

عنوان مقاله:

Comparison of 3D laser scanning and 2D conventional scanning in analysis of arch dimensions

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خلاصه مقاله:

Aims: Comparison of 3D laser scanning and 2D conventional scanning in analysis of arch dimensions. **Methods:** Twenty setups of upper and lower casts were duplicated in 20 corresponding dental stone models. 3D laser scanner was constructed in Shahid Beheshti University, and then casts were scanned with this machine. 2D scanning was performed by conventional scanner. Inter canine and intermolar widths and canine and molar depth were calculated directly on casts by digital caliper and on both scans. The mean differences between these three methods were evaluated by repeated measure analysis of variance and between each pair by paired t-test. **Results:** The correlation between inter canine and intermolar widths of all three modalities were higher than 0.9, but for canine and molar depths the correlation was not so strong and for canine depth was the weakest ($R=0.45$). The differences between inter canine and intermolar widths of all three modalities for upper and lower casts were significant, but for canine (and molar) depths, only the difference between 3D and direct technique for the upper casts was significant ($P < 0.05$). The highest recorded differences for inter canine and intermolar widths and molar and canine depths were 0.67, 0.42, 0.59 and 0.71 mm respectively. **Conclusions:** Digital models are valid reliable clinical tools for arch dimension evaluations. In addition, the most reliable measurements are inter canine and intermolar widths.

کلمات کلیدی:

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