

Format: Abstract

Send to

[J Biol Regul Homeost Agents](#). 2017 Apr-Jun;31(2 Suppl 1):53-60.

Temperature changes of one-piece implants during the setting of acrylic resin temporary crown. The effect of implant diameter. An in vitro study.

[Cohen O](#)¹, [Lauritano D](#)², [Moses O](#)¹, [Ormianer Z](#)³, [Tal H](#)¹, [Kolerman R](#)¹, [Carinci F](#)⁴, [Matalon S](#)³.

+ Author information

Abstract

The purpose of this work is to evaluate changes in temperature of one-piece titanium implant surface during the setting of acrylic resin temporary crowns and to correlate thermal changes to implant diameter. Thirty-three one-piece implants (ARRP, Alpha-Biotec) were divided into 3 groups according to diameter size (G1=3 mm, G2=3.3 mm, G3=3.6 mm). Implants were mounted on an acrylic glass apparatus. Thermocouples were positioned at the most coronal thread. Lower incisor temporary polycarbonate crowns were filled with 80 μ L of self-curing acrylic resin and positioned immediately on the implant abutment. Thermal changes of the implant surface were recorded continuously for 10 min. Data were statistically analyzed using one-way analysis of variance. The mean initial temperature (C0) of groups G1, G2 and G3 was similar (24.79 \pm 0.78 $^{\circ}$ C, 25.26 \pm 0.63 $^{\circ}$ C, 24.97 \pm 1.06 $^{\circ}$ C, respectively). The setting of the acrylic resin temporary crown resulted in a significant increase in the implant surface temperature of all groups. The mean thermal amplitude (Δ C) for groups G1, G2 and G3 were 6.79 \pm 1.02 $^{\circ}$ C, 6.61 \pm 0.94 $^{\circ}$ C, 6.65 \pm 1.26 $^{\circ}$ C, respectively. The mean time to maximum temperature (Tmax) for groups G1, G2 and G3 were 337.38 \pm 42.91 sec, 324.69 \pm 41.46 sec and 317.98 \pm 37.91 sec respectively (P >0.05). Direct application of auto-polymerizing resin to the titanium abutment of one-piece implants significantly increased the cervical implant surface temperature. Implant diameter did not influence the temperature changes.

PMID: 28691454



PubMed Commons

[PubMed Commons home](#)

0 comments

[How to join PubMed Commons](#)

Save items

★ Add to Favorites

Similar articles

[The comparison of provisional luting agents and abutment surface roughness \[J Prosthet Dent. 2006\]](#)[An investigation of heat transfer to the implant-bone interface re \[Int J Oral Maxillofac Implants...\]](#)[In vitro performance of zirconia and titanium implant/abutment systems for ante \[J Dent. 2014\]](#)[Bending moments of zirconia and titanium implant abutments \[Clin Oral Implants Res. 2014\]](#)[Digital image correlation analysis on the influence of crown mat \[J Prosthodont Res. 2012\]](#)[See reviews...](#)[See all...](#)

Related information

MedGen

Recent Activity

[Turn Off](#) [Clear](#) [Temperature changes of one-piece implants during the setting of acrylic resin te...](#) PubMed [Effect of Restorative Configurations and](#)