عنوان مقاله:

Swimming Exercise Training Attenuates the Lung Inflammatory Response and Injury Induced by Exposing to Waterpipe Tobacco Smoke

محل انتشار:

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خلاصه مقاله:

Background: The use of waterpipe tobacco smoking (WTS) is on the rise throughout the world, especiallyamong young people and even athletes. There is a belief among consumers that exercise prevents the harmfuleffects of hookah smoke on the body. We examined this belief by evaluation of lung injury following toconcurrent WTS and swimming endurance training in male Wistar rats.Methods: Animals were randomly divided to sedentary control (CTL) group, exercise training group(Ex group), sedentary WTS (S) group, and exercise plus WTS (S + Ex) group.Findings: ۸ weeks of WTS was associated with significant increase in serum level of cotinine, lung damage,reduction in alveolar number AN/SA (mm۲) and increase in malondialdehyde (MDA) level of lung tissue.Combination of exercise with WTS significantly decreased these negative effects; however, it could not fullyprotect the lung from smoking damage. Waterpipe smoking (WPS) also significantly increased the proinflammatory cytokines of lung tissue such as tumor necrosis factor alpha (TNF-α) ($P < ۰.۰۰۱$), interleukin ۱beta (IL-۱β) ($P < ۰.۰۱۰$), and IL-۶ ($P < ۰.۰۵۰$) in comparison with CTL group. Exercise training to somedegree reduced the levels of pro-inflammatory cytokines and increased the level of IL-۱۰ as an antiinflammatory IL and glutathione peroxidase (GPX) activity in animals exposed to WTS.Conclusion: It is suggested that combination of mild to moderate exercise with WTS may attenuate thehookah smoking-induced lung damage. This effect partly is mediated through balancing of pro/antiinflammatory and redox systems

کلمات کلیدی:

Water pipe smoking, Lung injury, Swimming, Interleukins, Antioxidants