

Oral presentation

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## Establishing a normative database for the sagittal configuration of the spine using an objective three dimensional measurement tool (the MIDAS System)

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### Objectives

The primary objective of this study was to produce a database of normative sagittal values of the spine in young adult subjects, against which the spines of patients with different spinal dysfunctions could be compared.

### Background

Assessment and retraining of posture is a traditionally integral physiotherapeutic intervention in the treatment of back pain, with the benefit of postural correction exercises for the relief of back pain being well documented. This lack of objective measures for assessing posture does not agree with standards set out by governing bodies in the United Kingdom, which stipulate that treatments should be based on objective markers and evidence-based practice. Previous studies with physiotherapists concluded that there was a need for an assessment system to provide objective, accurate results, displayed quantitatively and visually for Evidence Based Practice.

### Methods

One Hundred healthy subjects aged 20-40 years old were recruited. Ethical approval was granted by the Health and Social Care Ethics committee. Instrumentation: A relatively low-cost, portable system, known as the MIDAS system (Middlesbrough Integrated Digital Assessment System) was used with software specifically designed for the assessment of back posture. (Figure 1)

### Procedure

Data collection involved one tester touching the MIDAS stylus tip to each of the marked spinal points in a standardized order and pressing the foot pedal of the MIDAS to store the position on the computer.

### Results

The overall mean thoracic Sagittal value was 49.2 (SD 10.55) degrees and the overall mean lumbar value was -44.93(SD 15.57) degrees. The overall sagittal profile of the back demonstrated that overall the left shoulder, scapula and pelvis were rotated forward by a mean of 8.04 mm, 5.9 mm and 0.15 mm respectively over the right side of the back.

### Conclusion

Our results should provide a normative database for clinicians (physiotherapists, chiropractors, spinal surgeon) who routinely assess back posture. The method we have devised will also provide an evidenced based objective alternative to just "eyeballing" the patient's posture during clinical evaluation. It is hoped that the MIDAS system can be implemented as a means of quantifying posture in physiotherapy departments in the near future.



Figure 1

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