Oral Presentation
Track 6: Sport Biomechanics - Joint ISB Track
6.4. Sports Activity
6.4.2. Nordic Walking

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Field testing to determine biomechanical loading of the lower limb during nordic walking versus walking-Comparison between nordic walking instructors and experienced nordic walkers

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A common opinion is that walking with nordic walking poles provides 30-50% load reduction to the lower limb (e.g. Geyer 2005). However, some studies already focused on biomechanical loading in experimental set-ups and found only little evidence of load reduction (Willson et al., 2001). The aim of this study was to analyse the loading of the lower limb between nordic walking instructors (NWI) and experienced nordic walkers (ENW) during nordic walking compared to walking in real field circumstances with different walking tracks.
For that purpose 14 experienced, middle aged ENW and 6 NWI have been asked to walk a 1575 m track. The track consisted of different walking tracks (asphalt, cast, moderate downhill and uphill). All subjects wore a backpack with mobile data acquisition equipment. Vertical ground reaction force, forces in and positions of the walking poles have been recorded.
First, the results show no lower vertical reaction forces between ENW and NWI during nordic walking compared to walking. Neither a reduction of the loading response at heel contact and push off, nor due to one of the different walking tracks, have shown less vertical reaction forces between groups. In contrast, for both groups in most of the tracks higher vertical reaction forces during heel contact were recorded for the nordic walking condition. Though, these differences were not significant. Second, the total vertical reaction forces measured in the walking poles are not significant different between groups and condition. The common opinion of a load reduction of the lower limb by 30-50% during nordic walking has to be rejected for ENW and NWI.

Reference: *Geyer (2005). Mit Stockeinsatz zum Ziel. physiopraxis 4: S.36-38.*
Willson et al. (2001). Effects of walking poles on lower extremity gait mechanics. Medicine & Science in Sports & Exercise 1: 142-147.