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## TRACE (Trunk Aesthetic Clinical Evaluation), a new everyday clinical tool to assess adolescent idiopathic scoliosis patients aesthetics

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### Objective

Evaluate the repeatability of a new everyday clinical tool developed to increase Aesthetic Index results: TRACE (Trunk Aesthetic Clinical Evaluation).

### Study design

TRACE is based on four sub-scales: shoulders (0–3), scapulae (0–2), hemithorax (0–2) and flanks (0–4): each point is fully described and gives an ordinal scale for increasing asymmetry; TRACE 1 was given by the sum of the sub-score, while TRACE2 by a percentage weighting each single sub-score. 160 PA photographs of the trunk of adolescent idiopathic scoliosis patients were scored two times independently by four observers. We used the Kappa statistics for Agreement [1] whose values give the following agreements: 0–0.2 poor, 0.2–0.4 fair, 0.4–0.6

moderate, 0.6–0.8 good, 0.8–1.0 very good. We looked also at the 95% level of agreement, to identify the minimum clinically significant change to be considered between two different clinical exams. TRACE2 was evaluated for repeatability according to Bland-Altman.

### Results

See Table 1.

### Conclusion

These results are provisional, because a longer practice on TRACE is needed, mainly for inter-raters data. Widening the scales of the Aesthetic Index to develop TRACE increased sensitivity, and this is better in clinical everyday practice.

**Table 1: Results.**

	Kappa statistics range		Percent of agreement		95% level of agreement (range)	
	Intra-raters	Inter-raters	Intra-raters	Inter-raters	Intra-raters	Inter-raters
TRACEI	0.16–0.24	0.09–0.14	28.8–36.3	18.8–36.1	2/11 (99.4–96.9%)	3/11 (95.0–100%)
Shoulders	0.29–0.43	0.16–0.25	51.3–70.6	48.8–70.6	1/3 (96.9–100%)	1/3 (92.5–100%)
Scapulae	0.43–0.58	0.41–0.50	76.9–79.4	70.6–80.0	1/2 (99.4–100%)	1/2 (100–100%)
Hemithorax	0.22–0.41	0.12–0.20	58.8–63.1	50.6–63.1	1/2 (98.1–99.4%)	1/2 (95.6–99.4%)
Flanks	0.40–0.48	0.07–0.11	55.0–68.0	24.4–68.1	1/4 (95.6–99.4%)	2/4 (98.7–100%)

Repeatability index for TRACE2: intra-rater 47–49%, inter-rater 47–50%.

## References

1. Altman DG: **Practical Statistics for Medical Research**. London: Chapman and Hall; 1991.

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