

Can physical exercise prevent cognitive decline?

Background

Physical exercise has been shown to have positive effects on cognition in both young and older healthy adults. There are a few clinical studies involving patients with mild cognitive impairment (MCI) and dementia, however, the effects on cognition in these groups are inconclusive. Possibly in part due to study designs based on self-reports rather than objective measurements

The proportion of elderly people increases in Sweden and as a consequence also the number of persons with cognitive decline and dementia. Despite intense research, there are still no effective remedies for the most common dementing disorders (Alzheimers disease and vascular dementia). The interest in finding other strategies to diminish the risk of cognitive decline or to prevent a progression from MCI to dementia has increased and physical exercise is considered to be a promising prevention.

Despite scientific support for the association between physical fitness and cognition, more evidence regarding type and intensity of exercise as well as the effects in clinical groups is needed. Furthermore, there is no consensus regarding the psychological and physiological mechanisms explaining this association.

Ongoing intervention study

The main aim is to study whether structured physical exercise can postpone or prevent cognitive decline and dementia in patients with MCI. In this pilot-study two varieties of individualised training intensity twice a week during three months are compared with a control group using comprehensive measurements before and after the intervention.

Thirty-seven patients (60 – 80 years) from the Memory Clinic at the University Hospital of Skånes, all with a diagnosis of MCI (Lindrig kognitiv svikt, objektiv = F07.7 according to ICD-10) are included. The participants were stratified by sex and semi-randomly allocated to one of three groups: 1) Training with low/mediate intensity; 2) training with high intensity; 3) controls.

Comprehensive tests of both psychological and physiological parameters are performed before and after the intervention: among others computerised cognitive test (CANTAB), inventories regarding psychological health and activities, maximal exercise testing on a recumbent cycle ergometer with measurements of oxygen consumption at the ventilatory threshold (VO₂ VAT), blood samples.

Possible thesis projects:

Associations between cognitive performance and psychological and/or physiological parameters at baseline

Correspondence between computerised cognitive tests and “paper and pencil-tests”

Assessment of change in psychological parameters after the intervention

Contact me if you are interested and want to know more

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