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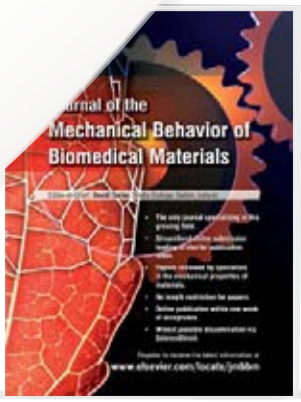
July 2010

Published in:

Journal of the Mechanical Behavior Of Biomedical Materials.

Biomechanical and histomorphometric analysis of etched and non-etched resorbable blasting media processed implant surfaces: An experimental study in dogs”

Charles Marin, Rodrigo Granato, Marcelo Suzuki, Malvin N. Janal, Jose N. Gil, Carlos Nemcovsky, Estevam A. Bonfante, Paulo G. Coelho.



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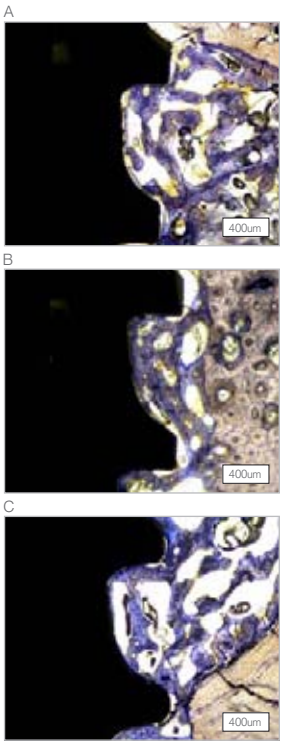
"Biomechanical and histomorphometric analysis of etched and non-etched resorbable blasting media processed implant surfaces: An experimental study in dogs"



At 5 weeks, initial replacement of woven bone by lamellar bone (lightly stained bone between threads) was observed for all the (A) AB/AE, (B) RBM, (C) RBMa groups (color on the Web only).

ABSTRACT.

This study characterized the interplay between topography/chemistry and early bone response of etched and no-etched resorbable blasted media (RBM) processed surfaces. Screw-root form Ti-6Al-4V implants treated with alumina blasting/acid-etching (AB/AE), RBM alone (RBM), and RBM + acid-etching (RBMa) were evaluated. The surface was characterized by scanning electron microscopy, atomic force microscopy, and X-ray photoelectron spectroscopy. Implants placed in the tibia of dogs remained 3 and 5 weeks in vivo. Following euthanasia, half of the specimens were torqued to interface failure and the remaining subjected to bone-to-implant contact (BIC) and bone area fraction occupied (BAFO) between threads evaluation. The AB/AE surface was rougher than the RBM and RBMa. Higher levels of calcium and phosphorous were observed for the RBM surface compared to the RBMa. No significant differences were observed in torque, BIC, and BAFO between surfaces. Woven bone formation at 3 weeks and its initial replacement by lamellar bone at 5 weeks were observed around all implants' surfaces.

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