

Lack of Exercise Decreases Survival and Increases Organ Damage After Hemorrhagic Shock in Rats.

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Inflammatory response secondary to hemorrhagic shock (HS) frequently precedes multiple organ failure and death in trauma patients. Researchers have recognized that exercise benefits immune function. However, the effects of exercise on HS-induced death and organ damage are unknown. In this study, the authors aimed to explore the effects of exercise on survival rate and organ injury after HS. Rats were divided into exercise and nonexercise groups. The exercise group received running training 30 min/day five times/week for 4 weeks. After 4 weeks, researchers withdrew 60% of total blood volume in both groups to mimic HS. Levels of blood aspartate transferase (GOT), alanine transferase (GPT), blood urea nitrogen (BUN), creatinine (Cr), lactic acid dehydrogenase (LDH), creatine kinase-myoglobin (CK-MB), blood glucose, and lactate were measured. The survival rate and injury scores for the liver, kidney, and lung were examined 48 hr after HS. Physical activity was measured in surviving rats from the 3rd to the 7th day after HS. Exercise training significantly increased the survival rate (75% for the exercise group vs. 50% for the nonexercise group) after HS and decreased organ injury. In addition, the exercise group was more active than the nonexercise group after HS.