

ENDURANCE TRAINING AND THE RISK OF BRONCHIAL ASTHMA IN FEMALE CROSS-COUNTRY SKIERS

A. Żebrowska¹, B. Głuchowska¹, D. Jastrzębski², A. Kocharńska-Dziurawicz³, and I. Pokora¹

¹ Department of Physiological and Medical Sciences, The Jerzy Kukuczka Academy of Physical Education, Mikołowska St. 72a, 40-065 Katowice, Poland, a.zebrowska@awf.katowice.pl

² Department of Lung Diseases and Tuberculosis, Medical University of Silesia, Poland

³ Department of Isotope Diagnostics and Radiopharmaceuticals, Medical University of Silesia, Poland

Abstract

Objective: Exercise is one of the crucial factors responsible for asthma development and exacerbation. The purpose of the present study was to assess the risk of bronchial asthma in female athletes.

Methods: spirometric evaluations and physical exercise test were performed and exhaled nitric oxide (FE_{NO}) levels were measured in twelve female elite cross country skiers. Serum concentrations of interleukin 1 beta (IL-1β), tumor necrosis factor-alpha (TNF-α), and interleukin 6 (IL-6) were measured in all subjects before the examinations, immediately after exercise and after a 15-minute recovery.

Results: The peak exhaled NO values were 18.7±4.8 [ppB] and did not confirm the risk of early bronchial asthma symptoms. Graded exercise test caused significant increases in TNF-α (p<0.05) and IL-1β concentration (p<0.05) after a 15-minute recovery. A significant negative correlation was found between resting (p<0.01) and post-exercise (p<0.01) FE_{NO} and IL-6 levels.

Conclusions: Our study did not confirm an increased risk of bronchial asthma and/or respiratory tract inflammatory conditions among female cross-country skiers. However, evaluation of exhaled nitric oxide and the levels of pro-inflammatory cytokines might prove to be a valuable adjunct tool for diagnosing bronchial asthma or respiratory tract inflammation in professional athletes.

Key words: pulmonary function, exercise training, nitric oxide, asthma