



# SURFACE CONCEPT EVOLUTION

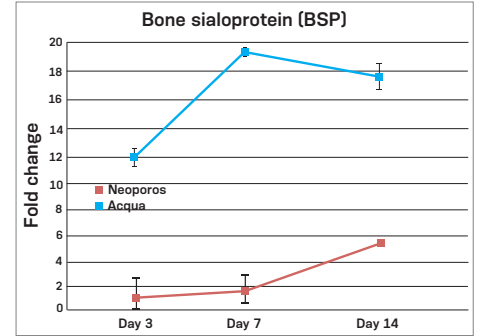
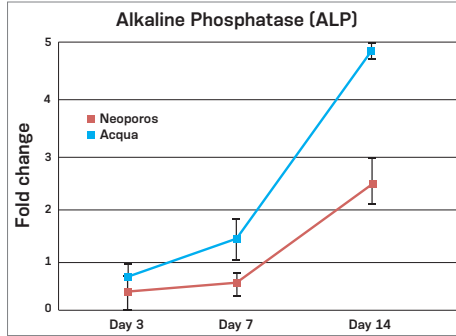
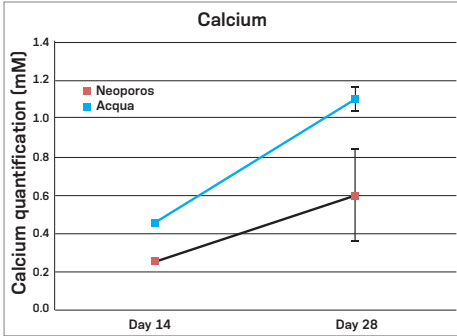


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# NEODENT® ACQUA SCIENTIFIC DATA



Acqua surface was able to better induce the differentiation of hMSCs into osteoblasts compared to the Neoporos surface - **Acqua induces cell differentiation**



## Material & Methods:

- Commercially pure grade IV titanium disks
- Cell culture: Human Mesenchymal Stem Cells (hMSCs)
  - Cell viability and proliferation
  - Alkaline phosphatase activity
  - Calcium Assay
  - RT-PCR

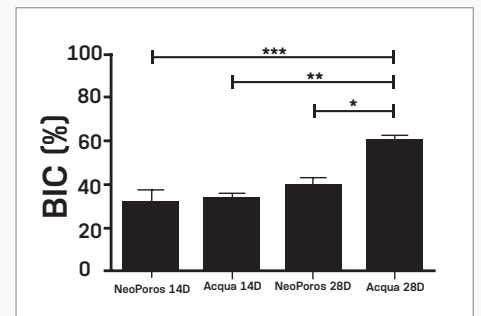
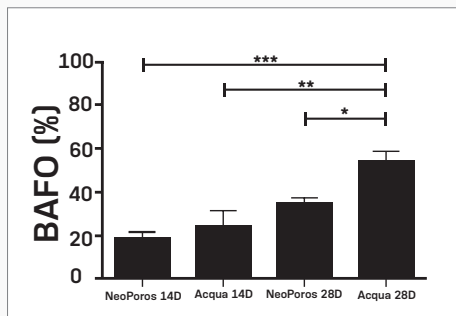
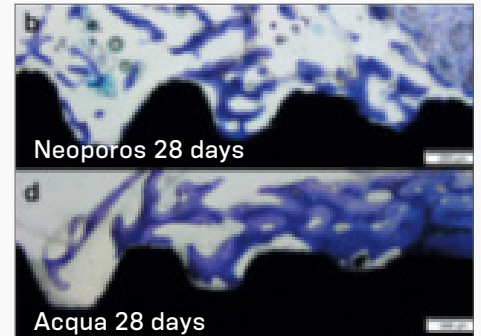
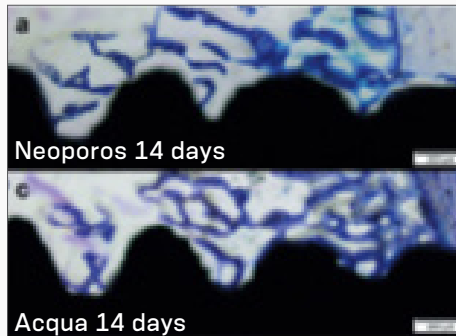
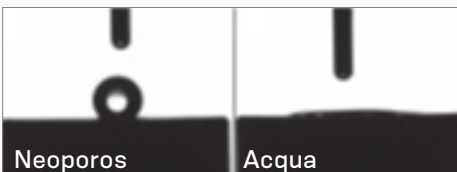
## Results & Conclusion:

Both surfaces were able to modulate hMSCs responses toward osteoblast differentiation. Increased expression of genes related to the process of osteogenic differentiation as well as increased alkaline phosphatase activity and calcium content was observed for Acqua surface.

Mendonça G, Mendonça DBS, Oliveira LS, Araújo CA. Effect of hydrophilic implant surfaces on differentiation of human mesenchymal stem cells. *ImplantNews* 2013;10(6a-PBA)



The surface chemistry and wettability of implants accelerate osseointegration and increase the area of the bone-to-implant interface in rabbit tibia - **Acqua accelerated bone to implant contact**



## Material & Methods:

- 40 dental implants
- Histomorphoetric evaluation:
  - 7, 14, 21 and 28 days post-implantation

## Results & Conclusion:

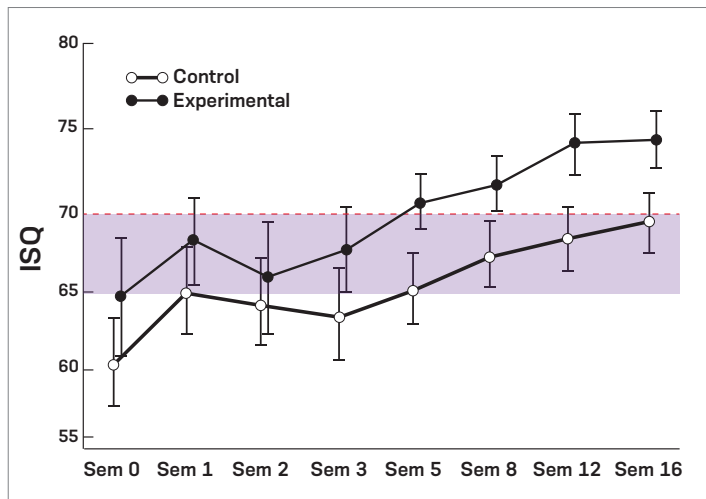
The surface chemistry and wettability of Acqua implants accelerated the implants' osseointegration and increased their bone-to-implant interface relative to the findings obtained for Neoporos implants.

Sartoretto SC, Alves AT, Resende RF, Calasans-Maia J, Granjeiro JM, Calasans-Maia MD. Early osseointegration driven by the surface chemistry and wettability of dental implants. *J Appl Oral Sci.* 2015 May-Jun;23(3):279-87. doi: 10.1590/1678-775720140483.

# NEODENT® ACQUA SCIENTIFIC DATA



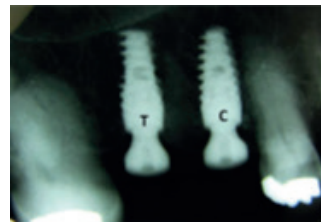
Implants with hydrophilic surface integrate faster than implants with sandblasted acid-etched surface, as suggested by a clinical study.<sup>3</sup>



**Aim:** The aim of this randomized clinical trial was to statistically compare the implant stability quotient (ISQ) results obtained by implants of the same design, length, and diameter with Neoporos and Acqua surfaces placed at the posterior area of the maxilla within the initial 16 weeks of follow-up.

#### Material & Methods:

- 21 patients, 64 implants
- Posterior maxilla (premolar and molar)
- No prosthetic procedure before 16 weeks
- Resonance frequency measurements (ISQ, Osstell) and clinical assessment : Immediate post-surgical to 16 weeks evaluation



## References

- 1 Rupp F, Scheideler L, Eichler M, Geis-Gerstorfer J. Wetting behavior of dental implants. Int J Oral Maxillofac Implants. 2011 Nov-Dec; 26(6):1256-66.
- 2 Bico J, Thiele U, Quéré D. Wetting of textured surfaces. Collids and Surfaces. A: Physicochemical and Engineering Aspects 206 (2002) 41-46.
- 3 Novellino MM, Sesma N, Zanardi PR, Laganá DC. Resonance frequency analysis of dental implants placed at the posterior maxilla varying the surface treatment only: A randomized clinical trial. Clin Implant Dent Relat Res. 2017 Oct;19(5):770-775. doi: 10.1111/cid.12510

**Results & Conclusion:** The stability gain of implants with hydrophilic surface (Acqua) was 2.24 times faster than the group with the Neoporos surfaces

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