

IMPACT OF AIR POLLUTION ON LUNG FUNCTION AND RESPIRATORY IMPEDANCE

Marcin Sikora¹, Barbara Hall¹, Rafał Mikołajczyk¹, Olga Łakomy¹, Katarzyna Pilzak¹, and Aleksandra Żebrowska¹

¹Department of Physiological and Medical Sciences, Institute of Sport Sciences, The Jerzy Kukuczka Academy of Physical Education, Katowice, Poland

Low emission dust air pollution caused mainly by solid fuel combustion and transport is one of the biggest problems in highly urbanised areas. Exposure to air pollution during physical exercise and activity can adversely affect the health benefits induced by regular exercising, and health. The respiratory system is particularly vulnerable to air pollution exposure.

The main objective of this study is to determine the effect of air pollution on lung function and respiratory impedance of a group of residents of the Upper Silesia region of Poland. In addition, we wanted to determine whether existing low-emission reduction programmes affected the respiratory system of the study participants.

The lung function of the study participants will be assessed by spirometry (MES Lung test Mobile spirometer), the mechanical properties of the airways and lung parenchyma by oscillometry (Resmon Pro oscillometer) and the total lung capacity by plethysmography (Pulmone MiniBox). The target group size is 150-200 subjects.