

EFFECTS OF ISOKINETIC EXERCISE AND CHINESE TRADITIONAL MASSAGE ON KNEE OSTEOARTHRITIS

Liangchou Zou and Pei Zou¹

Section of Biomechanics, Guangzhou Institute of Physical Education,
Guangzhou, People's Republic of China

¹Department of Physical Education, East China Normal University,
Shanghai, People's Republic of China

KEY WORDS: knee, osteoarthritis, isokinetic, Chinese traditional massage, muscle strength

INTRODUCTION: Chinese traditional massage is widely used in China to cure osteoarthritis (OA) of the knee. Currently, isometric tests of muscular function are popular methods to assess the force-producing capacity of the neuromuscular system. This form of therapy can also be used to treat injuries of the muscles surrounding the knee. The purpose of this study was to examine the effects of isokinetic exercise combined with Chinese traditional massage on patients with decreased strength in knee surrounding muscles.

METHODS: Subjects for this study included thirty patients with a history of OA who were divided into two groups. The muscle function of their knees was tested using cybex-6000 isokinetic dynamometer (division of Lumex, Inc, Ronkonkoma, NY) before and after 4 weeks treatment. Cybex test target: PT- peak torque, AP- average power, TAE- torque acceleration energy and TW- total work. The subjects in group A were treated with only using cybex-6000 dynamometer at 60°/s, 120°/s and 180°/s five times a week, fifteen minutes every time. The subjects in comparison group B were treated with therapy that consisted of isokinetic exercise combined with Chinese traditional massage.

RESULTS AND DISCUSSION: The results indicated that muscle function significantly improved after 4 weeks training in the group treated by isokinetic exercise combined with the Chinese traditional massage. Functional performance of the lower extremities, indicated by walking up stairs and rising from a chair significantly improved, and also knee pain was markedly reduced. The results showed that the knee pain was reduced by 16%, and the functional performance increased by 38%. Using Chinese traditional massage produced effects such as relaxing muscles, joints and tendons, stimulating the circulation of blood and raising body temperature. Secondly, this form of therapy can increase the threshold value of pain in the tissues with appropriate stimulation; Thirdly, it can eliminate painful muscle spasms that are characteristic of the disease.

Knee osteoarthritis is a chronic condition. With the decrease of activity and limited range of movement, the utilization of the knee muscle is compromised. Chronic knee problems usually lead to the amyotrophy of type II fibers. Factors such as muscular atrophy of disuse, instability of the joint and arthrogenous muscle inhibition were probably the principal causes resulting in the reduction in muscular performance. By introducing these patients to muscle strength training, it was found that the stability of the joint was enhanced. The data from this study indicated that after treatment, the improvement of the extensor functions is more evident than the flexors. The results also showed that the strength of the extensors is largely affected in the patients with OA. After treatment the function of extensors and flexors was considerably improved, in particular, the rehabilitation of the strength in the extensors was remarkable. Not only in muscle strength but the stability of knee joints increased. The study suggested that isometric exercise combined with Chinese traditional massage is an effective way to treat patients with OA.

REFERENCES:

Lord JP, et al. (1992). Isometric and isokinetic measurement of hamstring and quadriceps strength. *Arch Phys Med Rehabil*, **73**, 324.