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Abstract

[LIMA, Emilena Maria Castor Xisto](#) et al. Evaluation of surface characteristics of Ti-6Al-4V and Tilite alloys used for implant abutments. *Braz. oral res.* [online]. 2006, vol.20, n.4, pp. 307-311. ISSN 1806-8324. doi: 10.1590/S1806-83242006000400005.

The aim of this study was to evaluate surface free energy (SFE), surface roughness (SR) and surface hardness (SH) of two commercially available materials for fabricating dental implant abutments. In addition, the specimens were investigated by scanning electron microscopy (SEM) to determine the surface morphology. Twenty five discs (5 x 2 mm) of Ti-6Al-4V and Tilite (Ni-Cr-Ti) alloys were used in this study. Surface free energy was determined by the contact angle formed between a drop of distilled, deionized water and the surface of the specimen of each material. The surface roughness was measured with a mechanical profilometer and the surface hardness was evaluated by means of the Vickers hardness micro indentation test. SFE, SR and SH data were analyzed using one-way ANOVA ($p < 0.05$). Statistical differences ($p < 0.05$) were found between Ti-6Al-4V (36.2 erg.cm^{-2} ; $0.2 \text{ }\mu\text{m}$) and Tilite (30.9 erg.cm^{-2} ; $0.16 \text{ }\mu\text{m}$) for SFE and SR. However, the differences between the surface hardness values of Ti-6Al-4V (325.0 kg/mm^2) and Tilite (324.3 kg/mm^2) were not statistically significant ($p > 0.05$). Evaluations by SEM revealed different surface morphology. Within the limits of this study, it can be concluded that the Ti-6Al-4V and Tilite alloys showed differences in surface properties, except for surface hardness, suggesting that both alloys may be considered appropriate for producing abutments. Further studies are, however, necessary to elucidate the biological responses to implant abutments made with these alloys.


Keywords : Surface properties; Dental implants; Titanium.

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