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Letters to the Editor

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Reliability of four different computerized cephalometric analysis programs: a methodological error

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Sir,

We were interested to read the paper by Erkan and Gurel published in the June 2012 issue of *Eur J Orthod.* The authors aimed to compare the traditional method of manual cephalometric tracing with four different computerized tracing programs (Dolphin Imaging, Vistadent, Nemoceph and Quick Ceph). They used multivariate analysis of variance and Box's and Levene's tests, showing no statistically significant difference between manual tracing and the computerized tracing programs (Erkan *et al*., 2012).

The authors pointed out in their conclusions that the measurements obtained with the cephalometric analysis programs used in the study were reliable. However, they did not use any of the commonly used statistical tests (Intraclass correlation coefficient ICC or weighted kappa) to assess the reliability (Jeckel *et al*., 2007; Szklo and Nieto, 2007; Rothman *et al.*, 2008). Therefore, we would like to point out that this conclusion may be misleading.

References

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Reply

Sir,

We thank Dr Sabour and Dr Dastjerdi for their interest in our work. Analysis of errors, intra-observer reliability, and intraclass statistics of orthodontic cephalometric measurements were performed using Houston analyses (Houston, 1983).

In our study, intra-observer reliability analysis was performed as described by Houston (1983) and Houston et al. (1986) but was not mentioned in the manuscript. To evaluate intra-observer reliability,10 radiographs were randomly selected. The same radiographs were then traced twice manually and digitally with each cephalometric tracing program, with a 10 day interval between evaluations. A linear correlation test was performed, and all measurements presented coefficients greater than 0.9. A measurement with a reliability coefficient greater than 0.7 is generally regarded as acceptable (Erkan et al., 2012) according to Houston (1983).Therefore, we believe that statistical analyses used in the study were appropriate. Thank you for giving us the opportunity to respond.

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