The protective role of the exercise on the remote lung damage following ischemia/reperfusion injury in the hind-limb of the adult male albino rat: A histological and a

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Abstract:

ABSTRACT
Introduction: Reperfusion of tissues following a prolonged period of an acute-onset ischemia causes injury to distant organs such as the lungs, kidneys, heart and liver through mediators released from the ischemic tissue entering the systemic circulation. Aerobic physical training of a moderate intensity has been recognized to improve the cardiorespiratory function. Aim of the work: This study was designed to investigate the influence of physical training on the remote lung damage induced by rat hind-limb I/R injury. Material and Methods: 30 adult male rats, weighing (200-250) gm were used in this study. The rats were divided into three equal groups: the control group, I/R group (underwent limb ischemia for 3 hours followed by 3 hours of reperfusion) and exercise + I/R group (trained rats for 4 weeks were subjected to limb ischemia for 3 hours and then 3 hours of reperfusion. At the end of the 3 hours of reperfusion, the rats were sacrificed and the specimens from the lung were taken. The specimens were processed for light and electron microscopic study. The area percentage of collagen fiber content was measured and the results were statistically analyzed. Results: Light microscopic examination of I/R group showed thickened interalveolar septa with massive interstitial cellular infiltration, loss of normal architecture of the lung and hypertrophied arterial wall. The ultrastructure showed pneumocytes with rarified, vacuolated cytoplasm and destructed organelles. Type II pneumocytes were characterized by the presence of large vacuoles and few lamellar bodies. Alveolar macrophage showed numerous dense bodies, autophagic vacuoles

Published In:

The Egyptian Journal of Anatomy, 41 (1), 10-19