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Objective Evaluation of the Misfit in Implant-Supported Restorations

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Passive fit of implant-supported restorations is a desired condition in implant prosthodontics. However, due to error propagation in numerous steps of the framework fabrication, the absolute passive fit is clinically not achievable. Current attempts to answer the question of the clinically acceptable misfit threshold were unsuccessful. As clinicians strive for the best restoration fit, detection of a misfit is a matter of high importance. For the standard clinical fit assessment alternate finger pressure technique, tactile and visual assessment, dental radiography, one-screw test and screw-resistance tests are being used. However, clinical assessment is dependent on the subjective clinician's judgement and is in need of the high-quality tools, capable to standardize the misfit evaluation. Clinical research is limited due to the ethical reasons and the lack of objective clinical methods. *In vitro* assessments employ dimensional and modelling methods, analysing microgap formation at the implant-abutment junction and biomechanical behaviour of the components of the implant-prosthesis complex. Furthermore, methods for the misfit detection are being developed, implementing tools like digital torque wrench or the use of image processing software in dental radiography. In this lecture current research and aspects of the objective misfit evaluation will be presented and discussed.

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