FOOT AND ANKLE JOINT KINEMATICS IN RHEUMATOID ARTHRITIS CANNOT ONLY BE EXPLAINED BY ALTERATION IN WALKING SPEED

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INTRODUCTION
Rheumatoid arthritis (RA) manifests itself in the feet and ankles of RA patients. Besides the kinematic differences between healthy and impaired subjects, the temporal factors such as walking speed and double stance phase are different: Walking speed is slower and stride length is smaller, while stance phase, including double stance phase, is longer for subjects with foot and ankle impairments 1,2. Besides the disease process, these temporal factors may influence foot and ankle kinematics which makes it difficult to deduce the effects of the disease process on foot and ankle kinematics. The aim of this study was to analyse the effect of walking speed on foot and ankle joint kinematics of RA subjects.

RESULTS
The RA subjects walked at an average speed of 780 mm/s and the healthy subjects walked at an average of 1280, 970 and 650 mm/s for the three walking speed sessions, respectively. The ankle subjects walked at 100% (Vc), 75% (V75) and 50% (V50) of their comfortable walking speed. Temporal-spatial factors were calculated. Foot and ankle joint kinematics were determined from marker-recordings (Figure 1) by using the method developed by Simon3. Differences between the stance phase kinematics of the two groups caused by the factors walking speed and the RA disease process were analysed using a multi-level linear model (SPSS Inc, Chicago, USA).

CONCLUSIONS
Walking speed alone cannot explain all differences in the foot and ankle kinematics between RA and healthy subjects. On the other hand, not all observed differences in RA joint kinematics are pathological compared to healthy subjects. Future studies should focus on determining the causes of abnormal hallux flexion at toe-off and reduced midfoot and sub-talar eversion during mid-stance in RA subjects.

REFERENCES