



CHANGES IN THE PHYSICAL ENDURANCE OF MICE BASED ON THE RESULTS OF A SWIMMING TEST BASED ON THE COMBINED USE OF ACTOPROTECTIVE AGENTS

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Relevance: Physical performance is a key indicator of the functional state of the body, reflecting the ability to exercise and fatigue resistance. In sports physiology and pharmacology, endurance assessment is important in developing training programs and testing various effects. Mice are widely used as models due to their genetic uniformity and sensitivity. The swimming to exhaustion test is a valid method of assessing endurance.

The aim of the study was to investigate the effectiveness of the combined use of L-carnitine with morpholinium-methyl-triazolyl-thioacetate in increasing the endurance of mice under exercise.

Materials and methods: The effect of drugs on physical performance was studied on 24 white mice weighing 22-24 g, randomly divided into four groups of six mice each. Group 1 is a control group receiving distilled water; Group 2 — intramuscular administration of the drug "Carditon" (GM Pharmaceuticals Ltd, Georgia) at a dose of 500 mg/kg; Group 3 — intramuscular injection of the drug "Thiotriazoline" (PJSC "Galichpharm", Ukraine) at a dose of 50 mg / kg; Group 4 — intramuscular combined administration of Carditon (GM Pharmaceuticals Ltd, Georgia) at a dose of 500 mg/kg and Thiotriazoline (Galichpharm, Ukraine) at a dose of 50 mg/kg. The physical performance of mice was assessed in a swimming pool test at a temperature of 29-30 °C with a load equivalent to 7% of body weight applied to the base of the tail. The animals swam to exhaustion under their body weight. Being in the water for more than 10 seconds was considered an indicator of physical fatigue, and after that the animals were quickly pulled out of the water. The drug was administered to mice intragastrically once a day for 14 days. The swimming time was recorded on the 7th and 14th day.

Results: In the control group, the swimming time was 17.2 ± 0.6 minutes. In the groups receiving the drugs, there was a significant increase in endurance on days 7 and 14 compared with baseline values. On day 7, the duration of swimming in the Carditon and Thiotriazoline groups was 24.5 ± 0.5 and 21.2 ± 0.8 minutes, respectively, which was 1.4 and 1.2 times higher than the control. In the combined intake group (Carditon + Thiotriazoline), the duration reached 29.6 ± 1.2 minutes, exceeding the control by 1.7 times. With prolonged use, the dosages remained unchanged. On day 14, the duration of swimming in the control group was 18.2 ± 0.7 minutes. In the groups with mono- and combination therapy, a linear increase in endurance was noted: Carditon — 26.9 ± 0.6 minutes (1.48 and 1.09 times higher than the control and day 7), Thio-triazoline - 24.2 ± 0.5 minutes (1.3 and 1.1 times higher), combination therapy — 39.0 ± 1.9 minutes (2.1 and 1.3 times higher). It was found that Carditon increased swimming time by 42.4% and 47.8%, Thiotriazoline — by 23.2% and 33.0%, and their combination — by 72.1% and 114.3% compared with the control on days 7 and 14, respectively. When comparing the 14th day with the 7th, an increase in endurance was revealed by 9.8% (2.4 min) in the control, 14% (3 min) in the second and 31.7% (9.4 min) in the third group.

Conclusions: The combined use of Carditon and Thiotriazoline effectively increases physical endurance, surpassing the effect of individual drugs. The obtained data confirm the expediency of further research for use in sports medicine.