The technology developed to facilitate your work and enhance clinical results. Like you, we live to give people new reasons to smile. To achieve this goal, we are always investing in research and innovation. As a result of this work, we developed the Acqua hydrophilic surface physical-chemical technology. Designed to deliver a better result in low density bone treatments.
Wettability is an important component to the accessibility of an implant surface for aqueous biologic liquids like blood. Wettability plays a role that is especially clear when the interactions between hydrophilicity and characteristics like topographical and roughness are considered.\(^1\)

The wettability characteristic is assessed by the contact angle of a drop of liquid on the surface of the implant.\(^1,2\)

Acqua: the innovative surface featuring a physical-chemical activation.

If you compare hydrophobic and hydrophilic surfaces, a differentiated cascade of initial interfacial stresses is expected.\(^3\)

How is Acqua’s surface hydrophilicity obtained?

The titanium oxide layer over an implant surface is usually electronegative. The consequences of this particular characteristic is to reduce the contact between implant surface and blood, that is also electronegative. Hydrophilic-surfaced implants are characterized by the titanium oxide electro-positivity layer.

The physical-chemical activation of the Acqua surface changes the negatively charged surface into positive, attracting ions from the blood improving the contact as proved in in vitro studies.\(^1,3\)
In vitro analyses have shown that the surface chemical activation and the microtopography contribute to the performance of the implant surface. These characteristics are microscopically controlled by state-of-the-art equipment which characterize the appropriate roughness levels for successful osseointegration.

An innovative surface designed for successful osseointegration.\(^{(4,5)}\)
Higher bone to implant contact and acceleration of the bone regeneration.⁷

Hydrophilicity results in increased contact between the proteins in blood and the implant, making the beginning of the bone regeneration process effective.⁴⁻⁷

Pre-clinical study⁷ in rabbit tibiae performed with Acqua implants suggests improved BIC of 52,8% in 28 days of osseointegration compared to hydrophobic surface implants.

Bone regeneration in association with biomaterials.⁵

A reduced bone bed may result in a fenestration around newly placed implants, resulting in exposed threads and the need to use graft materials for augmentation.

Using implants featuring the Acqua surface treatment in these critical situations may result in the increase of bone apposition, and further increase in BIC, when compared to hydrophobic surfaces.⁵⁰

Hydrophilicity results in increased contact between the proteins in blood and the implant, making the beginning of the bone regeneration process effective.⁴⁻⁷

Histomorphometric analysis of the hydrophilic surface after 28 days in pre-clinical studies in rabbit tibiae.

Histomorphometric analysis of the hydrophobic surface after 28 days in pre-clinical studies in rabbit tibiae.

A histomorphometric study showing bone neoformation around the xenograf⁵⁰.
The quality and confidence of the Neodent implant designs now featuring the Acqua surface. Acqua implants feature both a hydrophilic surface and microtopography designed to provide higher confidence in your clinical outcomes.

Acqua: reliability and confidence in your hands

Recommended uses for Acqua surface implants

- Type III & IV bone
- Post-extraction
- Grafted areas

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