Influence of a New Dietary Supplement on the Parameters of Functional Preparation, Working Capacity and Processes of Renewal in Athletes at the Work Performance in the Anaerobic-Glycolytic Zone of Energy-Supply

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The authors have conducted the study on the influence of a new dietary supplement “Antilactate” (DS “Antilactate”) on the parameters of working capacity and functional preparation of skilled athletes at a test load of sub-maximum power in the anaerobic zone of energy-supply and on the after-load renewal processes. Sixteen male athletes participating in Greco-Roman style wrestling were involved in the study; 10 men made up a test group, and six a control one. The study was conducted during the “crash” microcycle at the special preparatory stage of the base period. The duration of the microcycle, which was aimed at the improvement of athlete performance, was 7 days. The training loads during the mentioned microcycle were provided mostly at the account of anaerobic glycolytic mechanisms of energy-supply. The athletes from the test group were taking the DS “Antilactate” on a 7-day course. A daily dosage of the DS “Antilactate” substance – malate mono[(2-dimethylamino)ethyl ether] of succinic acid – made up 2 g. The athletes from the control group were taking a placebo under a similar pattern. To evaluate the working capacity and the preparation level of the tested athletes, we used a 30-second Wingate bicycle ergometer anaerobic test, which was conducted twice – at the start of the microcycle, during which the athletes were taking the DS “Antilactate” or the placebo, and at its termination. The development of renewal processes following the test load implementation was evaluated under the indices of lactate, urea, after-products of lipid peroxidation, hemoglobin and erythrocyte content in the athlete’s capillary blood.

It was determined that a course (over a period of 7 days) administration of the DS “Antilactate” during the “crash” microcycle at the special preparatory period did not exert a significant influence on the parameters of working capacity and functional preparation of the athletes who performed work at sub-maximum power...
in the anaerobic zone of physical loads. Meanwhile, the intake of the tested dietary supplement would promote body restoration after anaerobic glycolytic loads at sub-maximum power, which was proved by the rise in the rate of the blood lactate elimination during a leisure period following the performance of test loads, absence of blood hemoglobin decrease and excessive activation of lipid peroxidation specified by intensive training loads in the athletes from the test group, who administered the DS “Antiactate”.

The findings allow us to consider it appropriate to employ this parapharmaceutical in the practice of skilled athletes practicing different sports with the predominant glycolytic mechanism of work energy-supply.

**key words**: DS “Antiactate”, load of sub-maximum power in the anaerobic zone of energy-supply, parameters of athlete working capacity, parameters of athlete functional preparation, renewal after physical loads.

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**Introduction**

Metabolites of the tricarboxylic acid cycle (succinic, malic, fumaric) and their derivatives have an apparent positive effect on metabolic processes and energy conversion in the human body. Being the substances that are not alien to the body, on the one hand, they are virtually nontoxic, and, on the other hand, they are not prohibited for use in sports by anti-doping regulations of the World Anti-Doping Agency (WADA). Hence, pharmacological preparations and dietary supplements, the active substances of which are metabolites of the tricarboxylic acid cycle and their derivatives, have found a wide application in the practice of skilled athlete preparation in the capacity of ergogenic and restorative aids (Oliynyk, 2001).

In the former Soviet Union one of the most effective dietary supplements of this kind was the dietary supplement “Yakton” (DS “Yakton”). It was generated at the beginning of the eighties in the 20th century due to the needs of the military and sports medicine and was produced in the shape of pills which contained 0.5 g of the active substance (succinate mono[(2-dimethylamino)ethyl ether] of succinic acid), and the additives (sugar powder, aerosil, calcium stearate, polyvinyl alcohol, potato starch) as well. Till the very disintegration of the Soviet Union in 1991 the DS “Yakton” had been rather widely employed for both the medical provision of special