

MICROCIRCULATORY CHANGES DURING SHORT-TIME HYPODYNAMIA WHILE DIFFERENT DRINKING WATER TYPES ORAL INTAKE

L'EXPÉRIENCE DE L'UTILISATION DE L'EAU POTABLE ÉTUDIÉE EN TERMES D'INACTIVITÉ À COURT TERME.

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Introduction: In 1954 correlation between hypodynamia while flights and venous thrombosis risk was detected. International recommendations «Traveler's thrombosis» (Schobersberger W., 2008) insist on minimum 250 ml isotonic fluid intake each 2 hours as prophylactic measure. We performed randomized single-blind placebo controlled study of blood microcirculation in healthy volunteers while short-time hypodynamia at a time of oral intake drinking water with or without additives.

Materials and Methods: 27 healthy volunteers were included in the study: 13 male and 14 female. Middle age amounted to 37.6 ± 13 years. Average BMI was 23.8 ± 4 kg/cm². We compared peroral intake of 2 same-mineralized drinking waters: with additives of hydrolates (extracts of haw berries, chestnuts and grape seeds), later «AVIA», and water without hydrolates, later «placebo». Chemical analysis demonstrated conformance to the standard SanRR 2.1.4.1116-02. Water was consumed as 10 ml/kg for 4 hours of sitting in a comfortable armchair under the medical supervision. Before and in 4 hours we performed digital capillaroscopy in eponychium of the 3-d and 4-th fingers (left hand) at 30° C. Capillary diameters of arterial, apex and venous segments, capillary blood velocity (CBV) and linear size of perivascular zone were detected.

Results: Distinction was considered as significant in shrink of perivascular area (105 to 98 μ m, $p=0.013$), while «placebo» water had no significant shifts (105 to 107 μ m, $p=0.081$). CBV for «AVIA» water increased: 1349 to 1604 μ m/sec ($p=0.900$), while for «placebo» decreased: 1547 to 1370 μ m/sec ($p=0.318$).

Conclusion: Short-time hypodynamia (4-hour) significantly influences at microcirculation in healthy volunteers. Adding above mentioned hydrolates in drinking water increases the capillary blood-flow velocity up to 20%, decreases edema in perivascular capillary zone and, as result, could reduce the risk of thrombosis.