



Study Suggests a New Supportive Role For the “Anti-Aging Peptide”

NBC, CBS, and the Global TV network are all reporting on a study recently completed by pediatric neurologist Dr. Michael G. Chez and his colleagues at the Autism and Epilepsy Center in Lake Bluff, Illinois. These clinicians have for some time been using **Carnosine**, the “anti-aging peptide,”¹⁻³ in epileptic patients, because of some hints that it might have a hitherto-unknown function in the frontal lobes of the brain. But after they had been using **Carnosine** for some time, they began to notice especially exciting results in children whose epilepsy was linked to *Autistic Spectrum Disorder* (ASD, or autism). Autism, the disorder which afflicted Dustin Hoffman’s character in the film *Rainman*, is a developmental disability of neurological origin that affects its victims’ ability to communicate, understand language, express their emotions, and relate to others. Up to 40% of autistic children eventually become epileptic.

The neurologists noticed a variety of improvements in autistic children when they took **Carnosine**, ranging from sudden jumps in reading skills and expressive use of language to better eye contact and playing skills – changes also noted by the children’s parents, and by some speech therapists who were not aware that the children were taking the supplement. As their clinical experience with **Carnosine** mounted, Dr. Chez and his colleagues decided that the results demanded to be put to the test of a randomized, double-blind, placebo-controlled trial.⁴

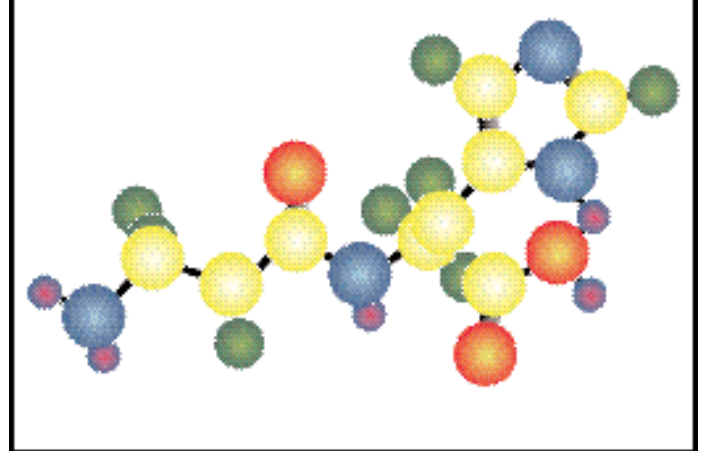
Most children in this study had a history of abnormal **electroencephalograms (EEGs)**, or had responded either to anticonvulsant drugs or to drugs normally used to treat dementia. The 31 children (ages 3 to twelve-and-a-half

who were admitted to this study were assessed by the neurology clinic using a battery of tests commonly used to evaluate the severity of their disorder, including the **Gilliam Autism Rating Scale (GARS)**, the **Childhood Autism Rating Scale (CARS)**, the **Expressive and Receptive One-Word Picture Vocabulary tests (E/ROWPVT)**, and the **Clinical Global Impression of Change (CGI** – an evaluation done by the children’s parents). The children then either took 400 milligrams of **Carnosine** twice per day, or were given a look-alike dummy pill for eight weeks. The children were reassessed on the CGI every two weeks, and the other tests were repeated at the neurology clinic at the end of the trial.⁴

As the researchers reported at this year’s meeting of the Child Neurology Society,⁴ children who had taken the placebo had not changed significantly on any of these parameters at the end of the study. But **autistic children receiving Carnosine supplements experienced a sweeping range of improvements**. The Gilliam Autism Rating Scale was improved overall, with especially notable leaps in measures of socialization, behavior, and communication. Expressive and Receptive One-Word Picture Vocabulary tests also revealed significant improvements. Parents reported a better overall picture of their children’s development in the CGIs. Language comprehension was significantly improved. And while the results were not strong enough to meet *statistical* criteria, the *trend* was for improvements on the other scales as well.⁴

Dr. Chez and his fellow neurologists don’t claim to understand *why* **Carnosine** has these effects, although they note its known roles in neurotransmission, its regulation of zinc and copper in some parts of the brain, and its neuroprotective effects. But their pilot study has convinced

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them that it works. And while not yet submitted to proper controlled studies, Dr. Chez has also noted that “We’ve had parents report improved reading skills with **dyslexic tendencies** ... just improved test scores with kids who’ve had

borderline **attention disorder**.⁷⁵ They also say **Carnosine** has helped some **Alzheimer's patients**, which would be consistent with the finding that (in a test-tube, at least) **Carnosine** can block critical steps in the formation of **beta-Amyloid plaques**,⁶ and with the role that **glycation** (the warping of the body's proteins by sugars) is believed to play in this disease.⁶⁻⁸

Autistic children being treated at the Autism and Epilepsy Center are also given small doses of alpha-tocopherol and zinc.

References

- 1 Hipkiss AR, Brownson C. A possible new role for the anti-ageing peptide carnosine. *Cell Mol Life Sci.* 2000 May;57(5):747-53.
- 2 Boldyrev AA, Gallant SC, Sukhich GT. Carnosine, the protective, anti-aging peptide. *Biosci Rep.* 1999 Dec;19(6):581-7.
- 3 Hipkiss AR. Carnosine, a protective, anti-ageing peptide? *Int J Biochem Cell Biol.* 1998 Aug;30(8):863-8.
- 4 Chez MG, Buchanan CP, Aimonovitch MC, Becker M, Schaefer K, Black C, Komen J Double-blind, placebo-controlled study of L-carnosine supplementation in children with autistic spectrum disorders. *J Child Neurol.* 2002 Nov;17(11):833-7.
- 5 www.koin.com/health/20021009_addtreatment.shtml
- 6 Dukic-Stefanovic S, Schinzel R, Riederer P, Munch G. AGES in brain ageing: AGE-inhibitors as neuroprotective and anti-dementia drugs? *Biogerontology.* 2001;2(1):19-34.
- 7 Takeda A, Yasuda T, Miyata T, Goto Y, Wakai M, Watanabe M, Yasuda Y, Horie K, Inagaki T, Doyu M, Maeda K, Sobue G. Advanced glycation end products co-localized with astrocytes and microglial cells in Alzheimer's disease brain. *Acta Neuropathol (Berl).* 1998 Jun;95(6):555-8.
- 8 Castellani RJ, Harris PL, Sayre LM, Fujii J, Taniguchi N, Vitek MP, Founds H, Atwood CS, Perry G, Smith MA. Active glycation in neurofibrillary pathology of Alzheimer disease: N(epsilon)-(carboxymethyl) lysine and hexitol-lysine. *Free Radic Biol Med.* 2001 Jul 15;31(2):175-80.

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