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Effect of head orientation on posterior anterior cephalometric landmark identification

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ABSTRACT

This study examined the effect of head rotation about the vertical and transverse axes on posterior anterior cephalometric landmarks. Radiographs were taken on 25 skulls, first in a normal position, then in four positions each rotated 5° from normal. The identification errors of 52 bilateral and midline landmarks were determined in the horizontal and vertical dimensions. The landmark identification errors for each of the five orientations were compared and those landmarks affected by 5° rotation were identified. Landmarks with significantly larger identification error in a rotated position were: nasal cavity, mandible/occiput, foramen rotundum and orbitale. Best fit vertical and horizontal reference lines were determined, and the effect of head rotation on the choice of best fit reference lines was assessed. Rotation about the transverse axis did not affect the relationship of landmarks to the best vertical or horizontal lines. Rotation about the vertical axis did not affect the relationship of landmarks to the best horizontal line but did affect their relationship to the best vertical line.

KEY WORDS: Cephalometrics, Posterior anterior cephalometrics, Landmark reliability, Identification error.

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