ANNUNCIO DI SEMINARIO

“Taking the pulse of aging: Cerebrovascular contributions to age-related changes in brain anatomy and cognition”

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Abstract: Vascular support to the brain is critical for healthy cognitive aging. Reduced blood flow to the brain in aging is caused, among others, by hypertension, arteriosclerosis (i.e., stiffening of the arteries) and plaque formation. Arterial stiffness is predictive of cognitive decline, is a critical risk factor for cerebrovascular accidents, and has been linked to the accumulation of beta-amyloid in Alzheimer’s disease. The state of cerebral arteries is heavily influenced by lifestyle factors, including cardiorespiratory fitness (CRF). Recent studies have emphasized that physical exercise may help stave off some of the effects of aging on cognition, brain anatomy and function, although the exact mechanisms through which these benefits are obtained are not yet completely understood. In this talk I will review data obtained in our laboratory with new non-invasive measures of cerebrovascular health based on diffuse optical imaging, in conjunction with arterial spin labeling (ASL) and anatomical and cognitive assessments. The data clearly show that variability in cerebrovascular health is correlated with CRF and inversely correlated with age. It also mediates cognitive performance as well as global and local anatomical variability in the brain of older adults. In the future, this approach could potentially be used clinically to complement existing technologies, and provide a non-invasive way to identify early signs of cerebrovascular distress, enabling prevention and early intervention.

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