biosensis

Make sense of your research!

More research links exercise with BDNF levels

In a recent study published in the Journal of The American Geriatrics Society, a team lead by Yorgi Mavros at the University of Sydney studied the effects of Progressive Resistance Training (PRT) on the cognitive function of older adults with Mild Cognitive Impairment (MCI). In a randomized, double-blind, double-sham, controlled trial, 100 participants were assigned into four groups to receive a 6-month intervention of high intensity PRT, cognitive training, or their sham equivalents. The team found that only the PRT group showed significant signs of cognitive improvements and that the strength gains (particularly lower body strength) rather than the aerobic capacity changes mediated the cognitive benefits of PRT.

Mavros, Y et al., (2017) **Mediation of Cognitive Function Improvements by Strength Gains After Resistance Training in Older Adults with Mild Cognitive Impairment: Outcomes of the Study of Mental and Resistance Training.** *Journal of the American Geriatrics Society*, 65 (3), 550-559

Meanwhile, a collaboration between researchers at the Karolinska Institute in Sweden and their colleagues at the NIH in Baltimore has yielded results which add to our understanding of the role of BDNF in the development of Alzheimer's Disease (AD). Their article published in the Journal of Neurochemistry suggests that exercise and other factors which promote BDNF signalling may have both a therapeutic as well as a prophylactic benefit in combatting AD. Using a transgenic mouse model of AD and cultured human neural cells, the study demonstrated that exercise and BDNF promotes non-amyloidogenic (α-secretase) APP processing and thus reduces the production of toxic A-beta peptides. This study represents an important step forward in understanding the mechanisms that may lead to AD and should be a motivator to get us all out on that morning jog (or weights session)!

Nigam, SM et al., (2017) **Exercise and BDNF reduce A? production by enhancing ?-secretase processing of APP.** *Journal of Neurochemistry* [Epub ahead of print]

Another Ameri-Swedish collaboration has produced an interesting small-scale human study, which uses a balanced cross-over experimental design to compare the relative benefits of different types of activities. Published in the Journal of Alzheimer's Disease, the study involved exposing nineteen healthy older adults to 35-minute sessions of mindfulness, cognitive training and physical exercise. The study showed that a single exercise session provides a significantly larger immediate increase to serum levels of mature BDNF than either of the other two activities, for the same individuals. The researchers were also able to show that the rise in mature BDNF serum levels in response to exercise correlated with improved working memory function. This study provides yet more evidence that BDNF may be one of the best available serum biomarkers of overall cognitive health. Håkansson, K et al., (2016)

BDNF Responses in Health Older Persons to 35 Minutes of Physical Exercise, Cognitive Training, and Mindfulness: Associations with Working Memory Function. *Journal of Alzheimer's Disease,* 55 (2), 645-657.

If you're interested in building on this research, check out Biosensis' mBDNF and proBDNF *Rapid* ELISA kits for research use, as well as the first BDNF ELISA kit approved for use in clinical trials (made with the help of the CE-Mark experts at CalBioTech).

Biosensis Pty Ltd
51 West Thebarton Road
Thebarton SA 5031 Australia
www.biosensis.com