

Evaluation of technicians working time in the fabrication of removable partial dentures: Cad/Cam versus tradition.

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Objectives: The fabrication of removable partial dentures (RPDs) has always been time consuming. With the introduction of digitalization the prosthodontic workflow promises predictable improved clinical performance and economics.

The aim of the study was to compare working times in the fabrication of RPDs in a conventional way compared to working times in the fabrication of RPD with 2 commercialised digital techniques: printing and laser sintering.

Methods: Four real life cases (2 upper jaw en 2 lower jaw) were fabricated by 3 randomly deployed laboratory technicians for the fabrication of a RPD in a traditional way (T1, T2, T3). The same 4 cases were scanned and designed with a commercial program (Sensable[®]) and fabricated by a specialized team by printing (PR) and laser sintering (LS). Each technician had to record the time needed for every step during the fabrication of each of the RPD. Afterwards the technician's time and the production time was compared between the different technicians and between the CAD/CAM fabricated and handmade RPDs.

All RPD's were examined on fit, elegance and finishing.

Results: CAD/CAM fabricated RPDs (PR and LS) resulted in no significant difference in technician working time compared to conventional fabricated RPDs (T). Significant working time differences were recorded between the technicians during the finishing and polishing procedure regardless the fabrication procedure. For the Cad/Cam fabricated RPDs there was no significant difference in technician working time between the printing method (PR) and the laser sintering (LS) method. The time gain by direct selective laser sintering was lost during the finishing procedure.

Conclusions:

RPDs cannot be fabricated more economically in a digitalized way compared to individual conventional techniques when only technician's working time is taken into account. The laser melting method requested significant more working time for the finishing and polishing procedure. The positive economic impact in the fabrication of high quality RPDs with Cad/Cam technique is the high potential of standardization, the decreased production time and the easy transport of digital data.