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Common ways to identify asymmetry are single legged measures of power or balance. However, there is little understanding about how physical exercises affect the force generating capacity of the foot and leg muscles as well as the postural balance ability.

KOYAMA, K.1, NAGAHUJI, Y.1, YAMAUCHI, J.2,3

EXERCISE OF THE FOOT AND LEG MUSCLES

SMAJLA, D., STROJNIK, V., TOMAŽIN, K.

MAXIMUM MUSCLE STRENGTH AND BALANCE PERFORMANCE AFTER THE HIGH INTENSITY STRENGTH AND AGILITY EXERCISE OF THE FOOT AND LEG MUSCLES

KOYAMA, K.1, NAGAHUJI, Y.1, YAMAUCHI, J.2,3

1: Toin University of Yokohama, 2: TMU, 3: FIfSS

[Introduction] Physical exercises cause to muscle fatigue, which is a decrease in the ability of muscles to produce force (Bigl and and Woods, 1984) and a decrease in the ability of nerves to transmit signals (Hagg, 1992). Muscle strength of the foot and leg is important for physical performance in standing. We showed that the foot strength was significantly correlated with dynamic lower-limb physical performances such as sprinting and jumping in children (Monto et al. 2015) and adolescent (Otsuka et al. 2015). Also, we showed that limitation of ankle joint movement decreased vertical jump performance (Koyama et al. 2014) and the foot strength (Yamauchi and Koyama, 2015). The foot muscles are a unit that produces force for postural control during the locomotion. However, there are no studies how physical exercises affect to the force generating capacity of the foot and leg muscles as well as the postural balance ability.

Different difficulty levels of balance task induced spinal excitability alteration

SMAJLA, D., STROJNIK, V., TOMAŽIN, K.

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Introduction In balance training, there are no scientific guidelines concerning the optimal duration and intensity of these exercises (Taube, Gruber and Golichofer, 2008). Therefore, the aim of this study was to determine mechanical differences between different difficulty levels of balance task and their acute influence on H-reflex amplitude. Methods The research included 13 participants. Each of them performed balance task of three difficulties in random order (20 s, 7 repetition, 150 s rest). The rest time between each intensity was one week. Balance task was performed on balance board with motion in sagittal plane. We measured soleus H-reflex in standing position, active time of establishing balance, number of hand supports because of losing balance and speed of balance board.

Maximum muscle strength and balance performance after the high intensity strength and agility exercise of the foot and leg muscles

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