Importance of isokinetics for the evaluation and treatment of tendinitis and other muscle disorders in athletes

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Abstract

The relationship between agonistic and antagonistic forces around a joint characterizes muscle balance, which, following trauma or other disorders, may incline in favor of one or another muscle groups. Biomechanical studies emphasize the essential role of the agonist-antagonist pair in the production of an alternating, simultaneously concentric and eccentric muscle contraction for agonists and antagonists, respectively, but rarely report the importance of the ratio of forces between these muscles. Sports practice develops the strength and/or power of muscles that perform the movement specific for a certain sport, to the detriment of antagonist muscles; it can use isokinetics for the exact evaluation of the strength of muscles that act on a joint and of the agonist-antagonist balance at this level, as well as for the adaptation of training programs in order to correct muscle imbalances induced by inadequate training, which is a source of musculotendinous and ligament injuries.

Isokinetics should be included in the muscle tonification program, as it allows at the same time the monitoring and the specific training of antagonist muscles, which play a braking role in movement, representing a solution for the prophylaxis of musculotendinous pathology, to the same extent as stretching exercises. The use of isokinetic equipment allows the athlete to perform specific progressive and dosed eccentric training in order to improve the tensile strength of the musculotendinous complex, avoiding in this way the aggravation of tendinous injuries or the appearance of muscle pain, which are known complications in the case of eccentric muscle training. The athlete can also benefit from visual feedback and have a better control of the submaximal work level.

Key words: isokinetics, musculotendinous pathology, athletes.