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MENTAL COMPENSATION STRATEGIES AND GERONTECHNOLOGY

Computerized cognitive stimulation (CCS) is a promising intervention for training cognitive functions as recommended in the European Silver Paper¹. CCS assumes that both cognitive competencies and psychosocial factors contribute to personal accomplishment. Cognition includes attention, perception, episodic and semantic memory, visuo-spatial abilities, executive function, and verbal fluency. Psycho-social factors relate to self-confidence, self-esteem, motivation, affective state, and social involvement. When aware of their memory deficits, persons suffer from anxiety and depressive mood with negative effects on their cognitive and functional abilities. Even a subtle enhancement of cognitive function will be perceived by the subject as an affirmation of competence and therefore augment self-esteem

and improve affective status, a good indicator of quality of life and correlating significantly with everyday functioning.

CS-intervention has yielded significant benefits both for people with normal ageing and those with mild cognitive impairment(MCI)² or Alzheimer's disease²⁻⁴. CS programmes are now computerized for older populations and provided through Internet or CD-ROM. These include cognitive exercises gathered in sessions (for instance, 30 minutes) several times a week. A training period of 3 - 6 months is needed to obtain significant cognitive and psycho-social benefits. Increasingly, CCS programmes, such as Mindfit⁵ and HAPPYneuron⁶ become available as primary prevention for healthy older people, to prevent or delay cognitive impairment. A theoretical part explains cognitive functioning and includes practical exercises

es on cognitive abilities: working memory, visual and auditory short term memory, planning, location memory, naming, time estimation, divided attention, and hand-eye coordination. The ElderGame⁷ is an interactive play-platform to monitor cognitive health and welfare, allowing early detection of cognitive disease or social unease. Recently other CCS programmes such as Gradior⁸ or Smartbrain⁹ provide human-machine interfaces and cognitive exercises tailored for cognitively impaired older people in secondary prevention.

These exercises simulate real life situations in order to help maintain autonomy in activities of daily living. Talassi et al.¹⁰ have compared two interventions in patients with MCI and Alzheimer's disease. One included CCS, the other physical training, both in addition to occupational therapy and behaviour-changing training. MCI patients improved scores in tests that measured constructive praxia, visuo-spatial memory and physical abilities; anxiety and depressive symptoms were also reduced. Cipriani et al.¹¹ have shown that CCS provided a significant cognitive improvement (Mini Mental State Examination, verbal fluency, and executive functions) in Alzheimer's patients.

CCS trials so far have been restricted to small numbers of people and short term effects. Benefits need to be evaluated both in healthy and cognitively impaired persons by means of randomized trials with a large number of participants and assessed in the long term.

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