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Digital temporary tooth restoration – print or mill

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In contemporary dentistry – especially prosthetics and orthodontics – digital intraoral scanners which arrived around 10 years ago allows to obtain digital models which can be exported to 3D printer. The aim of this study was to compare advantages and disadvantages of milling and printing of temporary tooth restoration. Temporary restorations were printed by two printers: Raydent Studio with Raydent C&B resin (Ray, Korea) and MoonRay3D S100 (SprintRay) with C&B NextDent (NextDent, Netherlands) resin and milled of TelioCAD (Ivoclar, Lichtenstein) with use of CerecMCX (Sirona Germany) milling unit. Cerec Bluecam (Sirona, Germany) and InLab 16 (DentsplySirona, Niemcy) were used to scan surface and design restorations. To compare results the same restorations were with printed and milled. Surface quality, fit, thin layers manufacturing and

efficiency were compared. Smoother surface was obtained using milling. Accuracy (fit) was similar when printers were correctly calibrated. Milling and printing with chairside devices were more predictable. Manufacturing with MoonRay and C&B Nextdent was failure sensitive and requires more attention. This solution cannot be considered as a chairside solution. Thin layers – milling allowed to obtain thin layers without failures. Printing of thin layers with MoonRay printer and C&B Nextdent resin was prone to fail (unstable shape of partially cured resin). Efficiency – In case of small size temporary restoration the milling process is a better choice. Except temporary implant crowns. To mill this type of restorations expensive material blocks with Ti-base hole must be use. Printing of large temporary seems to be more efficient.

Biography

Marcin Mikulewicz is from department of Dentofacial Orthopaedics and Orthodontics, Wroclaw medical university. He graduated from faculty of Dentistry, Wroclaw Medical University, Poland. He obtained PhD degree at the same university, habilitation from collegium medicum, Jagiellonian University. He has completed the Orthodontic postgraduate program earning a title of specialist.

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