

Abstract

The aim of this study is to investigate how sensitive the intra-oral scanner is to saliva and plaque present in the oral environment. The experimental group consisted of three volunteers and the choice and the choice of participants was made to exclude the influence of biological or genetic individual differences in plaque accumulation and saliva composition and production. The scans were performed with the TRIOS™ intraoral scanner system. Four sets of digital impressions of each participant were performed; (1) made with the presence of three day old plaque and an clinical dry environment; (2) were made after a professional tooth cleaning with rotary instruments, with presence of saliva covering the scanned surfaces (3), (4) were preformed after professional tooth cleaning and in a clinical dry environment to obtain reference scans, were the predetermined parameters had minimum influence. The values of the intra scan measurements among the parameters investigated of each participant ranged from -326µm to 318µm. In subject 1 substantial difference in the reference scan was observed in the posterior teeth. Substantial differences in the plaque scan were observed in subject 2 at the anterior teeth. In subject 3 substantial differences in saliva scan was observed on the molar. It can be concluded that environmental factors in the oral cavity can affect the scanners readout of the oral structures although it is still uncertain how and to which extent. Further studies are necessary to valuate if the clinical parameters affect the outcome and fit of prosthetic constructions.