Comparison of selected rheological and biochemical parameters of blood at the end of one winter swimming season and at the beginning of another.

Teległów A.¹, Marchewka J.¹, Marchewka A.¹, Głędżik J.¹
¹University School of Physical Education

OBJECTIVE: The aim of the study was to examine differences in the morphological, rheological and biochemical blood parameters of physically active winter swimmers during the period between the end of one winter swimming season and the beginning of another.

METHOD: We enrolled 17 healthy winter swimmers aged between 30-60yrs, from Cracow Society of Winter Swimmers ‘Kaloryfer’, who immersed in cold waters (3 min. at 2C to 7.2C) once a week. Level of their physical activity beyond the swimming season was estimated using Paffenbarger Physical Activity Questionnaire. We analyzed blood parameters twice: at the end of one winter season in April and at the beginning of the next one in November.

RESULTS: Six months following the end of winter season, the levels of MCHC and MCH turned out to be significantly higher, while erythrocyte count and hematocrit level significantly lower in comparison to the baseline. Moreover, the break in winter swimming was reflected by a significant increase in median erythrocyte elongation index (EI) at all shear stress(SS)>1.13 Pa and a decrease in median SS1/2, EImax and SS1/2/EImax ratio. In addition, we observed significant increase in the concentration of transferrin and reduction in the total protein, albumin and beta-1 globulin concentrations.

CONCLUSION: Seasonal effort of winter swimmers between the end of one winter swimming season and the beginning of another has a positive influence on morphological, rheological and biochemical blood parameters.