



HAND TRACING VS DIGITAL METHODS OF CEPHALOMETRIC ANALYSIS



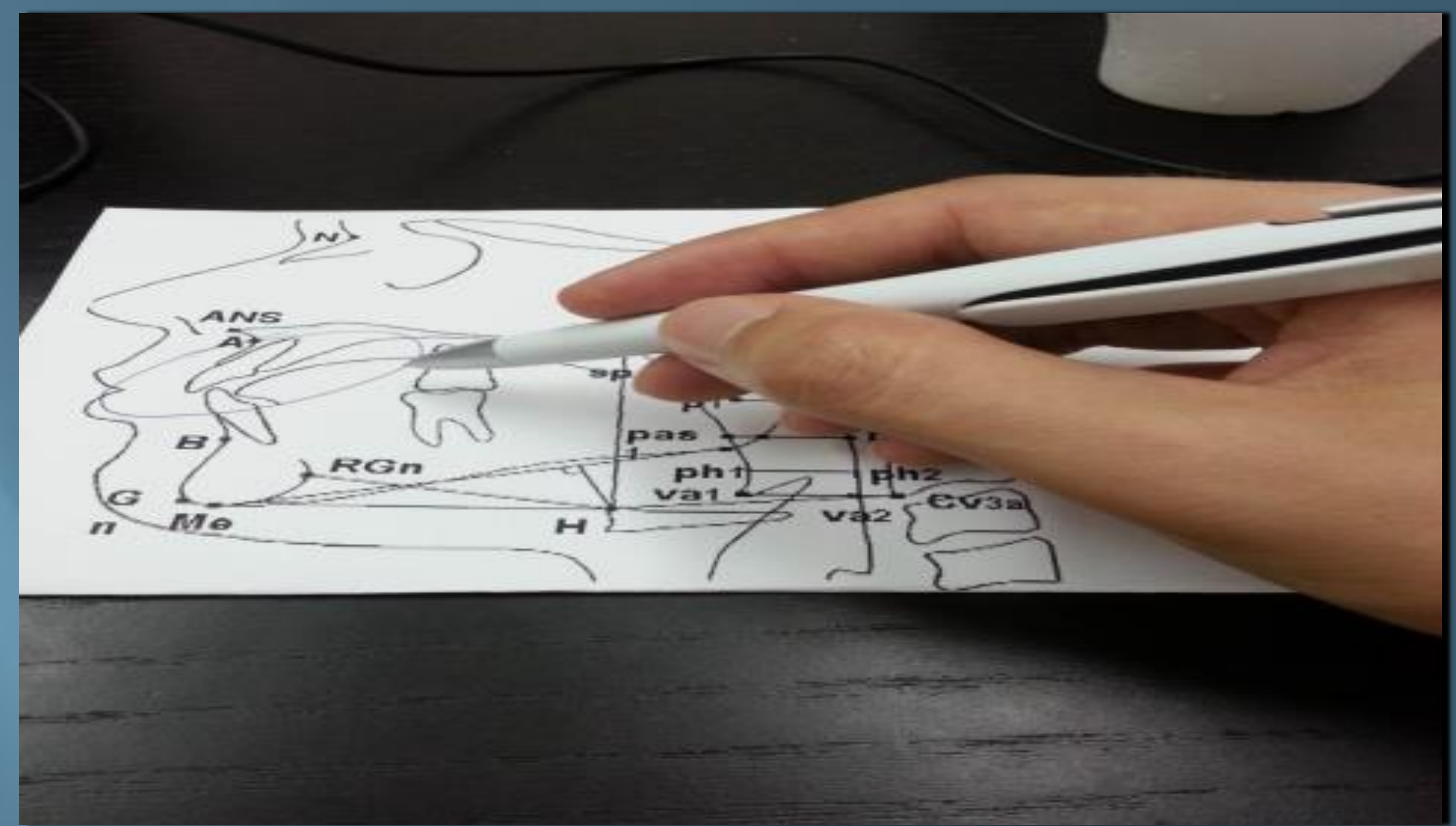
Author: Magdalena Koceva, **Co-author:** Ana Trajkovska
Menthor: D-r Sandra Atanasova, **Co-Menthor:** D-r Verica Toneva

Introduction:

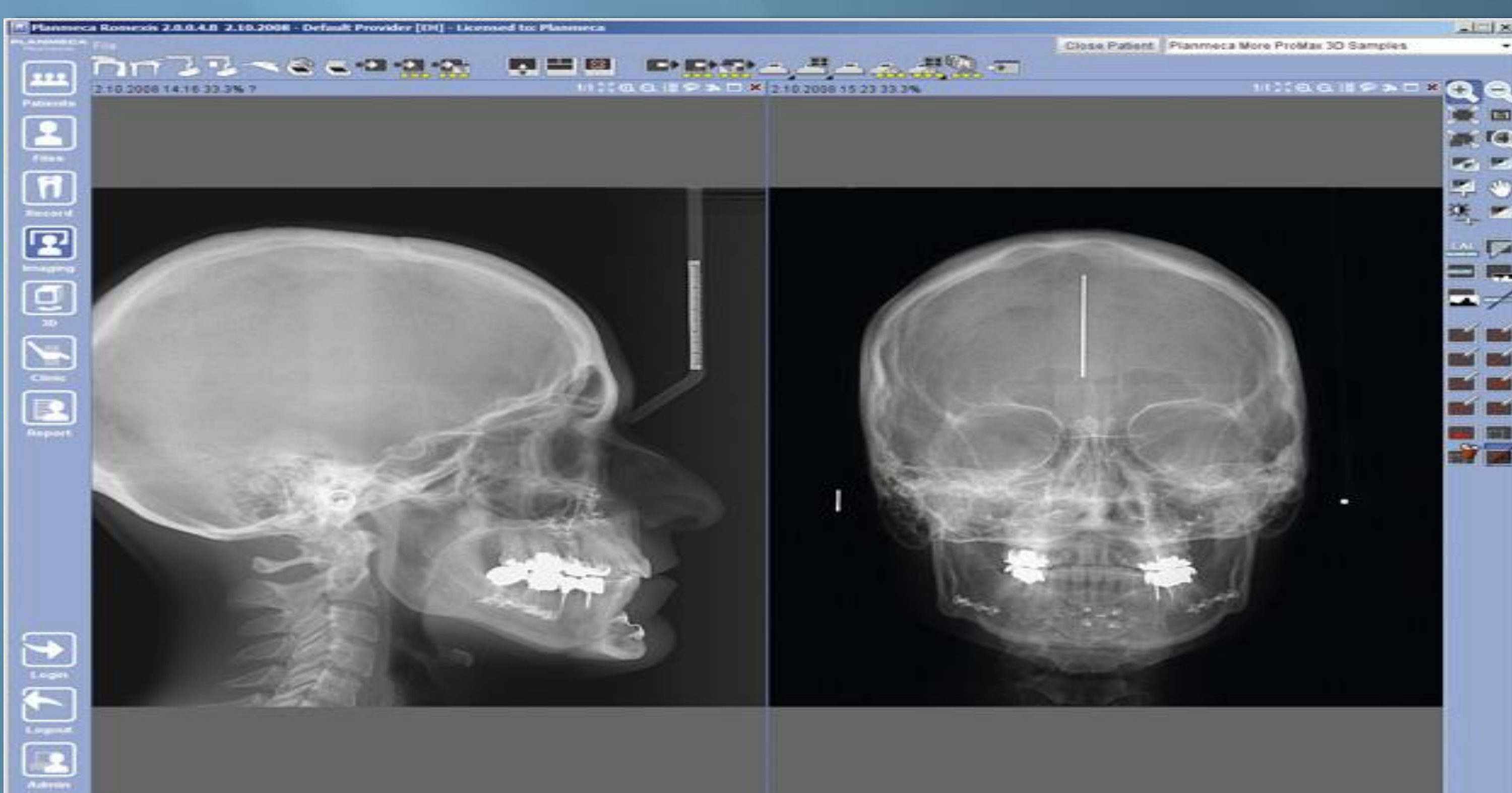
Cephalometric radiography is an essential tool to orthodontists for studying growth and development of the facial skeleton, diagnosis, treatment planning, and evaluating pre and post-treatment changes. Manual cephalometric analysis has been performed by tracing radiographic landmarks on acetate overlays and measuring linear and angular values. Rapid technological advances have made it possible to perform cephalometric tracing using computers where the landmarks are usually digitized first.

Material and Methods:

We reviewed several studies in which comparison was made between manual analysis and using computer software programs for cephalometric analysis. Digital films are transferred to conventional films using a printer. Printed films are hand-tracked and measured by one observer. Digital films are analyzed twice using computer software programs by the same observer, using basic and advanced features.



Manual cephalometric analysis



Digital method of cephalometric analysis

Results:

From the reviewed scientific papers it is registered that the basic and the advanced feature procedures took significantly less time than the total time needed for the hand-tracing procedure. Small discrepancies were also found between hand-tracing and computerized measurements, but the differences are minimal and clinically acceptable.

Conclusion:

Computerized technique can be regarded equally reliable to hand-tracing as far as cephalometric measurements are concerned. Time-saving characteristics of computerized tracing makes this method preferable to hand tracing for cephalometric analysis of radiographs used in diagnosis, treatment planning, and the evaluation of treatment outcome.