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Effects of a Novel Ankle Strengthening Protocol on Lateral Ankle Strength and Flexibility

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Lateral ankle sprains (LAS) are among the most reported injuries in college athletics. Strengthening the muscles of the lateral ankle and enhancing flexibility, specifically using exercises that mimic the typical mechanism of LAS may help to reduce injury incidence.

PURPOSE: To compare the effects of a novel supination-style ankle strengthening protocol to a control protocol on common LAS indices (e.g., inversion and eversion strength, inversion ROM). **METHODS:** Thirty NCAA Division III collegiate varsity football players (19.9 ± 1.0 yrs., 182.2 ± 6.9 cm, 98.8 ± 18.0 kg) were randomly assigned to the novel group (SUP, $n = 16$) or the control group (TRA, $n = 14$). The SUP group performed dynamic bodyweight exercises with controlled supination while the TRA group performed traditional ankle strengthening exercise using elastic bands and balance exercises. Each group completed their respective protocols 3 times per week for 6 weeks. Ankle inversion (InvR, InvL) and eversion (EvR, EvL) strength (kg), ankle inversion range of motion (romR, romL) (deg.), and the figure-8 hop test (fig8R, fig8L) (s) were assessed pre- and post-intervention. **RESULTS:** There were no significant interaction effects ($p > 0.05$) or main effects for group ($p > 0.05$) for all outcome variables. There was a main effect for time showing that all outcome variables improved from pre to post [Δ InvR (TRA 4.5 ± 4.3 ; SUP 5.0 ± 4.4 kg), Δ InvL (TRA 4.0 ± 3.8 ; SUP 4.8 ± 3.6 kg), Δ EvR (TRA 5.7 ± 4.3 ; SUP 4.7 ± 3.3 kg), Δ EvL (TRA 4.7 ± 2.9 ; SUP 4.5 ± 2.2 kg), Δ romR (TRA 4.5 ± 2.6 ; SUP 4.9 ± 3.0 deg.), Δ romL (TRA 4.7 ± 4.5 ; SUP 4.6 ± 5.1 deg.), Δ fig8R (TRA -0.43 ± 0.20 ; SUP -0.37 ± 0.31 s), Δ fig8L (TRA -0.40 ± 0.22 ; SUP -0.34 ± 0.30 s); $p < 0.001$]. **CONCLUSIONS:** A bodyweight, supination style training program for the ankles can significantly improve physical indices related to LAS to a similar extent as a traditional program, and therefore, could potentially be a viable strategy for reducing LAS in Division III NCAA football players.

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