The effect of rigid ankle foot orthoses on knee alignment during stance phase in early recovery from stroke.

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The use of rigid ankle foot orthoses (AFO) in paediatrics, especially cerebral palsy is common clinical practice and well reported in the literature. Use of AFOs in adult stroke is less commonly accepted in clinical practice and reports in the literature are mainly concerned with the effect of the orthosis in swing phase with only a few references to effect on

This study looked at the effect of rigid ankle foot orthoses on knee alignment during stance phase in early recovery from stroke. The study was a cross over design with randomization of intervention for nine subjects presenting with over extension of the knee during stance within thirty two weeks of suffering a mid artery stroke. Each subject walked up to five times with and without an AFO over an ORLAU video vector system. The AFO had been clinically tuned to optimize tibial alignment in the clinical setting by the orthotist, footwear were provided and used in both with and without studies. Knee angle and alignment relative to ground reaction force vector (GRFV) were measured from selected frames from the video (see figure 1). Reliability tests were performed on frame selection and scoring of alignment.

Averaged data for knee angle and GRFV alignment for each subject was analyzed. Mean difference in knee angle with AFO was10.87degrees increased flexion (STDV 3.85, $p \leq 0.001$) Knee alignment moved from GRFV in front to level or behind the knee in seven of the nine subjects (p 0.016) Initial contact was changed from non heel strike in eight of the nine subjects to heel strike in all subjects with AFO ($p=0.08$).

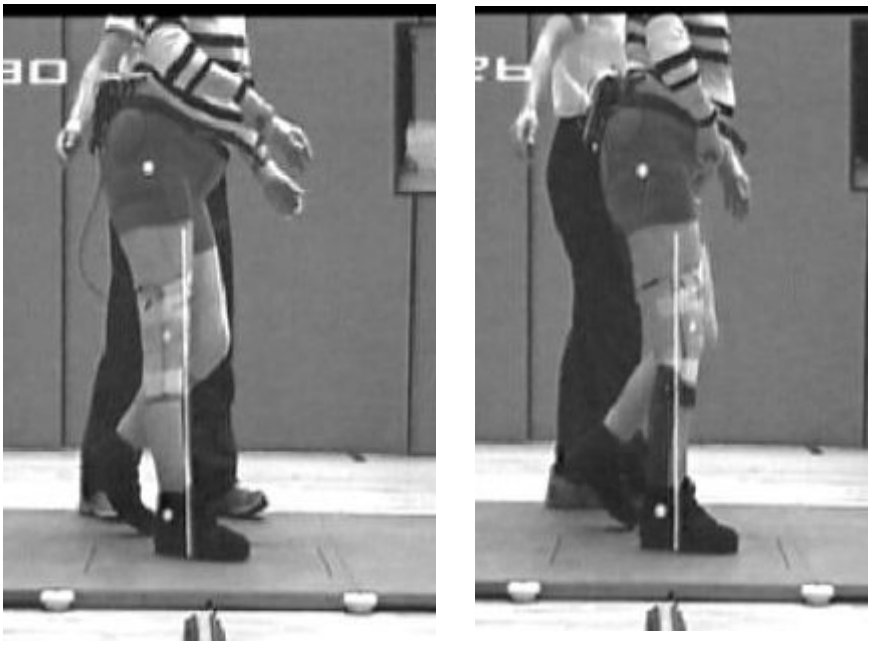

Figure 1: the frame at toe off on the opposite leg. Without AFO (left) and with AFO (right).