Quantitative Characteristics of Peroneus Tertius and Extensor Digitorum Longus: A Cadaver-Based Study

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The extensor digitorum longus (EDL) and peroneus tertius (PT) muscles of the anterior compartment of the leg closely associated topographically, show much variation in morphology. The objective of our study was to analyze the quantitative characteristics of PT and EDL muscles and look for correlations between their characteristics. Cadavers used for routine dissections by medical students were utilized for this study. The anatomy of PT and EDL were clearly defined using blunt dissection. A standard measuring tape was used for measurements. The sample consisted of 54 lower limb specimens of which 32 were male. Minitab software was used for statistical analysis. A common origin of PT and EDL was noted in 26 of the specimens, while in 25, they were separate. According to the Mood Median test, inter-tendinous connections (ITC) between tendons of PT and EDL were present in 16, with no gender difference. The distal attachment of the PT tendon to the fifth metatarsal base was noted in 96% 50 specimens where the distal part of PT could be identified properly. PT had a mean muscle belly circumference of 3.52 cm, while EDL had a value of 4.18 cm. Further, Spearman rho revealed a moderately positive correlation between PT and EDL muscle belly circumferences. The PT had a muscle length ranged from 10.4 to 39.5 cm while the tendon length ranged from 10.5 to 17.7 cm. The study of morphometric characteristics of PT proves valuable as it is considered a non-essential muscle, used for tissue replacement surgeries. Insertion to the base of the fifth metatarsal bone is implicated in jones fracture. As the size of PT and EDL have a positive correlation, evolutionary replacement of EDL by PT becomes a controversial theory. Studying the variability of these muscles provides a better comprehension of their pathological implications and surgical considerations.

Keywords: Peroneus tertius, Extensor digitorum longus, Anterior compartment of leg, Soft tissue replacement surgery, Anatomical variations