, 2023. Blake Agee, MS.

Introduction and Background

The Millennium's military protocol was initially applied in 2009 with a symptomatic and highly active Green Beret operator stationed at Fort Bragg, North Carolina, who submitted to a comprehensive hormonal testing panel. The results revealed the extensive toll his nearly two dozen deployments had taken on his neuroendocrine system. His biomarker panel highlighted deficiencies in neurosteroids and neuroactive steroids, alongside the presence of neuroinflammation. To address these issues, his treatment involved hormone replenishment to address both insufficiencies and deficiencies, along with the utilization of nutraceutical products selected to reduce neuroinflammation. Within just 90 days, he experienced a noticeable improvement in his mood, behavior, and a significant return towards his pre-injury status.

As the benefits of the Millennium's protocol disseminated within the special forces' communities, we were slowly seeing more active-duty members and veterans suffering with symptomatic TBI and PTSD. In 2015, we were honored to start working with Adam and Andrew Marr who subsequently co-founded the Warrior Angels Foundation. Andrew Marr was initially on over 13 VA medications to help him deal with both TBI and PTSD. We ran our biomarker panel on Andrew and addressed the findings with a customized treatment protocol which allowed for his full recovery from both TBI and PTSD.

As a result of the combined efforts of the Millennium and Warrior Angels Foundation, the number of military participants utilizing the protocol has now surpassed 1,200 members. The valuable data collected from these participants indicates a substantial improvement in their overall quality of life, rivaling the outcomes achieved through traditional approaches to treating Traumatic Brain Injury (TBI) and Post-Traumatic Stress Disorder (PTSD). This data serves as a powerful testament to the efficacy of the Millennium's protocol, suggesting its potential to revolutionize the treatment landscape for TBI and PTSD.

In late 2020, a pilot project was launched with the Marine's 1st Reconnaissance Battalion to evaluate the effectiveness of the Brain Rescue 3 product (BR3). In this study, the Marines were instructed to consume BR3 each morning, before breakfast, for a period of 90 days. Laboratory assessment using the Millennium's biomarker panel was not performed. Instead, the Marines' responses were evaluated using an 18-point subjective life-marker questionnaire, which examined their psychological, physiological, and physical well-being. Surprisingly, nearly 65% of the participants reported a significant 50-100% improvement in their baseline issues within the 90-day testing period (TBIHELPNOW.org/the-science).

However, the remaining 35% who did not experience a greater than 50% improvement were identified as requiring a more thorough assessment. This involved utilizing the biomarker panel to detect any hormonal deficiencies that could be contributing to their limited progress or resistance to treatment. This additional evaluation aimed to uncover potential underlying factors hindering their improvement.

The Objective

It is the Millennium's assertion that the development of PTSD following one or multiple TBIs should not be viewed as a distinct and separate condition, but rather as a progression and exacerbation of symptoms with increased complexity. To illustrate this, consider the analogy of cutting a finger. When promptly treated, the injury heals, but if left untreated, it may worsen and potentially require amputation. Similarly, PTSD is the result of inadequate treatment for TBI.

Based on this hypothesis, it follows that addressing the neuroinflammation and hormonal deficiencies caused by TBI through appropriate treatment will not only alleviate the symptoms associated with TBI but also lead to the resolution of PTSD symptoms. By targeting the underlying physiological factors, such as neuroinflammation and hormonal imbalances, it is possible to alleviate both TBI and PTSD symptoms simultaneously.

The Survey

On February 15, 2023, a survey invitation was extended to 237 veterans and active service members, inviting them to participate in a study assessing their personal outcome as one who underwent the Millennium's Protocol. Each participant had undergone at least one laboratory biomarker panel and received a treatment protocol that specifically targeted hormonal deficiencies and inflammation.

The survey aimed to collect data on various factors, including age, gender, duration of time spent on the treatment protocol, and the participants' recovery from ten specific physical and psychological conditions or states associated with TBI, PTSD, or both. These included, depression, anxiety, anger, irritability, a bi-polar diagnosis with symptoms, obsessive compulsive diagnosis with symptoms, affected short- and long-term memory, and the presence of insomnia.

Additionally, participants were asked to indicate whether they had been officially diagnosed by the Veterans Administration with TBI, PTSD, or both.

This survey sought to gather comprehensive information about the participants' experiences with the Millennium's Protocol, enabling researchers to analyze the relationship between treatment, participant characteristics, and the improvement of specific symptoms related to TBI, PTSD, or their co-occurrence.

The Millennium Treatment Protocol

The primary objective of the Millennium's protocols has been to restore neuromodulating and anti-inflammatory hormones to levels within the 50th to 75th percentile range of a typical laboratory's reference range for individuals of normal male or female physiology between the ages of 25 to 35. The selection of specific hormones for replacement, such as DHEA, pregnenolone, testosterone cypionate/propionate, clomiphene citrate, combination thyroid hormone (T4 & T3), estrogen, progesterone, and vitamin D, is based on the results obtained from lab testing.

In addition to hormonal replacement, a group of nutraceutical products is included in the treatment regimen to mitigate inflammation. These products aim to suppress inflammatory processes in conjunction with hormonal therapy.

For male participants, the most common treatment protocol involves clomiphene citrate administered at a dose of 25 to 50mg every 72 hours, a therapeutic multivitamin supplemented with trace minerals and an herbal composition, 25mg to 50mg of DHEA, 30mg to 100mg of pregnenolone, and Brain Rescue 3.

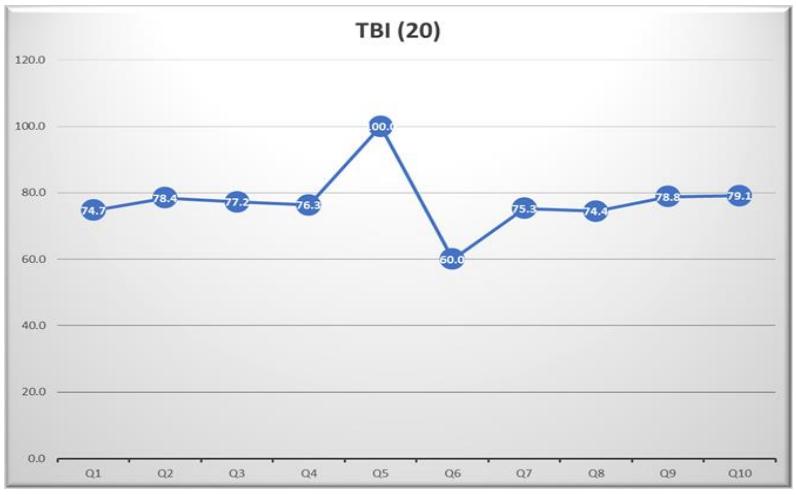
For female participants, the most common treatment protocol includes, when deemed necessary, intravaginal application of estradiol, estriol, progesterone, and testosterone. Post-menopausal females apply these hormones every night, while menstruating females use them from days 1 to 21 of their menstrual cycle. Similar to males, the female protocol also incorporates a therapeutic multivitamin with trace minerals and an herbal composition, 15mg to 25mg of DHEA, 30mg to 50mg of pregnenolone, and Brain Rescue 3.

These treatment protocols are tailored to address hormonal imbalances and inflammation, aiming to restore the participants' hormone levels and reduce inflammation-related symptoms.

The Results

A total of 79 veterans responded to the survey request out of 237 invitation. Within this group were 20 who had the singular diagnosis of traumatic brain injury (TBI) and 59 who were also given a diagnosis of post-traumatic stress disorder (PTSD). The group consisted of 78 males and 1 female with an average age of 42.2 years, (Range 28 – 65 years of age). The median time on a treatment protocol was 21 months. (Range 1.5 – 120 months).

TBI Group (20):



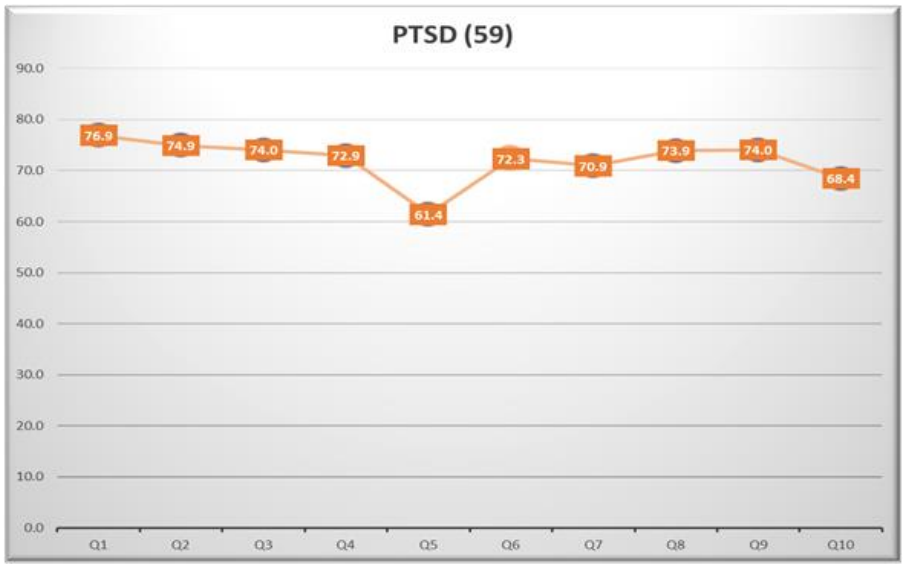
Q1	Depression	**74.7%**	**Q6**	Obsessive Compulsive	**60.0%**
Q2	Anxiety	**78.4%**	**Q7**	Poor short-term memory	**75.3%**
Q3	Anger	**77.2%**	**Q8**	Poor long-term memory	**74.4%**
Q4	Irritability	**76.3%**	**Q9**	Insomnia	**78.8%**
Q5	Bi-polar	**100%**	**Q10**	Migraines	**79.1%**

Among the twenty individuals who solely had a diagnosis of traumatic brain injury, the group as a whole exhibited an impressive improvement rate of 77.4%. Notably, an extraordinary outcome was observed within this group, with a complete resolution (100%) of symptoms associated with a diagnosis of bi-polar disorder. This significant achievement underscores the effectiveness of the treatment protocol in addressing the specific challenges posed by bi-polar symptoms among individuals with TBI.

However, it is worth mentioning that within this group, the improvement rate for obsessive-compulsive disorder was comparatively lower, with a percentile of 60%. This indicates that addressing and alleviating symptoms related to obsessive-compulsive disorder may require further attention and refinement in the treatment approach for individuals with TBI.

These findings shed light on the varying degrees of improvement across different symptom categories within the singular TBI diagnosis group. While remarkable progress was made in resolving bi-polar symptoms, there remains an opportunity for enhanced interventions to target and enhance outcomes related to obsessive-compulsive disorder.

PTSD Group (59):



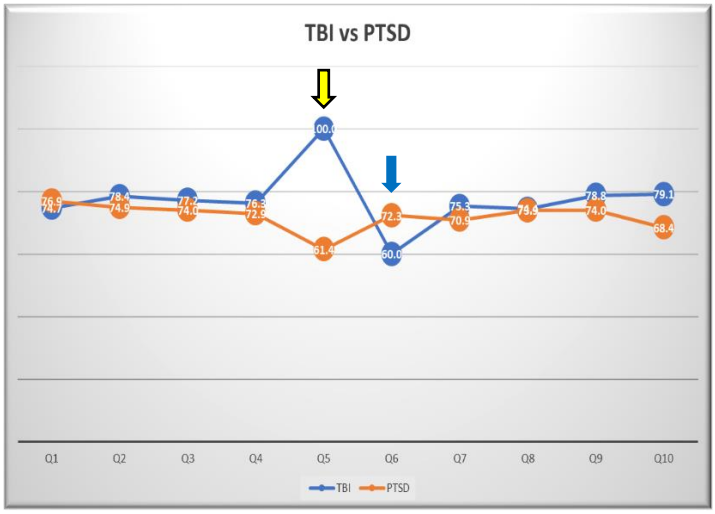
Q1	Depression	**76.9%**	**Q6**	Obsessive Compulsive	**72.3%**
Q2	Anxiety	**74.9%**	**Q7**	Poor short-term memory	**70.9%**
Q3	Anger	**74.0%**	**Q8**	Poor long-term memory	**73.9%**
Q4	Irritability	**72.9%**	**Q9**	Insomnia	**74.0%**
Q5	Bi-polar	**61.4%**	**Q10**	Migraines	**68.4%**

Among the 59 respondents who were diagnosed with PTSD, all of whom had a history of prior TBI, an overall improvement rate of 71.96% was observed. Notably, an intriguing finding emerged regarding the response to a diagnosis of bi-polar disorder, with the lowest improvement rate recorded within this subgroup.

This discovery highlights the complex interplay between PTSD and bi-polar symptoms within individuals who have experienced a prior TBI. The lower response rate to bi-polar symptoms suggests that addressing and effectively managing these particular symptoms may present greater challenges in the context of PTSD with a history of TBI.

The results underscore the importance of tailored and targeted interventions that take into account the unique dynamics and interactions between PTSD, TBI, and co-occurring bi-polar symptoms. Further exploration and refinement of treatment approaches specifically designed to address the complexities of this subgroup may be warranted to improve outcomes and enhance the overall well-being of individuals with PTSD and a history of TBI.

Overlapping Responses: TBI vs. PTSD:



Q1	Depression	Q6	Obsessive Compulsive
Q2	Anxiety	Q7	Short term memory
Q3	Anger	Q8	Long term memory
Q4	Irritability	Q9	Insomnia
Q5	Bi-polar	Q10	Migraines

When analyzing the positive impacts of the Millennium's treatment protocol on individuals affected by both TBI and PTSD, it becomes evident that the treatment outcomes for Q1-Q4 and Q7-Q10 were remarkably similar. The differences between the two groups were most pronounced in terms of bi-polar and obsessive-compulsive symptomatology. Interestingly, the TBI group exhibited a more favorable response to treatment for bi-polar symptoms compared to the PTSD group (indicated by the yellow arrow), whereas the PTSD group demonstrated greater improvements in obsessive-compulsive symptoms (as indicated by the blue arrow). These contrasting treatment responses highlight the nuanced nature of addressing different symptom clusters within the context of TBI and PTSD, emphasizing the importance of tailored approaches to meet the specific needs of individuals experiencing these conditions.

Discussion:

Navigating the assertion that the defining differences between TBI and PTSD lie in stress-induced psychiatric insults to specific brain regions, such as the limbic and paralimbic systems, can be challenging. Both TBI and PTSD have the potential to affect multiple brain regions and their connectivity, with the severity and location of the injury or trauma playing a significant role.

While there is no exclusive nucleus or brain region that is solely involved in PTSD and not TBI, research has identified some brain regions that are more commonly implicated in PTSD. For instance, the amygdala, responsible for processing emotions and fear responses, often exhibits hyperactivity in individuals with PTSD. On the other hand, although the amygdala can be affected in TBI, it is not consistently identified as a primary site of injury or dysfunction.

Furthermore, studies suggest that the prefrontal cortex (PFC), responsible for decision-making, planning, and regulating emotions, may be more commonly affected in PTSD compared to TBI. Individuals with PTSD often exhibit reduced volume and function in the PFC, which can contribute to difficulties with impulse control and emotional regulation.

It is crucial to acknowledge the complexity and interconnectedness of the brain, as well as the wide variation in the effects of trauma and injury on individuals. While there may be general patterns of brain involvement in PTSD and TBI, each case is unique and necessitates personalized evaluation and treatment.

Considering the diverse symptomatic patterns, each participant in the study underwent testing with the Millennium Biomarker panel and received the designated treatment protocol, regardless of their pre-enrollment diagnoses of TBI, PTSD, or both. This approach recognizes the individualized nature of the conditions and ensures that each participant receives tailored treatment based on their specific biomarker profile and needs.

Conclusion

The treatment outcomes for individuals with both Traumatic Brain Injury (TBI) and Post-Traumatic Stress Disorder (PTSD) have been the subject of extensive investigation, with the Millennium's Protocol emerging as a promising approach. The results of this study demonstrate the significant impact of the Millennium's treatment protocol on improving the quality of life for individuals affected by TBI and PTSD.

Through the analysis of survey data and treatment responses, it becomes evident that the Millennium's Protocol has brought about substantial improvements in both physical and psychological conditions associated with TBI and PTSD. Notably, the protocol has shown remarkable success in resolving symptoms of bi-polar disorder among individuals with TBI, whereas improvements in obsessive-compulsive symptoms were more pronounced in the PTSD group.

The findings underscore the importance of addressing hormonal deficiencies and neuroinflammation as key factors in the treatment of TBI and PTSD. By restoring neuromodulating and anti-inflammatory hormones to appropriate levels, the Millennium's Protocol aims to optimize neuroendocrine function and reduce neuroinflammation, leading to significant improvements in mood, behavior, and overall well-being.

While further research is needed to fully understand the complex relationship between TBI, PTSD, and the specific brain regions involved, the study highlights the potential of the Millennium's Protocol to modernize the treatment of TBI and PTSD. By tailoring treatment approaches based on individual biomarker profiles, this protocol offers a personalized and comprehensive strategy that addresses the unique needs of each participant.

As the number of individuals benefiting from the Millennium's Protocol continues to grow, it becomes increasingly clear that this innovative approach holds great promise for transforming the way we approach the treatment of TBI and PTSD. By focusing on restoring hormonal balance and reducing neuroinflammation, the protocol has the potential to provide a pathway to enhanced recovery and improved quality of life for those affected by these debilitating conditions.

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A Short Biography

Dr. Mark L. Gordon, specializing in Endocrinology since 1995, has devoted his career to understanding and treating the effects of traumatic brain injuries (TBIs). Having personally experienced multiple TBIs without loss of consciousness, he encountered the limitations of traditional treatment approaches. Driven by his own journey towards recovery, he delved into medical literature, seeking answers to the root causes of his condition and those affecting other post-concussion patients.

Dr. Gordon discovered that hormonal deficiencies, though initially evident, were merely surface manifestations of a more intricate cascade of biochemical changes triggered by trauma, particularly neuroinflammation. Recognizing the importance of addressing both inflammation and hormonal imbalances, including neurosteroids and neuroactive steroids, he pioneered a comprehensive approach that resulted in accelerated recoveries without reliance on conventional therapies.

In 2004, Dr. Gordon transitioned his expertise to the field of Neuroendocrinology, applying his knowledge to all cases of symptomatic TBI. However, it was in 2009 that his focus shifted towards the needs of the military community, driven by the alarming rise in mental health issues, depression, and suicides among veterans. A pivotal moment came with the successful treatment of Army Special Forces Sergeant First Class Andrew Marr, who experienced remarkable recovery from multiple blast wave traumas. Through Dr. Gordon's intervention, Marr was able to discontinue multiple medications, reunite with his family, pursue an MBA, and co-author a book that inspired the award-winning film "Quiet Explosions."

To date, Dr. Gordon and Mr. Marr have extended their groundbreaking protocol, known as the Millennium's protocol, to over 1200 veterans. Their work is carried out through the Millennium and Warrior Angels Foundations (501c3), providing financial support and a non-toxic treatment program that has yielded significant success. With a commitment to transforming the lives of veterans, Dr. Gordon and his team strive to make a lasting impact and offer hope through their innovative approach.

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The Millennium Health Centers, Inc., is a self-funding organization that derives financial support for our Veterans' Program from the sale of our proprietary products at www.MillenniumHealthStore.com . Educational materials for our products Clear Mind & Energy, Brain Care 2, B is for Brain, Brain Rescue 1, Brain Rescue 3, and Secretropin/Dynatropin can be obtain from our education TBI site: www.TBIHelpNow.org . If you want a discount code, please use Phase2022 at check out. Make sure you are a subscriber to the Store for any checkout discount codes to work.

Addendum – Brain Rescue 3 (BR3)

Docosahexaenoic acid (DHA) – One of the major building blocks of the brain, the omega-3 fatty acid docosahexaenoic acid is critical for optimal brain health and function at all ages. Researchers are now finding that DHA provides brain-boosting benefits in infants and aging adults. A key mechanism of DHA is the protection of neural tissue by the production of Resolvins and Protectin D1.

Tocopherol – Also known as Vitamin E (alpha, delta, and gamma) which has been found to reduce the production of inflammation by downregulating the production of the transcriptional factor NF-kB responsible for signaling DNA to manufacture inflammatory chemicals - Cytokines.

Ascorbic Palmitate – Unique to the different formulations of Vitamin C is this fat-soluble form which can easily enter the blood supply feeding the brain. Once in the brain, Vitamin C is a major anti-inflammatory and free radical scavenger product that reduces inflammation. Vitamin C also increases the enzyme, Glutathione synthetase, that helps to make more brain and liver Glutathione that protects the brain and helps detoxification of alcohol.

Quercetin – This is a natural polyphenolic, flavonoid antioxidant and has several important effects on the metabolism of the brain and reduction of inflammation. First, Quercetin can increase the production of mitochondria starting within 7 days yielding a higher production of energy as ATP (adenosine triphosphate). This ATP is used to run cellular functions which can be perceived as clearing thoughts, more energy and loss of fogginess. Second, Quercetin downregulates the production of the transcriptional trigger for inflammation, the notorious NFkB.

Glutathione – Functions as the front-line defense against oxidative stress in the brain. After trauma, the levels of Glutathione are reduced, through consumption and damage to the enzyme system that regenerates it, and this allows for the accumulation of free radicles. This increased Oxidative Stress, which damages neurons and alters the molecular chemistry in the brain, is the focus of the Brain Care II product.

Epigallocatechin gallate (ECGC) - is the active agent in Green Tea. Studies on post-stoke patients and those with dementia and Alzheimer's disease all benefited with an improvement in cognitive functioning when placed on EGCG due to its neuroprotection.

Pyrroloquinoline quinone (PQQ) - is a compound known to influence multiple cellular pathways, including the production of nerve growth factor (NGF). By protecting neurons and stimulating nerve growth in the brain, PQQ also supports cognitive performance, including memory and attention. Additional benefits of PQQ are its ability to remove free radicals and lower oxidative stress, increase production of ATP, and to stimulate the production of Mitochondria.

Vitamin CoQ10 – (Ubiquinone) It is a component of the electron transport chain and participates in aerobic cellular respiration, which generates energy in the form of ATP. Ninety-five percent of the human body's energy is generated this way. Organs with the highest energy requirements— such as the brain, heart, liver, and kidney—have the highest concentrations. The more energy produced the better and clearer the brain functions.

Vitamin B1 – (Thiamine) is important for production of neurotransmitters, memory, mental clarity, cognition, and steady gait. Vitamin B1 is important for the production of energy from carbohydrates. Vitamin B1 can treat symptoms associated with Wernicke-Korsakoff syndrome and reduce oxidative stress.

Vitamin B2 – (Riboflavin) deficiency is associated with neurodegeneration, peripheral neuropathy, loss of thyroid (T4) metabolism with personality changes. Vitamin B2 might also protect the eyes from Cataracts.

Vitamin B5 – (Pantothenic acid) functions as the required precursor of coenzyme A (CoA), through which it plays key roles in multiple biological processes, including many that regulate carbohydrate, lipid, protein, and nucleic acid metabolism. Acetyl-CoA is necessary for synthesis of the complex fatty-acyl chains of myelin, and of the neurotransmitter acetyl- choline all for brain functioning.

Vitamin B12 – (Methyl-Cobalamin) deficiency expresses itself by a wide variety of hematological, neurological, psychiatric, gastrointestinal, and skin disorders. Nervous system disorders, such as brain atrophy, myelopathy, and neuropathy, are often the earliest and, in some cases, the only clinical symptoms of vitamin B12 deficiency. Ongoing

research suggested that the imbalance of cytokines and growth factors may be essential to the pathogenesis of the white matter lesions and thus neuropathy due to cobalamin deficiency.

Rhodiola Rosea - Used to stimulate the nervous system, enhance physical and mental performance, treat fatigue, psychological stress, and depression.

Guarana – Has been found to have neuroprotective qualities against oxidative stress, as well as mood elevation and cognitive performance. It improves fatigue in cancer patients, and improves sleep quality, anxiety, and **depression** symptoms.

Hesperidin - Can effectively protect neurons from damages induced by oxidative or nitrosative stress. Moreover, it enhances cognitive functions through elevating brain derived neurotrophic factor (BDNF) and reversing the disruptive effect of global cerebral ischemia/reperfusion (I/R) injury which can cause cognitive deficits, excitotoxicity, neuroinflammation, oxidative stress and brain edema.

Lepidium meyenii (Maca) - Maca has been demonstrated to possess multiple biological properties, such as anti-fatigue, improving sexual performance, and neuroprotective activities possibly due to its improvement in mitochondrial function (oxidative phosphorylation to make ATP).