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Effects of an acute bout of exercise on salivary lactoferrin responses among sedentary smokers and non-smokers men

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Abstract. The purpose of this study is to determine the effects of an acute bout of exercise on salivary lactoferrin responses among smokers and non-smokers. Eighteen sedentary men were recruited; nine smokers (age = 22.4 ± 1.4 years; BMI = 22.1 ± 1.1 kg/m^2) and nine non-smokers (age = 22.1 ± 0.7 years old; BMI = 22.5 ± 1.9 kg/m^2). In this study, participants cycled at an intensity of 60% maximum heart rate for 60 minutes. Participants were given cool water as much as 3 ml/kg body weight at minutes 20 and 40 during the exercise session. Participants' body weight and saliva samples were collected at pre and post-exercise. Heart rate and rate of perceived exertion (RPE) were recorded at pre, during and post-exercise. Mixed ANOVA was used to measure significant differences between groups and within group. The results showed that saliva flow rate, lactoferrin concentration and lactoferrin secretion rate were not significantly different ($p>0.05$) between smokers and non-smokers groups and also between pre and post-exercise within each group. Heart rate and RPE showed significant increased ($p<0.05$) during the exercise session in both groups. As a conclusion, acute bout of exercise does not affect salivary lactoferrin responses among sedentary smokers and non-smokers men.

1 Introduction

Smoking impacts both innate and adaptive immune system by either exacerbating the pathogenic immune responses or dampening the defence immunity [1]. It was found to reduce the sensitivity of peripheral neutrophils' stimulation by interleukin-8 which suggesting smoking may interfere the inflammatory process by affecting the release of pro-inflammatory cytokines [2]. To date, reports on the effects of smoking on mucosal immunity, especially salivary antimicrobial proteins (AMPs) are scarce. Saliva has defence mechanisms against pathogen microorganisms, in the presence of defence proteins that react in specific (immunoglobulins) or non-specific (lysozyme, peroxidase, cystatins, lactoferrin, hystatins and others) ways, inhibiting microorganisms' growth [3,4]. There are two most abundant AMPs produced by epithelial cells and salivary glands, and also localised in granules of neutrophils; lactoferrin and lysozyme [5]. Lactoferrin helps to

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