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Rapid Prototyping Technologies In Prosthetic Dentistry

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Recently, rapid prototyping technology is the future of quick and direct production. This technology found applications with metal framework of fixed partial dentures, framework of removable partial dentures, facial protheses and titanium implants in prosthetic dentistry. Laser beam sintered the selected areas on the alloy powders and the restoration is produced layer by layer at single stage.

Purpose: This literatures compared the internal fit, accuracy, bond strength, marginal adaptations, connection between the veneer porcelain, fracture strength marginal and internal gaps of laser-sinterd dental prosthesis with conventional casting techniques.

Materials and Methods: PubMed and Google scholar electronic database search from 2007 to January 2017 was reviewed. 103 studies were first reviewed by abstract and subsequently by full-text reading.

Results: The literature discuss the advantages and disadvantages of laser sintering method from different aspects.They found that internal fit, marginal adaptations, Accuracy of laser-sintered metal restoration are better than that obtained with the traditional casting techniques. In another hand, no difference was observed in the study of internal adaptations, connection between the veneer porcelain, internal gap and porcelain surface treatments between laser sinterd and conventional casted metal restoration. Immediate implant loading could be achieved in a reasonable operative time.

Conclusions: Laser sintering seems to be an alternative technique to conventional casting of dental alloys. Complex shapes from metal alloys can easily be produced With these devices. These systems can be helpful to obtained fixed restorations, facial prostheses, titanium implants, surgical models and stents. The new laser-sintering technique appears promising for dental application, but additional studies of properties of laser sintered.

Biography

Mohammed Abujalala has graduated at the age of 23 years from Saini University faculty of dentistry and has started the PhD program in the department of prosthetic dentistry in the NEAR EAST university in September of 2015. He has finished his first seminar (Lazer Sintering) in February 2017, and the second seminar (Dental Photography) in June 2017.

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