Visual categorisation of the Arch Index: a simplified measure of foot posture in older people

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Background
Many foot posture measurement approaches are not suitable for routine use as they are time-consuming or require specialised equipment and/or clinical expertise. The objective of this study was to develop and evaluate a simple visual assessment tool for foot posture assessment based on the Arch Index (AI) [1].

Materials and methods
Fully weightbearing footprints from 602 people aged 62 to 96 years were obtained using a carbon paper imprint material, and cut-off AI scores dividing participants into three categories (high, normal and low) were determined. A visual tool was created using representative examples for the boundaries of each category (Figure 1). Two

Figure 1 The simplified AI visual assessment tool.

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examiners used the tool to independently grade the footprints of 60 participants (20 for each of the three categories, randomly presented), and then repeat the process two weeks later. Inter- and intra-tester reliability were determined and the validity of the examiner’s assessments was evaluated by comparing their categorisations to the actual AI score.

**Results**

Inter- and intra-tester reliability of the examiners was almost perfect (percentage agreement = 93 to 97%; Spearman’s rho = 0.91 to 0.95, and weighted kappas = 0.85 to 0.93). Examiner’s scores were strongly correlated with actual AI values (Spearman’s rho = 0.91 to 0.94 and significant differences between all categories with ANOVA; p<0.001) and AI categories (percentage agreement = 95 to 98%; Spearman’s rho = 0.89 to 0.94, and weighted kappas = 0.87 to 0.94). There was a slight tendency for examiners to categorise participants as having higher arches than their AI scores indicated.

**Conclusions**

Foot posture can be quickly and reliably categorised as high, normal or low in older people using a simplified visual categorisation tool based on the AI.

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Reference

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