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Editorial

Gut Disruption and Brain Changes

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Once again, the message is clear: The foods we crave and love are doing us harm. Past the transient discomfort of diarrhea, stomach ache, bloating, indigestion and possible irritable bowel disease, is the true harm we experience. Perhaps the most impactful is the silent changes that many foods can effect because of gut disruption in digestion and aggravation of the bacterial balance in the gut or microbiome. Recent research has shown the disruption of balance of the gut-brain axis actually impacts the biochemical markers of neurodegeneration. Why is this important? Neurodegeneration is about the highly specialized neurons in our body which receive, propagate and transmit electrical and chemical signals to control motor actions, regulate body functions and is the core of many neurological pathologies including physiological brain change and DNA modification. How do these changes show themselves? These changes are the result: Parkinson's Disease (PD), Multiple Sclerosis (MS), Alzheimer's Disease (AD) and also often through sports injuries like Traumatic Brain Injury (TBI).

Before these chronic diseases or the impact of the challenge become known there are subtle signals that change is coming: mental focus change, general well-being (satiety and fatigue) and sleep disturbances. These changes, once again are often dismissed as a result of the challenging lifestyles many individuals experience but actually have a larger more global impact: Progressive cognitive decline with amyloid beta (AB) plaques and neurofibrillary tangles. The ability to detect AB plague formation is now a biomarker that can be shown through a decreased level of a special peptide species.

What is available to provide a brain boost to slow this AB plaque formation? Individuals often choose to challenge themselves to achieve personal records (PR) of intensive interval training which demands pushing past physical and mental limits through exercise. Although the endorphin rush of knowing one has just passed a personal record, fatigue can dramatically reduce focus. Addition of supplements with branched-chain amino acids and additional protein is one nutrition solution. These amino acids delay fatigue by reducing transport of tryptophan, which encourages serotonin to cause fatigue and reduced reaction time. Protein works to support the improved muscle mass without adding to weight. How quickly does an individual return to the same speed for keyboard actions after extensive personal record exercise? Do most individuals recognize these changes?

Are there dietary supplement agents that can assist the body in adapting to stress by countering effects on the human system? Yes, they are called either adaptogens, nootropic or zootropic compounds. How do they work? They improve cognitive function and support brain health. These compounds are actively involved in current research while considering how use in sports nutrition and even daily meal replacement are supported by the use of needed minerals and vitamins through daily supplementation.

Often overlooked is the linkage between inadequate balance of necessary vitamins and minerals and how they impact the circadian rhythm associated with good sleep. Surprised? Researchers funded by the USA National Institutes of Health (NIH) have defined that the protein called tau (mentioned earlier in this article) which accumulates in the abnormal tangles in the brain encourages sleep loss. The spread of the toxic Alzheimer's protein loss upsets the balance between normal waking hours elimination of tau and the usual clearance of these tau components during sleep loss. The body cannot eliminate the challenging tau components without good sleep.

Success of using various supplements in these conditions are supported by ongoing extensive clinical trials conducted by world known physicians. Yes, the further we go the more we know……

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