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ORTHODONTIC TREATMENT DECISION-MAKING BASED ON PLASTER OR DIGITAL MODELS: A SYSTEMATIC REVIEW

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Introduction: Recently digital models have been proposed to replace plaster models in some clinical situations. The objective of this systematic review was to determine in which clinical scenarios digital models are valid as replacement for plaster models during orthodontic treatment planning.

Methods: An attempt to identify all pertinent published information was made. Retained articles were those where a decision-making process leading to differential orthodontic treatment plans based on either method were compared. Individual database search strategies were developed. The references cited in these articles were also crosschecked and a partial grey literature search was undertaken. The methodology of selected studies was evaluated using the Quality Assessment Tool for Diagnostic Accuracy Studies.

Results: Two studies were finally selected for the qualitative/quantitative synthesis. In one, the overall treatment plan agreement regarding orthognathic surgery in Class II malocclusion ranged between 78% and 87%. In the other one, 6% of orthodontic treatment plans based on digital models were changed after secondary assessment of plaster models.

Conclusions: Digital models could be used to replace plaster models in Class II malocclusion treatment planning. Unfortunately the included articles did not provide sufficient evidence to conclude that digital models are a valid replacement for other malocclusion types.

Keywords: Dental models, plaster models, digital models, decision-making, review.