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Topic **Miscellaneous**

Title **Classification of objective aesthetic parameters in idiopathic scoliosis.**

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**Abstract** **Objectives:** Defining through non-invasive surface instruments a way to measure Objective Aesthetic Parameters and obtain an aesthetic Classification of idiopathic Scoliosis.  
**Background:** Aesthetics is a main aim in scoliosis treatment as defined by SOSORT. Objectivation of aesthetics is difficult; recently TRACE has been proposed as a possible option, being the objectivation of the subjective medical expert evaluation. Objective measures are needed for an automatic classification of aesthetics in scoliosis and other severe back deformities. A 3D reconstruction of the back surface delivers a set of objective parameters used as a basis for an aesthetic classification.  
**Methods:** The Formetric measurement system reconstructs human back surfaces in semi-real time. From the acquired 3D data a set of objective anatomical and aesthetical parameters can be calculated in an automatic way: – shoulder rotation, slope angle and height difference – scapula symmetry – symmetry of flanks and waist triangles – humps and asymmetry in waist region – pelvic displacements The above parameters form a basis from where 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.  
**Conclusions:** The visual impression of aesthetic correlates closely to the above parameters.

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