

激光扫描法建立三维数字化牙颌模型的准确性和可靠性评价

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【摘要】目的 研究应用激光扫描法建立三维数字化牙颌模型的准确性和可靠性评价。**方法** 选择正畸治疗患者的石膏模型 24 副, 采用激光扫描法对石膏模型进行扫描, 建立三维数字化牙颌模型, 并对其牙冠宽度、牙冠高度、牙弓宽度和牙弓长度进行测量, 与手工测得的结果进行比较分析。**结果** 石膏模型和数字化模型所有测量项目的一致性相关系数中, 除双侧上颌第一前磨牙颊尖顶之间的距离 (CCC=0.6307) 和上颌中切牙近中接触点到右侧第一磨牙远中接触点的距离 2 项测量指标结果 (CCC=0.6571) 良好外, 其余指标的一致性都比较接近 (CCC > 0.7)。所有测量项目的均数差在 0.017~0.862mm 之间, 平均为 0.104mm, D% < 5%, 部分指标存在统计学差异, 但不具有临床意义。**结论** 基于激光扫描技术重建的三维数字化牙颌模型中, 牙冠宽度和牙冠高度的准确性高, 牙弓长度其次, 牙弓宽度的准确性较低。

【关键词】 激光扫描法 牙颌模型 可靠性

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Evaluation of accuracy and reproducibility of 3D digital dental models with laser scanning

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【Abstract】Objective To evaluate the accuracy and reproducibility of the 3D digital dental models prepared using laser scanning technique. **Methods** 24 plaster models of orthodontic patients were selected and the digital models were constructed by laser scanning, and then the width and height of crown, the length and width of dental arch were measured. The data was compared with those obtained by manual measurement. **Results** The concordance correlation coefficient (CCC) of all these measurements were quite good (CCC>0.7) except DU4B (CCC=0.6307) and DU1-6R (CCC=0.6571). The mean difference is from 0.017 to 0.862, and the average mean difference is 0.104, D%<5%, there were significant differences in some indicators, but it was still clinically acceptable. **Conclusions** In the digital dental models by laser scanning technique, the accuracy of the width and height of crown was first, followed by the length of dental arch, and then the width of dental arch.

【Key words】 Laser scanning Digital dental models Reproducibility

近年来, 随着计算机三维图像技术在口腔正

畸领域中的应用逐渐广泛, 越来越多的学者开始利用三维成像技术来建立三维数字化牙颌模型。三维数字化牙颌模型较之传统的石膏模型, 提高