EVALUATION OF THE EFFECTIVENESS OF THE PROGRAM FOR THE PREVENTION OF COMPLICATIONS AFTER KNEE JOINT INJURIES BASED ON THE RESULTS OF GONIOMETRY

Abstract. Musculoskeletal injuries is a term that includes any injury that involves damage to soft tissues (muscles, tendons, ligaments), bones, and joints. These injuries are one of the most common health conditions in athletes, the consequences of which are expressed not only in a decrease in results or withdrawal from competitions, but also in economic costs [3,5]. Treatment and rehabilitation of patients with knee joint injuries remains one of the urgent and unresolved problems [2,6]. Large-scale, only symptomatic treatment of this pathology is not able to fully restore the functional activity of the joints [1,4].

Purpose of the study: To assess the effectiveness of a three-stage prophylaxis program after knee injuries based on the results of goniometry.

Materials and methods of research. The study included 78 male athletes aged 18 to 35 years who underwent knee surgery. Two groups were formed from them: the main group - n = 42 (53.9%) patients, against the background of standard therapy, who received treatment according to the programs of staged physical rehabilitation, developed on the basis of the study results; Control group - n=36 (46.1%) patients undergoing standard therapy. All patients underwent goniometry. Measurements were carried out with the help of a protractor in the prone position, the athlete bends the lower limb at the knee joint first with an active movement, then with the help of the upper limbs - the degree of flexion is assessed in degrees.

Results of the study: Standard therapy was carried out according to the generally accepted methods after the operation: therapeutic gymnastics, physiotherapy, self-massage and therapeutic massage, mechanotherapy (simulator), daily walking. The duration of rehabilitation therapy was 6 months. The program of proposed comprehensive rehabilitation measures in the main group, along with standard therapy, is supplemented by a number of physical exercises; reflex-acupressure massage; reflexology, electromyostimulation, balance training exercises, kinesio taping. The proposed program is grouped into 3 periods: postoperative (up to 6 weeks after surgery); functional (1.5-3 months); training and recovery (3-6 months).

Based on the results of the comprehensive program of rehabilitation measures in the athletes of the main group, the goniometry method established a reliably positive dynamics of the range of motion in the knee joint of the operated limb throughout all stages of treatment. Thus, the knee flexion angle at the end of the first stage of physical rehabilitation increased to 76.67±1.62°, the
second stage to 63.93±0.36°, and for the entire recovery period to 51.24±0.37°. A somewhat less pronounced positive trend was revealed when assessing the angle of extension, which increased by only 5% over the entire period (6 months).

Analysis of goniometry indicators of athletes in the control group revealed less pronounced dynamics in both knee flexion and extension volumes. At the end of the first stage of rehabilitation, the angle of flexion of the operated knee increased by only 14%, the second - by 12%, and for the entire period of treatment - by 23.4%. There was also a slight increase in the angle of extension of the knee joint of the operated limb of athletes, which increased by only 3.4% over the entire period, amounting to 176.06±0.24°.

In general, at the end of the three-stage recovery program in the main group of athletes, the volume of passive and active movements was fully restored in almost everyone, amounting to 51.24±0.37° when bending the knee and 179.5±0.11° when assessing the knee extension function.

**Conclusions:** Since all athletes had an average of 2.26±0.32 years for knee surgery, and the period from the moment of surgical interventions to the beginning of the recovery stages of physical rehabilitation was 1.6±0.8 years, at the time of admission to the medical institution, they did not demonstrate the full range of motion in the joint. This suggests an early need to include a rehabilitation program after knee injuries.

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