HA*nano* Surface is Well-Adhered to the Implant Substrate

Excellent Adherence to Any Material, Any Structure

Aim

Traditional hydroxyapatite (HA) coatings form thick layers on the implant surface, which are easily damaged during implantation. The purpose of this study was to show that HA*nano* Surface is unaffected by the sheer force arising when inserting an implant into bone tissue.

Materials and Methods

Unmodified and HA*nano* Surface modified titanium, ceramic, and PEEK implants were evaluated prior to and after implantation into a cortical bone model (40 pcf Sawbones) with Scanning Electron Microscopy (SEM). The remaining synthetic bone material was cleaned of the implants.

Results

After HA*nano* Surface modified implants had been inserted into the synthetic bone material, and subsequently removed, the hydroxyapatite crystals still covered the entire implant surface. SEM images of the implants are shown on the next page (ceramic implants not shown).

The SEM images clearly show that the implantation into synthetic bone has not damaged the layer of hydroxyapatite.

Conclusion

HA*nano* Surface on an implant is not damaged by implantation in a synthetic cortical bone model. This indicates that the HA*nano* Surface is well-adhered to PEEK, ceramic and titanium surfaces.

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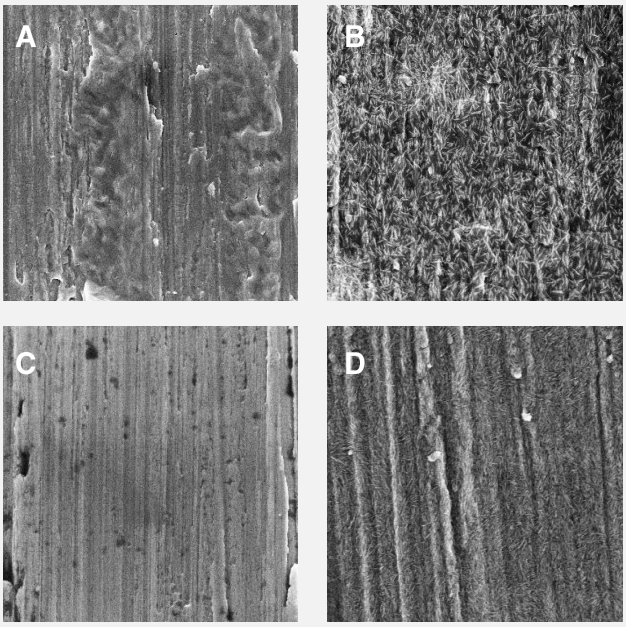
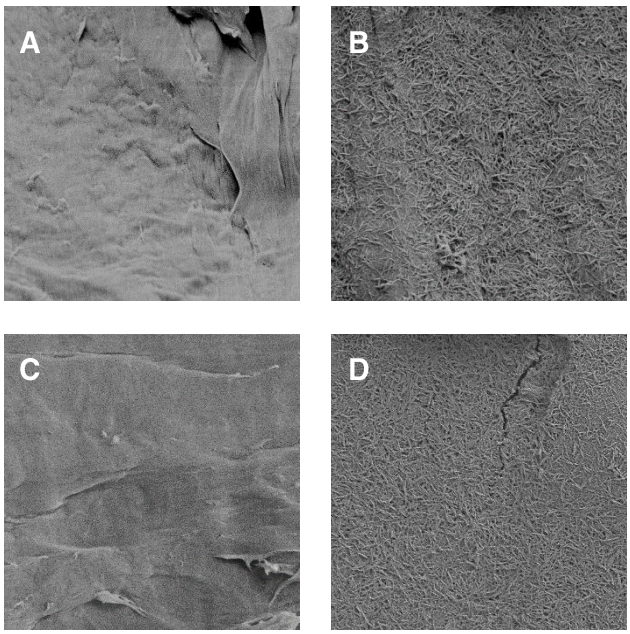


Figure 1. The unmodified PEEK surface is shown before (A) and after (C) implantation. The HA*nano* Surface modified PEEK surface is shown before (B) and after (D) implantation. As can be seen HA*nano* Surface is not affected by insertion in Sawbones.

Figure 2. The unmodified titanium surface is shown before (A) and after (C) implantation. The HA*nano* Surface modified titanium surface is shown before (B) and after (D) implantation. The images show that there is still a homogenous layer of hydroxyapatite crystals covering the surface after the implant has been removed from the bone model.



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