

Dyna Ankle

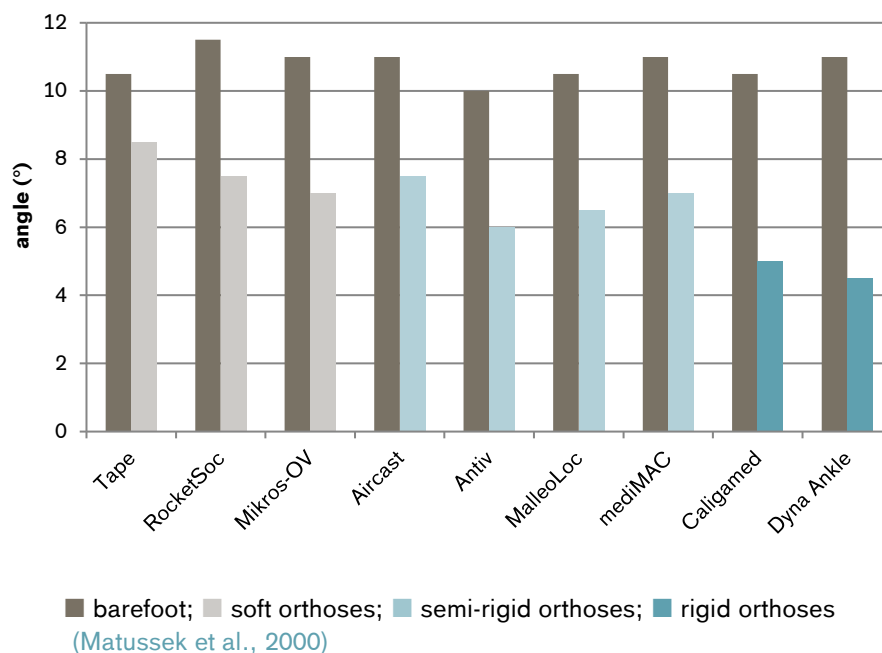
Functional tests / Biomechanics (deep jump)

Major Findings

With Dyna Ankle:

→ **highest reduction (6.7° or 60.5%) of supination angle of all competitor orthoses in comparison to barefoot situation**

Mean reduction of supination angle in comparison to bare-foot situation



Clinical Relevance

The literature shows the advantages of early functional therapy over conservatively immobilizing therapy in the treatment of injured ankle ligaments (Lohrer, 1990; Dahners et al., 1989; Wetz et al., 1987; Zwipp, 1986; Zwipp et al., 1988). Tension tests of the outer ligaments showed that they are only slightly tensioned in the range of 10° dorsal extension and 20° plantar flexion. Orthoses should therefore not only have an antisupinatory effect, but also limit plantar flexion beyond 20° (Wirth et al., 1978). Sufficient scarring of injured structures is only possible if maximum stress on the scar is avoided while maintaining moderate stress stimuli. (Segesser et al., 1986)

Summary

Matussek et al. (2000) analyzed eight orthoses available on the market and one tape bandage with regard to their protective abilities during the supination stimulus, which was triggered in the landing phase after a deep jump. The orthoses were divided into three groups according to their design characteristics:

1. In the soft orthoses, the reduction of the supination angle is approx. 30%, whereby the mode of action is mainly to be interpreted by stimulating the proprioceptive protective reflexes.

2. The semi-rigid orthoses offer an average 39% reduction in the supination angle due to their mechanical stabilizers.
3. The rigid orthoses have an antisupinatory effect and only allow plantar flexion up to approx. 10°-15°. This makes them suitable for the functional treatment of acute rupture of the outer ligaments.

The result of the evaluation of the ankle foot orthoses was not unexpected. Dynamic, sudden supination events are not completely prevented by any of the tested splints (Scheuffelen et al., 1993; Segesser et al., 1986).

The maximum reduction effect of approx. 61% was achieved with the Dyna Ankle from the group of rigid orthoses. Due to their design, they are also able to prevent plantar flexion of more than 20°, which is why they can be used in the acute treatment of external ligament injuries. (Matussek et al., 2000)

References of summarized studies

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