

Carnosine

Carnosine is an amino acid di-peptide (beta-alanyl-L-Histidine). It is partly hydrolyzed in the small intestine to the amino acids beta-alanine and histidine. Carnosine is found in its highest concentrations in the brain and in muscle tissue.

- powerful antioxidant – scavenges hydroxyl radicals and protects SOD against peroxidation
- protects and potentiates the immune system
- protects cellular proteins from aging
- protects against toxic carbonyl groups associated with aging
- strengthens the heart and improves the circulation

Carnosine plays an absolutely critical role in protecting against protein degradation, a major component of aging and age-related diseases.

Carnosine, (like lipoic acid and Co-Enzyme Q10) is biologically active in protection against both pathological hyperplasia and pathological disintegration. It could thus have been included in both your Diphasic A.M. and your Diphasic P.M. It is such a powerful antioxidant that it would be right at home with your delta tocotrienol, gamma tocopherol, lipoic acid, and Co-Enzyme Q10 of your Diphasic P.M. (Oxy Power). However, since it has protective effects against both excess steroids and against tumor growth, it is just as appropriately included in your anti-hyperplastic Diphasic A.M.

Consider these amazing health and youth-protecting benefits of carnosine:

- Carnosine is not only a powerful antioxidant, one study showed it is the only antioxidant to significantly protect cellular chromosomes from oxidative damage.
- Carnosine quenches the most destructive protein oxidizing agent, the hydroxyl radical.
- As a hydroxyl scavenger, carnosine protects against fragmentation of zinc SOD and copper SOD by peroxide.
- Carnosine, though water soluble, works with and potentiates the antioxidant affect of lipid soluble alpha tocopherol during lipid peroxidation in liver microsomes. It is thus a major protector of the liver cytochrome P-450 system.

- Glycated proteins produce 50 times more free radicals than non-glycated proteins. Carnosine is the most effective anti-glycating agent ever found.
- Carnosine's anti-glycation benefits are particularly important for diabetic patients, since most complications of diabetes involve the formation of advanced glycation end products.
- As part of its anti-glycation activity, carnosine reacts with aldehydes and ketones (toxic carbonyl groups) which accumulate on proteins during aging (and which occur in high concentration at a premature age in diabetics).
- Carnosine is an effective antioxidant in defense against malondialdehyde (MDA). MDA causes protein cross-linking and formation of advanced glycation end products. Carnosine has been shown to prevent MDA from inducing protein cross-linking.
- MDA-induced glycation in blood albumin and eye lens protein is inhibited by carnosine.
- The reason such a high carnosine concentration is found in the brain is because there, carnosine protects against cross-linking, glycation, excitotoxic brain cell destruction, and oxidative damage.
- Carnosine can rescue neurons from zinc and copper mediated neurotoxicity, suggesting that one function of carnosine may be as an endogenous neuroprotective agent.
- In animal studies, it has been shown that carnosine protects the brain in simulated ischemic stroke.
- Carnosine not only has anti-ischemic effects in the brain, but in the heart as well.
- Carnosine has been shown to increase the strength of heart contractility by enhancing calcium response in heart cells.
- The copper-zinc compounds that contribute to the amyloid-beta plaque formation in Alzheimer's Disease are inhibited by carnosine.
- Not only does carnosine protect against the formation of amyloid-beta senile plaques, but also protects the cells that line the brain blood vessels from damage by those plaques that do form.

- Carnosine protects the brain against both lipid peroxidation and against damage from excess alcohol.
- Carnosine has been shown to rejuvenate cells approaching senescence by extending the life over which those cells will continue to divide with the frequency typical of youth. In tissue cultures supplemented with carnosine, cells retain a youthful appearance and have an extended cellular life span. This ability for carnosine to increase cellular life span holds true even for old cells. One study showed a 67% increase in cellular life span with carnosine supplementation.
- Extending the study of carnosine's life span increasing property from tissue cultures into living organisms, studies were conducted showing that mice supplemented with carnosine lived an average of 20% longer than un-supplemented mice, and were twice as likely to reach old age in a healthy state.
- In humans, carnosine levels decline with age. Muscle carnosine concentration decreases 63% from age 10 to age 70.
- Carnosine not only serves as an antioxidant in muscle, but also as a pH buffer. It protects muscle cell membranes from oxidation under the acidic conditions of muscular exercise.
- Carnosine has been shown to dramatically improve exercise recovery (but does not increase performance, which means that it is not an "ergogenic aid," but rather facilitates the anabolic response to exercise).
- Carnosine has been shown to quickly restore muscle contraction capability after fatigue.
- Carnosine has a rejuvenating effect on connective tissue cells, and has been shown to benefit wound healing.
- Because of its ability to prevent cross-linking, carnosine has been shown to be effective in the treatment of senile cataracts, and in the prevention of cataracts.
- Carnosine has immunopotentiating properties. It protects the immune system from immuno suppression by hydrocortisone, by anti-tumor drugs, and many other immunosuppressive drugs.
- Carnosine inhibits histamine-induced suppression of lymphocyte proliferation. Thus, it is classified among H-2 histamine blockers, which explains why it is a beneficial treatment for allergies.