Perbandingan pengukuran model studi konvensional dengan model studi digital 3D hasil pemindaian laser cetakan negatif geligi = Comparison of conventional study model measurements with 3D digital study model from laser scanned dental impression

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Abstrak

Pendahuluan: Bidang ortodonti selalu mengalami kemajuan, termasuk di bidang teknologi. Salah satunya adalah berkembangnya model studi digital tiga dimensi yang menggantikan peran model studi konvensional yang terbuat dari stone.
Tujuan Penelitian: Tujuan penelitian ini adalah untuk membandingkan hasil pengukuran lebar mesio-distal, jarak interkaninus, dan jarak intermolar gigi pada model studi digital 3D dengan model studi konvensional.
Material dan Metode: Dua belas subyek dengan geligi tidak berjejal dicetak hanya pada rahang atas sebanyak dua kali, dengan menggunakan bahan cetak alginat dan polivinylsiloxane. Cetakan alginat dicor dengan stone untuk memperoleh model studi konvensional, sedangkan cetakan polivinylsiloxane dipindai untuk memperoleh model studi digital 3D. Pemindaian dilakukan menggunakan piranti pemindai laser triangulasi yang dirakit oleh Sekolah Teknik Elektro dan Informatika ITB dan perangkat lunak David Laser Scan. Pengukuran lebar mesio-distal gigi, jarak interkaninus, dan jarak intermolar pada model studi konvensional diukur menggunakan kaliper digital, sedangkan pada model studi digital 3D menggunakan software pengukur.
Hasil: Tidak terdapat perbedaan bermakna antara pengukuran lebar mesio-distal, jarak interkaninus, dan jarak intermolar pada model studi konvensional dengan model studi digital 3D ($p>0.05$).
Kesimpulan: Pengukuran pada model studi digital 3D sama akurat dengan model studi konvensional.
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Introduction: Orthodontics always develop, including in the field of technology. One of the orthodontic technologies is the development of 3D digital study models that replaces the conventional study models made by stone.
Objective: The aim of this study is to compare the measurements of mesio-distal teeth width, intercanine width, and intermolar width between the 3D digital study models and the conventional study models.
Materials and Methods: Twelve sets of upper arch dental impressions were taken from subjects with non-crowding teeth. The impressions were taken twice, one with alginate and the other with polivinylsiloxane. The alginate impressions were made into conventional study models, whereas polivinylsiloxane impressions scanned to obtain 3D digital study models. Scanning was performed using laser triangulation scanner device assembled by the School of Electrical Engineering and Informatics ITB and David Laser Scan software. Measurements of mesio-distal width, intercanine width, and intermolar width measured on conventional study models using digital calipers, while the 3D digital study models using the measurement software.
Results: There were no significant differences between the measurements of mesio-distal width, intercanine width, and intermolar width between the conventional and 3D digital study models ($p> 0.05$).
Conclusion: The measurements on 3D digital study models are as accurate as conventional study models.