

ABSTRACT

Age-related memory decline is a medical and socioeconomic problem that requires further research to find effective therapeutic interventions. In this study we investigated the effects of non-weight bearing and weight-bearing exercise on memory function, blood and hippocampal insulin like growth factor-1 (IGF-1) levels in old mice. We divided 30 female mice with age of 9 months into 3 groups as follows: (1) the control group (C; n = 10), (2) the weight-bearing exercise group (WB; n = 10), and (3) the non-weight bearing exercise group (NWB; n = 10). Mice in the WB group did a treadmill and mice in NWB group did a swimming for 30 minutes, 5 times per week for 6 weeks. In the present results, there was memory impairment in old-aged mice, then weight bearing and non-weight bearing exercise was able to improve memory function in old age mice. Blood IGF-1 levels were significantly elevated in both the weight bearing and non-weight bearing exercise groups. Increased hippocampus IGF-1 levels were only found significantly in non-weight bearing exercise group. These results indicated non-weight bearing exercise led to a more evident effect of increased memory function and IGF-1 levels in old-aged mice.

Keyword: *Weight-bearing exercise, Non-weight bearing exercise, IGF-1, Memory, Hippocampus, Aging*