

Nutrition, Lifestyle, Brain Aging and Neurodegenerative Diseases:
Quenching the Fires of Aging

Session Description

The evidence is becoming increasingly clear that diet plays an important role in increasing “health span”. However, questions of which foods might be the most beneficial in preventing cognitive and motor behavioral deficits in aging remain. It has been shown that the inclusion of vegetables (e.g., spinach) and fruits (e.g., berryfruit) and beverages (e.g. tea, red wine) that contain high amounts of polyphenolic compounds with antioxidant/anti-inflammatory properties are likely to promote healthy brain aging. Also important in this regard, is the inclusion of fish oils containing n3 fatty acids in a healthy diet.

In this symposium we will discuss how the benefits of diets containing these polyphenols fatty acids may prevent or forestall age-related behavioral and neuronal deficits. The symposium will cover the following topics A. The role of diet and caloric intake in providing protection against the deleterious effects of inflammatory and oxidative stress. As demonstrated in a variety of animal models diet restriction has proven to be the most robust means to retard aging. Reducing intake of a nutritious diet by 20-50% can increase lifespan, reduce the incidence and retard the onset of chronic diseases, enhance stress protection and maintain youthful function. However, implementation of caloric restriction in humans has been difficult; therefore, research is being carried out to develop “caloric restriction mimetics” which are derived from such fruits as red grapes and may act to reverse some of the parameters of aging. One of these, resveratrol is of particular significance and its role in aging will be discussed in this symposium. B. Evidence will be provided showing that food enriched with supplemental antioxidants and mitochondrial cofactors can improve and maintain cognitive function in aging dogs and that these effects will be made even greater by behavioral treatment consisting of social and cognitive enrichment and exercise. C. A third topic of this symposium will focus upon the mechanistic effects of the polyphenolics in berries and walnuts that act to reduce cognitive and motor deficits in aging, increase neuronal communication (signaling) and decrease oxidative and inflammatory stress signaling will be presented as being critical to these beneficial effects. A “nutritional global positioning system” will be suggested as a guide in the selection of healthy fruits, vegetables and nuts in the diet. Data will also be presented from animal and cell models to show the beneficial effects on behavior in aging and extended to show reduction of memory deficits in aged humans showing early memory loss. D. The data that will be cited in topic C concerning walnuts will show that fatty acids may also be responsible for the reduction in the deleterious effects of aging on cognitive function. In this regard findings will be discussed showing that supplemental administrations of the omega -3 fatty acid, DHA have reduced amyloid beta accumulation and production and increased cognitive performance in mouse models of Alzheimer Disease and may act as a potent anti-inflammatory agent. Similar findings

have been obtained with the potent spice curcumin which can also act to improve cognitive functioning and may act synergistically with DHA.

Session Topics and Speakers

Topic 1: *Caloric Restriction vs Caloric Selection A Convergence of Concepts*

Speaker: Donald Ingram Ph.D. Pennington Biomedical Center Baton Rouge, LA, USA

Topic 2: *Prevention of Alzheimer Disease: Omega 3 Fatty Acids and Curcumin*

Speaker: Gregory M. Cole, Ph.D. Veterans Medical Center and University of California, Los Angeles, CA USA

Topic 3: *The Beneficial Effects of Berryfruit and Walnut Polyphenolics in Brain Aging*

Speaker: James Joseph, Ph.D. USDA Human Nutrition Research Center on Aging at Tufts University, Boston, MA USA

Topic 4: *Nutrition and Physical activity in the prevention of age related cognitive decline: evidence from controlled clinical trials*

Speaker: TBC

Topic 5: *Effect of Nutrition on Mood and Behavior*

Speaker: TBC