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The reliability of the Frankfort Horizontal in roentgenographic cephalometry

H. Pancherz and K. Gokbuget

Department of Orthodontics, University of Giessen, Germany

ABSTRACT

This longitudinal investigation was undertaken to assess the reliability of the Frankfort Horizontal line (FH) when using either an anatomical Porion (Po-a) or machine Porion (Po-m) as reference landmarks. Lateral head films (22 pairs) from subjects at the ages of 11 and 14 years were analysed twice. The results revealed that: (i) the registration error of Po-a was larger than of Po-m; (ii) for Po-a the registration error from the 11 year head films was approximately twice as large as from the 14 year head films; (iii) Po-m was, on average, located ~9 mm below and 2 mm anterior to Po-a; (iv) during the 3 years of observation, Po-m changed its position downward markedly more than Po-a; (v) due to the diverging location of machine Porion (Po-m) in relation to true Porion (Po-a) and the large change of Po-m with time, the FH was affected considerably. It was concluded that machine Porion was unsuitable for the construction of the FH. A misjudgement of the reference line may result in diagnostic misinterpretations and lead to false conclusions in longitudinal studies, e.g. when the outcome of a particular treatment procedure is evaluated.

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