Scoliosis

Oral presentation

Classification of objective aesthetic parameters in idiopathic scoliosis

H Diers*, S Mooshake, KR Heitmann, A Negrini and S Negrini

Address: Diers International, Dillenbergweg 4, 65388 Schlangenbad, Germany

Email: H Diers* - diers@diers.de

* Corresponding author

Objectives
To use non-invasive surface instruments to define Objective Aesthetic Parameters and to obtain an Aesthetic Classification System in idiopathic Scoliosis.

Background
Aesthetic correction is a main aim in scoliosis treatment as defined by SOSORT. Objectively defining aesthetic parameters is difficult; recently TRACE has been proposed as a possible option, being the standardization of the subjective medical expert evaluation. Objective measures are needed for an automatic classification of aesthetics in scoliosis and for other severe back deformities. A 3D reconstruction of the back surface delivers a set of objective parameters used as a basis for this aesthetic classification.

Methods
The Formetric measurement system reconstructs human back surfaces in semi-real time. From the acquiesced 3D data a set of objective anatomical and aesthetical parameters, one can automatically calculate:

- shoulder rotation, slope angle and height difference

- scapular symmetry

- symmetry of flanks and waist triangles

- rib humps and asymmetry in waist region

- pelvic displacements

The above parameters form a basis from which classification indexes can be calculated and derived according to a specific set of expert rules.

Results
Especially in severe cases it is possible to transfer the essentials of relative subjective classifications to objective measures and parameters. Vague and hard-to-catch impressions like "it doesn't look good" can to a certain degree be judged by neutral criteria: Shoulder and pelvis symmetry; angles, area- and height-differences of scapula; differences in waist triangles, etc.

Conclusion
The visual impression of aesthetics correlates closely to the objective parameters described above.