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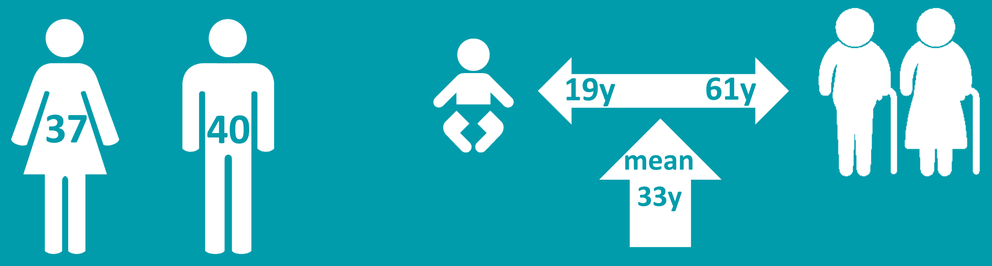
Experts' foot labels and measured values: their relation

The assessment of feet by foot experts depends on their background knowledge and preferences. To streamline foot assessments we want to pinpoint measureable values to each foot characteristic. First we link the expert scores to measured features, looking at the correlation. Afterwards, we assign exact values to each foot characteristic based on the measurements.

WHICH SUBJECTS PARTICIPATED

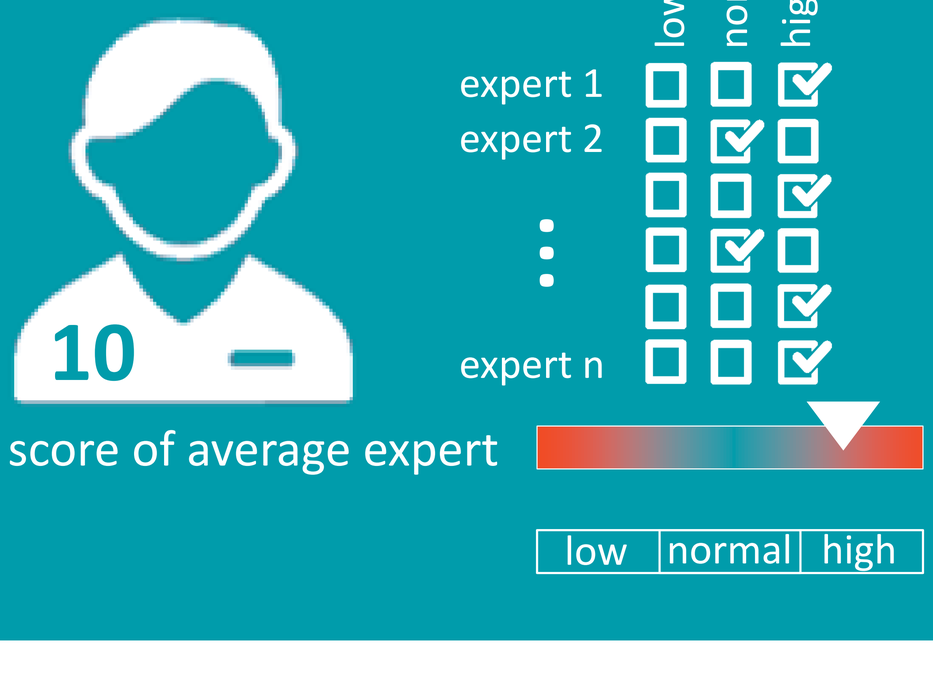


subjects without foot deformities

all 10 experts assessed all subjects

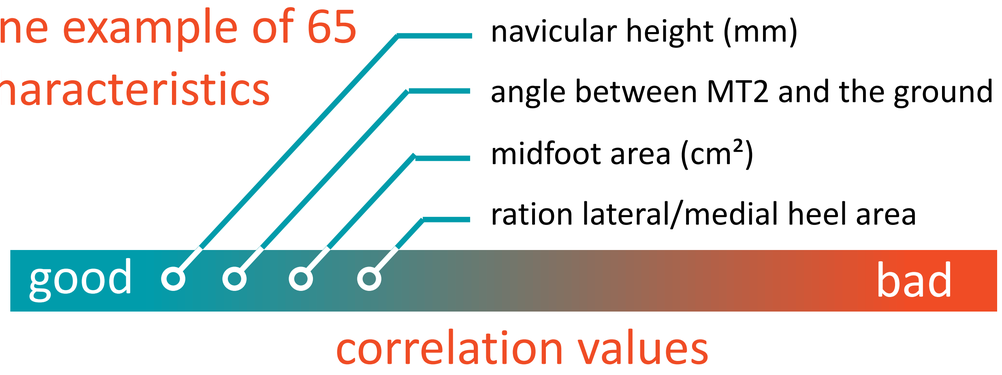
THE AVERAGE EXPERT SCORE

The experts fill in a form with 65 multiple choice questions, e.g. the longitudinal foot arch

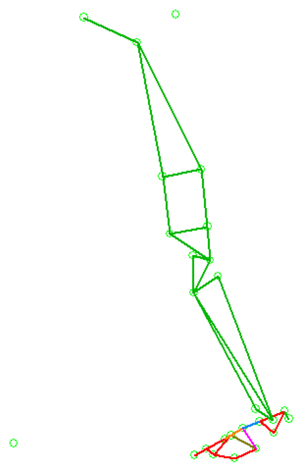


CORRELATION LONGITUDINAL ARCH

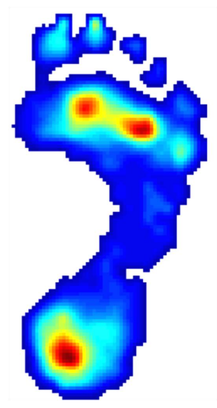
one example of 65 characteristics



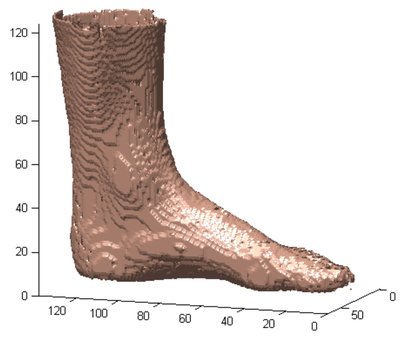
MEASUREMENT EQUIPMENT



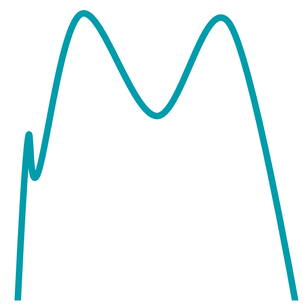
3D marker registration



pressure plate



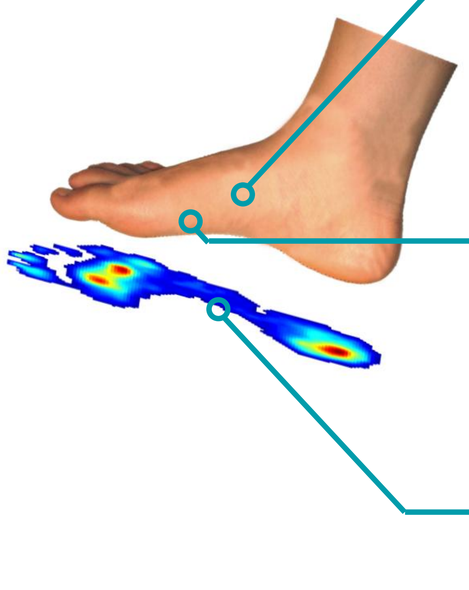
3D scanner



force plate

304 quantitative features

WHICH EXACT VALUES



navicular height (static half weight)

low arch	32.2 mm
normal	37.6 mm
high arch	46.4 mm

angle between MT2 and the ground

low arch	26.8°
normal	29.0°
high arch	32.0°

midfoot area

low arch	24.2 cm²
normal	17.3 cm²
high arch	12.6 cm²

DISCUSSION We only get relevant values for the different classifications of the foot characteristics (e.g. low arch, normal arch, high arch) if there is a significant correlation. When there is no significant correlation, no trend is observed in the exact values. Note that we only investigate the linear correlation, so no non-linear correlations will be found.

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