Title: Selection criteria for digital restoration materials which to choose between milling and printing?

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Abstract:

Understanding and preparing oral scans, manufacturing methods and properties of restorative materials may determine the quality of digital restorative treatment. In order to obtain good scanned data, intraoral digital scanning also requires the know-how as much as taking a conventional dental impressions. With the scanned data, it is possible to design the desired concept of occlusion through the designs considering proper path and minimum thickness of digital restorations and the virtual articulator from CAD software. Once the restoration has been designed, you have to decide whether you would like to process it with milling, 3D printing, or another analogue method at the manufacturing stage.

Although there is high demands on 3D printing, there is no 3D printing material which has been proven as a final material yet. Existing composite resins are limited in their viscosity and photoreactivity, thus there are few cases of clinical use. Currently available printing materials in the dental field include models, temporary crown bridges, dentures, splints, etc.

The final materials that can be used in the conserved fields include hybrid ceramics, ceramics, reinforced ceramics, zirconia, etc. Ceramic materials are mostly wet-mill processed with burs metalized with diamonds, and zirconia, in general, is dry-mill processed using carbide burs. As for the restorative material, hybrid ceramic series with good processibility, good adhesion, easy adjustment and grinding in the oral activity are receiving much attention. Reinforced ceramics are well used in the aesthetic area, and high transmittance zirconia is well used in the posterior part.

CV

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