

16. FIT OF SCREW - RETAINED FIXED PARTIAL DENTURE IN PARTIAL EDENTULISM

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Introduction. There are many ways to treat partially edentulous patients. In the last few decades, dental implants have become a valuable option for prosthodontic rehabilitation. The use of endosseous dental implants to replace natural teeth lost to periodontal disease, trauma, or complication of dental caries has become a predictable form of prosthetic treatment. A lot of research studies have demonstrated that implant prostheses represent a predictable and successful restorative solution for these cases. Passive fit of an implant framework is one of the mechanical parameters expected to influence the longevity of an implant prosthesis.

Aim of study. To review the published literature for investigating the accuracy of fit of screw-retained fixed partial denture fabricated using different methods of manufacturing.

Methods and materials. A comprehensive electronic search was performed through PubMed (MEDLINE). The following keywords were combined: “fixed prosthesis”, “implant,” “framework,” “fit,” “accuracy,” “fitting surface,” “bridge,” and “screw - retained.

Results. A total of 30 articles were considered for review. After article selection, the relevant information from each article was extracted. From the selected studies, several implant framework fabrication methods were identified: conventional casting of metal alloys; sectioning and reconnection through soldering (the sectioned framework is indexed and reconnected with fused solder), CAD/ CAM, which involves fabricating the implant framework by means of computer numeric controlled milling; spark erosion, used to refine the fitting surface of the framework and framework bonding to a prefabricated abutment cylinder, where the framework body is constructed with space to accommodate a prefabricated cylinder and resin bonding is used to attach the framework body to the cylinders

Conclusion. No method of manufacturing is ideal for fabrication of screw-retained fixed implant frameworks in all aspects. Casting of metal alloys generally does not provide an acceptable implant framework fit unless additional treatment is performed. The benefit of soldering is unclear and perhaps replaced by laser welding. Spark erosion, CAD/CAM, and framework bonding to prefabricated cylinders have great potential to overcome significant inaccuracies produced by the fabrication procedure and provide implant frameworks with excellent fit. CAD/CAM provides better results.