

The influence of ozone exposure on exercise the capacity (Note II)

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Abstract

Background and aims. The effects of exercise with or without exposure to ozone (O₃) and of exposure to O₃ alone on leucocyte count, phagocytic index, phagocytic activity and on peroxidase activity were followed up in rats.

Methods. The investigations were carried out on three groups of 10 male albino Wistar rats weighing 170 ± 20 g, for 28 days. Group I and Group II were daily subjected to treadmill running exercise to exhaustion. Group I and Group II were daily exposed to O₃. Venous blood samples were taken before exercise with or without exposure to O₃ and before exposure to O₃ alone, on the 1st day and following exercise with or without exposure to O₃ and after exposure to O₃ alone, on the 14th and 28th day.

Results. Leucocyte count increased after exposure to O₃ as compared with the 1st day and decreased in the groups exposed to exercise with or without exposure to O₃ during the experiment, as compared with the 1st day. Phagocytic index decreased during the experiment in the groups exposed to exercise with or without exposure to O₃, and the exposure to O₃ alone caused significant increases of phagocytic index on the 14th and 28th days, as compared with the 1st day. Significant increases of phagocytic activity occurred after exercise with or without exposure to O₃ and after exposure to O₃ alone. Peroxidase activity increased was induced by exercise and exercise with exposure to O₃, but the exposure to O₃ alone caused decreases of peroxidase activity.

Conclusions. 1) Intermittent exposure to O₃ and exercise produced a general immune non specific and moderate reaction causing the decrease of leucocytes count and phagocytic index and significant increases of phagocytic activity and non significant increases of peroxidase activity. 2) Intermittent exposure to O₃ increased the general immunity non specific with the rise of the leucocytes count and significant increases of phagocytic index and phagocytic activity.

Keywords: exercise, ozone, leucocytes, phagocytic index, phagocytic activity, peroxidase activity.