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The effect of 4 weeks intermittent negative pressure treatment on the functional state of excellent rowers

Huihui Dong, Binghong Gao
Shanghai University of Sport

Objective To study the effect of intermittent negative pressure treatment on the functional state of elite rowers, and providing theoretical basis for the application of this method in sports science.

Methods The 15 elite male athletes selected from the national rowing training team were divided into experimental group and control group. The daily training plans of the two groups were the same. The members of experimental group were treated for 20 minutes by the Vacusport Regeneration System from German, five times one week, for a total of 4-weeks. The control group did not use any intervention. Before and after 4 weeks, venous blood from 15 male athletes was used to test athletes' red blood cells (RBC), hemoglobin (HGB), hematocrit (HCT), creatine kinase (CK), blood urea nitrogen (BU), testosterone (T), cortisol (C) et, Observing the changes about data from two tests.

Results There was no statistically significant difference between the experimental group and the control group before and after the intervention. The results of the intra-group comparison were as follows: (1) The RBC, HGB, and HCT of the experimental group decreased by 2.90 %, 3.80 %, and 1.08 % respectively. The RBC, HGB, and HCT of the control group decreased by 6.55 %, 7.02 %, 4.03 % respectively, and the decline of RBC and HGB showed statistically significant changes ($p < 0.05$). (2) The CK and BU values of the experimental group increased by 1.26 % and 27.08 % respectively, and the increase of BU had statistically significant changes ($p < 0.05$). The CK and BU values of the control group increased by 33.10 % and 9.54 % respectively. (3) The values of T, C and T / C in experimental group decreased by 11.85 %, 7.6 % and 4.31 % respectively. The values of T, C and T / C in the control group decreased by 16.38 %, 4.03 % and 19.39 % respectively, and the decrease of T values was statistically significant ($p < 0.05$).

Conclusions The intermittent negative pressure therapy can promote the athletes' metabolism, relieve the degree of the decline of functional state, and prevent the occurrence of fatigue.