Scoliosis

Oral presentation

Kyphosis angle evaluated by video rasterstereography – relation to X-ray measurements

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Background
Surface topography evaluations are prone to technical errors due to postural sway of the patients measured. The technical error of lateral deviation (rms) and surface rotation (rms) may vary between 15 and 20%, while the kyphosis angle (IP-ITL) has a technical error of only 5% (2,5°), which is comparable to the x-ray measurement. Purpose of this study was to investigate the hypothesis that video rasterstereography can be used for prognostication of a kyphosis patient.

Materials and methods
Fifty three patients (23 females, 30 males, average age 17 years with a range from 11 to 56 years) undergoing in-patient rehabilitation have been measured with the help of video rasterstereography (VRS) before starting the treatment program and the values for kyphosis angle have been correlated to the kyphosis angle measured on a lateral x-ray (XR) not longer than 6 weeks before VRS measurement. 26 had a thoracic Scheuermann, 3 a thoracolumbar, 15 an Idiopathic Kyphosis and 9 a kyphosis of other origin.

Results
Average kyphosis angle XR was 49° (SD 17) and VRS 63° (SD 13). There was a high significant Pearson correlation of 0.78 and a high significant difference of 14° in the t-test (t -9,6, p < 0,001).

Conclusion
The kyphosis angle VRS (Vertebra prominens – lower neutral zone of inclination) seems to allow a follow-up of individual kyphosis patients. The XR kyphosis angle according to Stagnara is measured from T4 to the lower end vertebra and therefore is lower than the VRS kyphosis angle measured from T1. The difference found between XR and VRS kyphosis angles may be explained by the angle between T1 (VRS) and T4 (XR) differently used as the upper end vertebra. Therefore, the prognostication of an individual patient is possible within certain limits.

References
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