



Progress in Longevity Medicine Seminar Series

Stress Signaling in and the Modulation of Age-Related Behavioral Decline Via Dietary Fruit and Walnut Supplementation

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Date/Time: Friday, February 8, 2008; 5:30 pm (dinner included)

Location: The Arizona Club, 201 North Central Avenue, 37th Floor

Cost: Free

Abstract: Epidemiological studies have indicated that consumption of a diet containing high amounts of fruits and vegetables may prevent age-related disease such as Alzheimer disease (AD). Research from our laboratory has suggested that dietary supplementation with extracts high in antioxidants (e.g., blueberry (BB) and walnuts) can decrease the enhanced vulnerability to oxidative stress (OS) that occurs in aging and these reductions are expressed in part as improvements in motor and cognitive behavior. In addition to the well known free radical scavenging effects that are seen with assessments of ORAC, it appears that BB and possibly other fruit and nuts (e.g., strawberries, concord grapes, and walnuts) can directly reduce stress signaling and enhance protective signals, suggesting the involvement of multiple mechanisms in the beneficial effects observed. Enhancement of "protective" signals (e.g., ERK, IGF-1) include those that are involved in neuronal communication, neurogenesis and learning and memory, while reductions in stress signaling, includes inhibiting NF κ B, and CREB, and cytokines among others induced by OS/INF stressors. This has been seen in both BV2 mouse microglial and hippocampal cells. It is known that overactivation of microglial cells in AD and Parkinson Disease have been shown to be involved in cell loss in these conditions. We believe that the possible addition of colorful fruits such as berry fruits and nuts such as walnuts to the diet can possibly increase "health span" in aging, and provide a "longevity dividend" or economic benefit for slowing the aging process.

Objectives:

- To describe the changes in motor and cognitive behavior in aging
- To discuss the possible inflammatory and oxidative stress mechanisms involved in these deficits
- To show that berry fruit, concord grape juice or walnut supplementation can reverse these decrements
- To discuss the possible molecular mechanisms involved in their beneficial effects

(More)

Biography: Dr. Joseph received his PhD in Behavioral Neuroscience from the University of South Carolina in 1976. He was a post-doctoral fellow at the Gerontology Research Center/NIH from 1976-1982, and a sr. scientist at Lederle Res. Laboratories from 1982-1985 when he joined the Armed Forces Radiobiology Institute. In 1988 he returned to the GRC as a sr. scientist and in 1993 joined USDA Human Nutrition Res. Ctr. on Aging at Tufts University as the Director of the Neuroscience Laboratory. He is the author or co-author of 225 scientific publications and has shared in the Sandoz Award in Gerontology, received a JAFEH fellowship from the National Institute for Longevity Science in Japan, the Stephanie Overstreet award in Alzheimer Research from the Alzheimer Foundation, the Alex Wetherbee Award from the North American Blueberry Council, the 2002 Glenn Foundation Award for Aging Research, the 2004 Harman Research Award, and the 2005 International Award for Modern Nutrition from the Swiss Milk Producers and the 2007 North Atlantic Area USDA Agricultural Res. Service Scientist of the Year Award. He also serves on the editorial review boards for the following journals Experimental Gerontology, Aging Cell, Neurobiology of Aging and Current Topics in Nutraceutical Research. His book, the Color Code, which is concerned with the health benefits of colorful fruits and vegetables, has been translated into five languages and is playing an important role in helping to change the diets of many people in the United States and other countries. Numerous nutrition programs promoting a "colorful" diet such as 5 A Day the Color way have utilized this book in advocating a "healthier diet"

To RSVP or for additional information, please contact Stephanie Tusalem at (602) 778-7492 or via email at stephanie.tusalem@kronosinstitute.org.

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