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THE EFFECTS OF AGMATINE SUPPLEMENTATION AND/OR EXERCISE TRAINING ON COGNITIVE FUNCTIONS IN AGED RATS.

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ABSTRACT: ObjectiveAgmatine and exercise has a variety of physiological effects including modulation of cognitive functions. In the literature, there are studies examining the effects of exercise and agmatine supply on age-related cognitive impairment. However, there is no study that evaluates both factors at the same time. The objective of the study is to examine the effects of agmatine supply and exercise on cognitive functions in aged rats.

METHOD: s36 healthy (20-month old) male Sprague-Dawley rats weighing 300-350 g were used in the study. The rats were randomly separated into the control (n=6), exercise (n=10), agmatine (n=10), and agmatine+exercise (n=10) groups. No practice was applied to the rats in the control group. 40 mg/kg agmatine (i.p) supply was administered to the rats in the agmatine groups for 8 weeks. The swimming exercise was applied to the exercise and agmatine+exercise groups for 8 weeks. The Morris water maze test was performed at the end of the 8th week. All of the animals were decapitated after the test. Blood and tissue samples were taken for the measurement of the levels of agmatine, brain-derived neurotrophic factor, nitrite + nitrate.

RESULTS: The body weights of the rats to which exercise was applied decreased significantly after the exercise protocol ($p<0.05$). There was no difference in the levels of BDNF and nitrite+nitrate among the groups in the measurement made at the end of our study ($p>0.05$). The level of agmatine was significantly higher ($p<0.05$) in the agmatine and agmatine+exercise group when compared to the exercise and control group.

CONCLUSION: It was observed that agmatine supply has partially positive effects on cognitive functions in aged rats.

Keywords: Agmatine, BDNF, Exercise, Learning.