

The Power of Taurine

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Although taurine is not technically an amino acid, it acts like one, and some researchers classify it as a major anti-aging substance. For example, as our brain ages, there is an increase in brain inflammation. Inflammation damages reparative stem cells. Taurine protects and plays a major role in stimulating new stem cells necessary for repair, especially in older adults.

Another consequence of aging brains is the disruption of the synaptic connection between neurons. Taurine stimulates repair of damaged synapses. Taurine additionally protects the brain against inflammation by reducing TNF alpha and excess nitric oxide.

Glutamate is present in very high concentrations inside brain cells, but when the brain is inflamed, cells leak and glutamate escapes, causing further inflammation. Taurine can protect the brain from excess glutamate. Taurine readily crosses the blood brain barrier. After GABA, it's the second most important inhibitory neurotransmitter in the brain.

Know anyone who has had a stroke or head injury, consider



taurine. After head injuries, but especially after a stroke, the brain continues to bleed, a process called perfusion. The additional oxygen the blood brings into the brain causes further oxidative damage by over stimulating microglial cells.

Microglial cells function as the protective immune system of the brain, but when over stimulated, they secrete a host of inflammatory agents including cytokines, chemokines, prostaglandins, and the excitotoxins glutamate, aspartate, and quinolinic acid. This damage can last up to 17 years. Taurine calms microglial cells.

In a study with rats where stroke was induced, as

opposed to controls, subjects who had taurine in their drinking water had reduced inflammatory markers as well as an increase in protective antioxidants like SOD and glutathione. Energy production in the form of ATP was increased, and the negative effects of lipid peroxidation were reduced.

During a stroke, brain cells die. However, many surrounding cells are merely injured. Taurine enhances the release of compounds that protect the injured cells reducing the ongoing damage. So, in terms of the brain, taurine supports multiple mechanisms: increases energy via ATP by facilitating mitochondrial health, lowers glutamate levels, inhibits

microglial activation, acts as an antioxidant, inhibits inflammatory prostaglandins and nitric oxide, reduces brain swelling, protects the blood brain barrier, and increases brain anti-oxidant enzymes like glutathione.

Taurine is not just present in the brain but is highly concentrated in other tissues such as heart, eye, liver, and muscle. And anywhere it is found it demonstrates its anti-aging effects.

Taurine's metabolic activities cover a wide range of physiological functions: protects against calcium ion accumulation inside the cell, protects against oxidative stress, regulates osmotic pressure and cell volume, stabilizes cell membranes, conjugates bile acids, detoxifies xenobiotic activity, supports eye function, and stimulates insulin receptors.

Vitamins A and B6, along with zinc, help build or support taurine levels. Cysteine and B6 are the raw materials needed to synthesize taurine.

Taurine blood levels are often significantly decreased in many depressed patients. Other conditions displaying low plasma taurine levels are hypertension, hypothyroidism, gout, infertility, obesity, kidney failure, and others. Clinically, taurine has been used with varying degrees of success in the treatment of a wide variety of conditions, including: cardiovascular diseases, hypertension, hypercholesterolemia, diabetes, epilepsy, and other seizure disorders, asthma, gallstones, nonalcoholic fatty liver disease, macular degeneration, Alzheimer's, hepatic disorders, alcoholism, cystic fibrosis, and tinnitus.

Personally, I have never found a nutritional approach that has worked with tinnitus or hearing loss, but the sources I reviewed suggested it was effective in around 20% of the cases. I am anxious to share the idea with some of my hearing loss patients.

Biotics Research has two taurine products. Taurine, a low dose capsulated form contains 500 mg of taurine per capsule. Also, Bio-CardioSirt BP, a formula developed by Dr. Mark Houston in conjunction with Biotics Research Corporation. Each scoop contains approximately 6 grams of taurine as well as nutrients associated with lowering blood pressure such as vitamins C, D, B6, biotin, magnesium, and a high potency grape seed extract.

Dr. Houston found reductions in blood pressure of 13 / 11 in 4 weeks using 1 scoop a day. Dr. Qutab likes to use 1 scoop twice a day and titrate down after a few months.

Therapeutic doses vary based on the condition treated ranging from 4-10 grams a day. Maintenance doses range from 500-1000 mg tid.

Since it increases insulin sensitivity, have patients with hypoglycemia take it with meals, but for other patients take between meals whenever possible.

I know, I have shared a lot of information on taurine, and I didn't even get to the mechanisms for chronic pain, immune modulation, eye health, or glucose metabolism. One researcher calls it a wonder drug. But to me any substance that facilitates mitochondrial health, lowers glutamate levels, inhibits microglial activation, acts an antioxidant, inhibits inflammatory prostaglandins and nitric oxide, reduces brain swelling, protects the blood brain barrier, and increases brain anti-oxidant enzymes like glutathione deserves a clinical trial when traditional therapies are not working.

Thanks for reading this week's Tuesday Minute. I'll see you next Tuesday.