

## عنوان مقاله:

Immediate Effects of Various Foot Orthoses on Lower Limb Muscles Co-Contraction during Single-leg Drop Jump

## محل انتشار:

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## خلاصه مقاله:

The purpose of the present study was to determine the immediate effect of various foot orthoses on muscle co-contraction around the ankle and knee joint of the dominant leg during single-leg drop jump task. Thirteen healthy males participated in this quasi-experimental study. The electromyography activity of vastus medialis (VM), rectus femoris (RF), vastus lateralis (VL), biceps femoris (BF), semi tendinus (ST), tibialis anterior (TA), peroneus longus (PL), and gastrocnemius medialis (GM) muscles was recorded during single-leg drop jump movement. The relevant variables in pre-activation, eccentric, and concentric phases of single-leg drop jump task were calculated for each subject in four conditions: wearing shoe only, soft, semi-rigid, and rigid orthoses. There was no significant difference among four condition for the overall lower extremity muscle activity values during pre-activation, eccentric and concentric phases ( $P > 0.05$ ). No significant differences were also observed among the conditions in co-contraction values in the concentric phase. A significant difference was observed for the ankle joint muscles co-contraction between soft/semi-rigid and soft/rigid conditions in the pre-activation phase. There was also difference in medial muscles co-contraction of the knee joint between shoe only/semi-rigid conditions in the eccentric phase ( $P < 0.05$ ). We concluded that during single-leg drop jump in the competition or rehabilitation situations, awareness of changes caused by different types of foot orthoses can be beneficial and improve performance.

## کلمات کلیدی:

Biomechanics, Foot orthoses, Electromyography, Jumping

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