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Precise determination of lower extremity.

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Introduction: Assessment of the mechanical axis (MA) is routine in the examination of patients with lower extremity pain. Long leg x-ray examination is the golden standard for exact measurement, but associated with a significant x-ray dose. An alternative method to examine the MA exactly has been highly warranted. We developed a computerized photo method to calculate MA from a digital photo.

Methods: 25 patients, 10 f/15 m, mean age 65 (43-78) had both legs examined by the photo method and long leg x-ray simultaneously. The location of the centre of the femoral head was calculated from ink marks on both superior iliac spines.

Results: The digital photo method was found to be highly reliable: The inter-observer average difference was 0.008 +/- 1.30 (mean+/- SD) and the intra-observer average difference (day to day variation) was 0.003 +/- 1.33. MA determined by the two methods was highly correlated (R = 0.943). The 95% prediction interval for the photo values was ± 1.88 dg. (95% confidence interval).

Conclusion: Among the examined age group and severity of malalignment the photo method appears to be a very attractive alternative to the conventional long leg x-ray. It seems most convenient for routine clinical examination, and also for screening and control purposes in primary health care.

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