

Interference reconditioning after visual memory training in older adults

O.M. Razumnikova^{1,2*}, A.A. Yashanina^{1,2}, V.A. Kagan²

¹ *Research Institute of Physiology and Basic Medicine, Novosibirsk*

² *Novosibirsk State Technical University, Russia*

* *e-mail: razum@physiol.ru*

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Motivation and Aim: Decrease in inhibitory control is considered as the basis for the age-related impairment of different cognitive functions [1]. It is known the phenomenon of retrieval-induced forgetting as the function of release inhibition. The analysis of cognitive training in the domains of executive function and working memory detected nonconvergent effects [2, 3]. The age-related changes in brain structure and function are not uniform, and mechanisms underlying the individual changes are yet not fully discovered. The aim of our study is to find interference changes due to memory training in older vs. young adults.

Methods and Algorithms: The inhibitory function in retrieval-induced forgetting (RIF) in older age (65 years, $n = 60$) (GR_O) and in young group (22 years, $n = 50$) (GR_Y) have been studied using memory training program. The computer-based platform was created to analyze different forms of memory including an assessment of proactive interference in visual memory retrieval [4].

Results: It was found that 74 % participants in GR_O performed the task no more than 20 times, 18 % continued training to 80 sessions, and 8 % – up to 180 times whereas only 15 % in GR_Y had memory training more than 10 sessions. In connection with this variability of training intensity, the mean scores of memory retrieval calculated for the first 18 sessions were compared to analyze age differences. The results revealed that the memory indices improved in GR_Y by 29 % compared to the baseline level, and in GR_O only by 13 % (while the values in GR_Y remained significantly higher than in GR_O, however, with greater variability of learning effectiveness for different sessions). RIF index was calculated as difference in the memory measure between final and initial probes in each test while training session. Age-associated difference of RIF dynamic was revealed, i. e. training induced comparable inhibitory efficiency in two groups due to reduced the inhibition-deficit in older adults.

Conclusion: The inhibition reconditioning in older group was found that pointing to the restructuring of the neural systems due to the visual memory training

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