

Whole-body cryostimulation in kayaker women: a study of the effect of cryogenic temperatures on oxidative stress after the exercise.

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Source

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Abstract

AIM:

The aim of this study was to determine the effect of whole-body cryostimulation on the activity of selected antioxidant enzymes and the concentration of lipid peroxidation products in kayaker women in the course of training.

METHODS:

The study was performed on the group of 9 kayaker women, who underwent two training cycles: one typical ten-day training cycle and the another ten-day cycle preceded by cryostimulation sessions twice a day. The activity of antioxidant enzymes was assayed in erythrocytes, while the concentration of lipid peroxidation products was measured both in erythrocytes and in blood plasma.

RESULTS:

A statistically significant increase in superoxide dismutase (SOD) and glutathione peroxidase (GPx) activity in erythrocytes and in concentration of conjugated dienes (CD) in blood plasma and erythrocytes and thiobarbituric acid reactive substances (TBARS) in plasma was revealed in kayaker women after the first six days of training without cryostimulation. Comparing two performed training cycles, after the first six days of training preceded by cryostimulation lower SOD and GPx activity in erythrocytes was detected, as well as lower CD levels in blood plasma and erythrocytes and lower TBARS concentration in blood plasma of kayaker women than after the six days of training without cryostimulation.

CONCLUSIONS:

Whole-body cryostimulation improves the antioxidant capacity of organism exposed to intense [exercise](#). Brief application of cryogenic temperatures is likely related to the activation of adaptive homeostatic mechanisms in accordance with the hormetic dose-response model.

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