



matrix[®]
SCIENTIFIC
WHITE-
PAPER

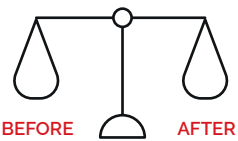
Evaluation of the wear between **matrix[®]** titanium implants and directly screw-retained zirconia crowns.

Study executed by renowned and independent lab RMS foundation.

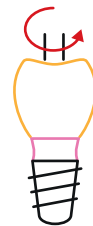


Study Set-up:

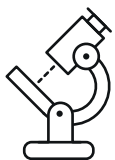
This study addresses the question of wear in the interface between the **matrix[®]** titanium implant and the zirconia crown. The wear and ageing of the connection is also compared between titanium-zirconia and titanium—titanium **matrix[®]** configurations. Three assemblies Ti-Zr and Ti-Ti go through an ageing simulation according to ISO 14801:2016. The load is 218N, number of cycles is 2m and the frequency is 2 Hz.



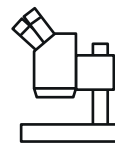
GRAVIMETRY
No weight loss and therefore no wear was measured.



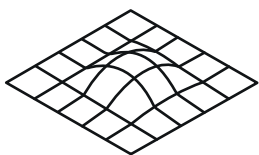
RELEASE TORQUE
Release torque remained at original 35 Ncm.



BIFOCAL MICROSCOPY
All components remained impeccable after patient lifetime simulation.



SCAN ELECTRON MICROSCOPY
No wear observed even with highest magnifications.



SURFACE TOPOGRAPHY
Surface topography remains unchanged.



CUT POLISHED IMAGES
All interfaces remain impeccable.



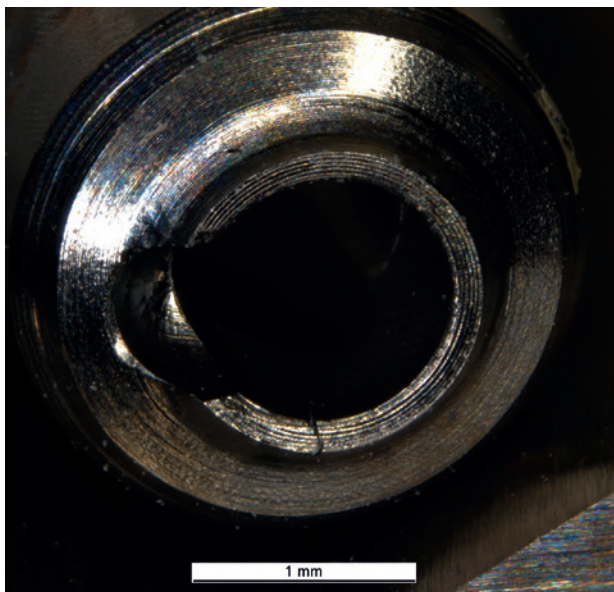
CONCLUSION:

NO WEAR BETWEEN **matrix[®] TITANIUM IMPLANTS AND ZIRCONIA CROWNS**

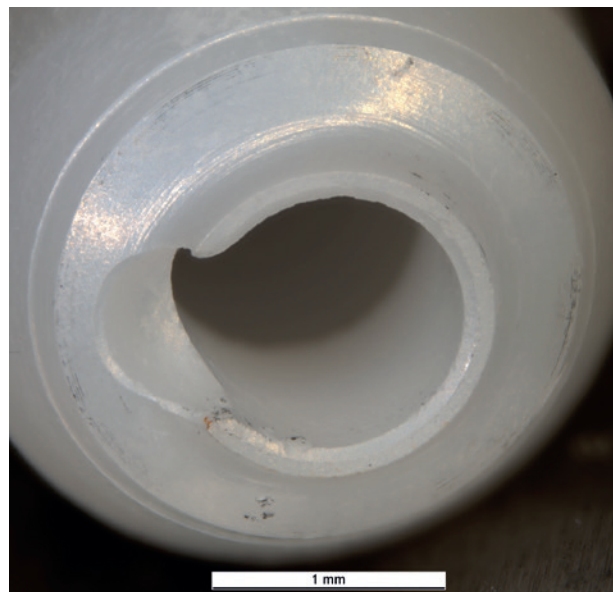
- ✗ A vast amount of different scientific analysis has been performed on the **matrix[®]** connection after 2m cycles fatigue testing that represents a patient's lifetime simulation.
- ✗ No wear has occurred both with titanium-titanium as well as with titanium-zirconia assemblies
- ✗ Interfaces both on implant, screw and crown remained impeccable.

STUDY GALLERY

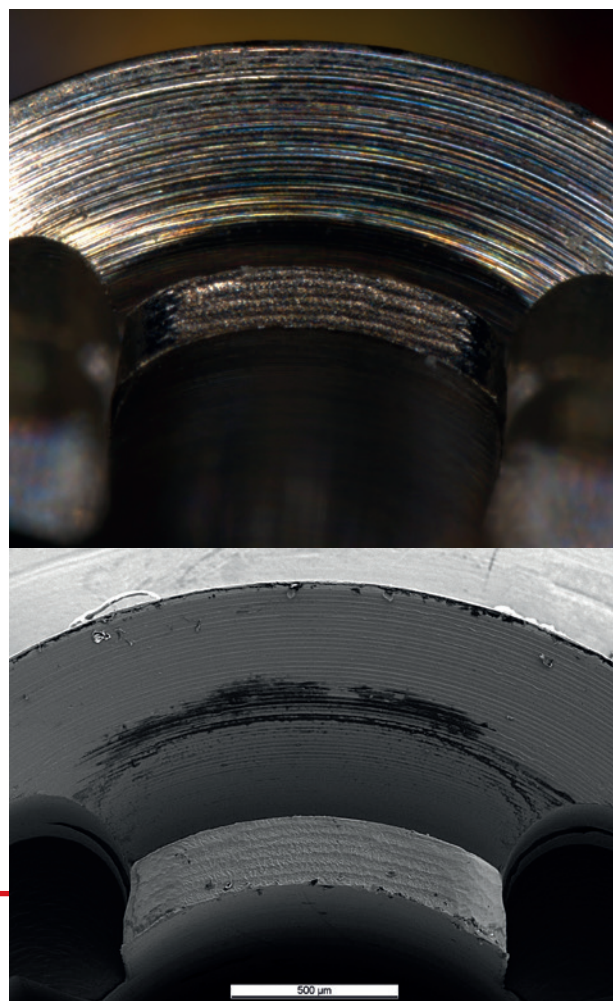
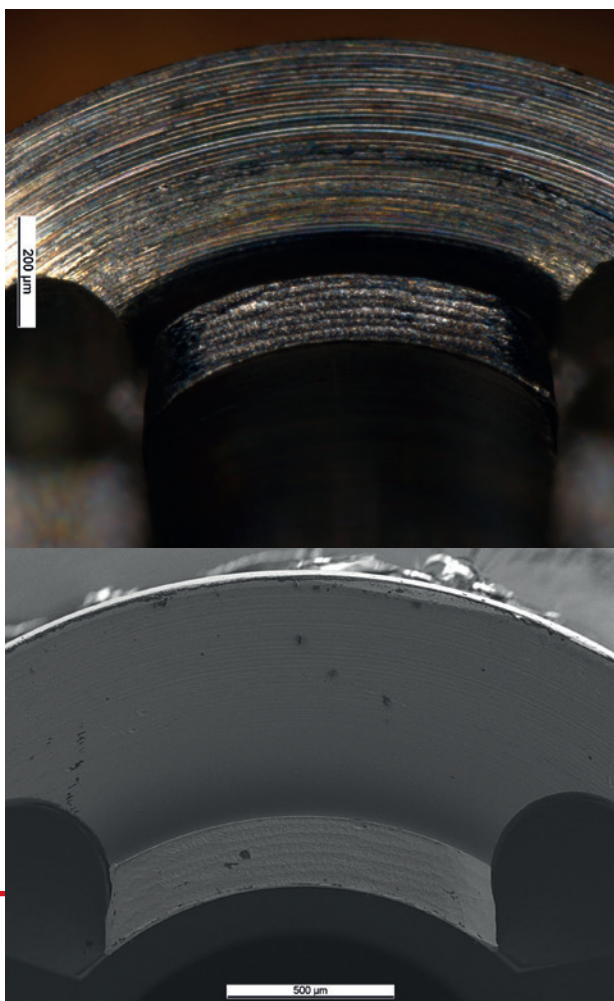
Titanium-Titanium



Titanium-Zirconia



Impeccable titanium and zirconia **matrix**[®] crown interfaces after patient's lifetime simulation.



Impeccable **matrix**[®] implant interfaces, connected both to titanium as well as zirconia **matrix**[®] crowns, after patient's lifetime simulation. Documented by bi-focal microscopy and scan electron microscopy.