

## **Neuromuscular contractile characteristics among Police academy students and high level karate athletes**

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### **Abstract**

Neuromuscular contractile characteristics, especially flexor and extensor muscles of knee joint as the biggest muscle groups of lower (caudal) part of body, have important role in everyday activities, sport and police work. Based on the data we collected important information about their fundamental characteristics. Methods for the assessment of neuromuscular contractile properties in this research were isokinetic dynamometry and tensiomyography. The aim of this research is to study the difference of neuromechanical contractile characteristics of muscles flexors and extensors of knee joint measured by TMG and isokinetic dynamometer between karate competitors and students of Academy of Criminalistic and Police Studies, (Belgrade, Serbia). 10 karate competitors and 13 students have been tested, both male. By interpretation of results, data indicated that from 41 variables the difference is located in 21. The biggest difference index is located in muscle extensors of knee joint. Results showed that variables: delayed time of muscle Vastus medialis contraction (right leg), relaxation time and vertical muscle displacement of Rectus femoris (left leg) are functional parameters where the biggest difference is found. These results showed that it is possible to ascertain differences in functional involuntary and voluntary neuromuscular contractile characteristics of knee joint muscles in two observed groups by applying isokinetic dynamometry and tensiomyography methods, but in the same time showed that those differences are very specific because they are related only on some of the characteristics.

### **Biography**

Velimir Jeknić has completed his graduation from Faculty of Sport and Physical Education in Belgrade, Serbia, in 2012. He remained at the University of Belgrade and completed his Master's degree in Criminalistics Science on Academy of Criminalistics and Police Studies 2016. He is a member of Serbian National Karate team. He works as strength and conditioning trainer at Abu Dhabi Police College.

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