Limited physical activity in many patients with osteochondrosis was observed by a lot of researchers. But only few works were directed to revealing of the physiological mechanisms leading to it.

The purpose of this study was to determine a complex of mechanisms in the segmentary and nervous-muscular apparatus influencing the level of functional possibilities of skeleton muscles and as a result of the whole organism.

The men aged from 20 till 40 were involved in the experiment: healthy people (n=18); patients with an initial painful syndrome (n=18) and with a chronic painful syndrome (n=18). The parameters of the H-reflex m. soleus (threshold force of a current, the minimal and maximal amplitude, a latencies) were studied. The functional possibilities of muscles of a shin were estimated by a duration of the performance of the static effort by holding a cargo weighing 40 kg.

The lower level of motor activity of a researched group of muscles (p<0.05) has been found out in a group of patients with chronic pains in a waist. It was established that a higher level of functional possibilities corresponds to a smaller size of the minimal amplitude and to the greatest size of the maximal amplitude of the H-reflex m. soleus. The lowest level of physical efficiency of muscles is characterized by the greatest size of the minimal amplitude (p<0.01) and the least maximal amplitude (p<0.01) of the given parameter. This implies that the adaptable possibilities of muscles are connected with a high level of reflex excitability of the lumbar alpha-motoneuron pool. This fact can be regarded as a condition for the greatest functional possibilities of skeletal muscles. It was proved that the higher level of efficiency of muscles is the lower threshold force of a current and the force of a current of the maximal H-reflex are. The highest level of the threshold values of force of a current (p<0.001) and the highest force of a current of the maximal H-reflex (p<0.001) were observed in patients with chronic pain. Hence a high level of adaptable possibility of muscles corresponds to high sensitivity of sensor fibers of the mixed peripheral nerves which carry out their nervous regulation. The destruction of the myelin in the nervous fibers observed in patients with chronic painful syndrome is due to a compression and a broken blood supply of spinal nerves and leads to the reduction of sensitivity of sensor fibers.

All surveyed patients with an osteochondrosis showed the significant (p<0.001) increase in the latent period of the H-reflex compared with the healthy subjects. It means that the compression of spinal nerves leads to the reduction of speed in an electric impulse passing in a segmentary reflex arch.

In our opinion these series of experiments allows to come nearer to understanding of physiological mechanisms of the nervous control influencing a level of adaptable possibilities of an organism of the man.