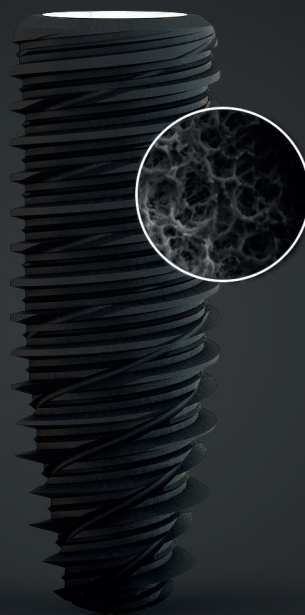


# Kontakt™ N

New nanostructured  
surface

improves osseointegration  
and reduces treatment times



BIOTECH DENTAL



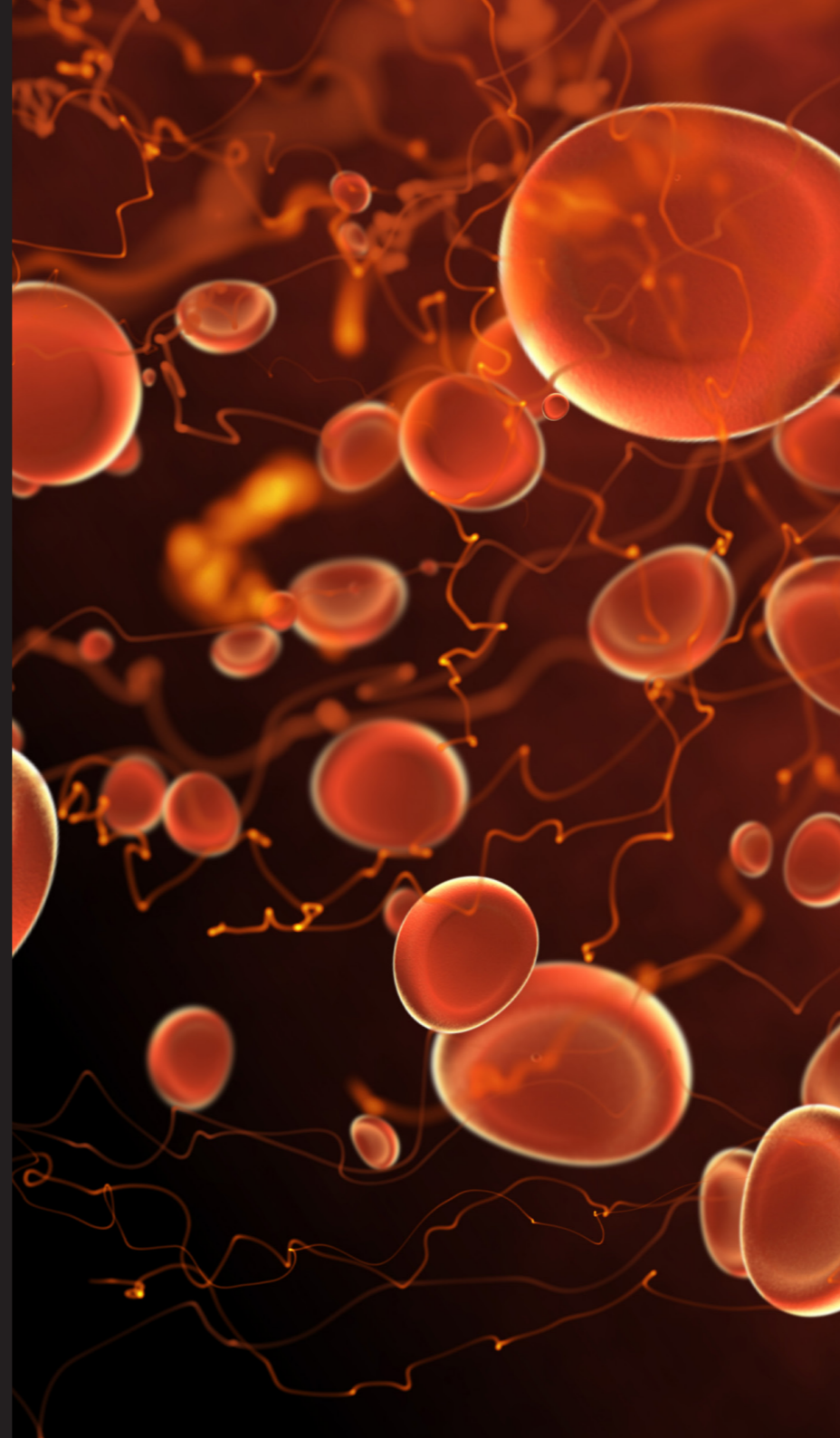
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## A FASTER TREATMENT FOR YOUR PATIENTS

The nanostructured surface of the Kontakt™ N implant was developed to allow:

- **The acceleration** of osseointegration (via an increase in wettability),
- **Decrease** of the average marginal bone loss **and thus promoting secondary implant stability**,
- **Early or immediate loading** without compromising osseointegration.



- Primary stability (preexisting bone)
- ..... Secondary stability (neoformed bone)
- ← Nanostructured hydrophilic implant

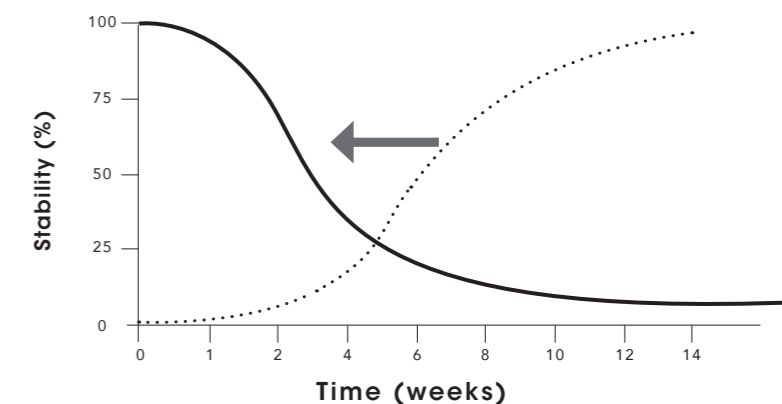


Diagram of the progressive decrease in the primary anchor (mechanical) and the gradual increase in secondary stability (biological) during the osseointegration process.

At the beginning of the healing phase, the primary stability (black line), purely mechanical, is responsible for the immobility of the implant<sup>1</sup>. Gradually, secondary stability (dotted line) is obtained by a neobone apposition in direct contact with the implant. This biological stability is accelerated in the presence of a highly nanostructured hydrophilic implant surface<sup>2</sup>.

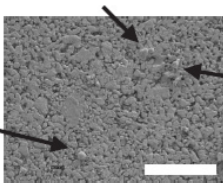
# 2

## NANOSTRUCTURED SURFACE

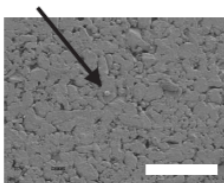
highly hydrophilic for adhesion and proliferation of osteoblasts

A nanostructured material is a material with size structures ranging between 1 and 100 nm. A surface is nanostructured if it has nanoscale roughness characterized by the presence of repetitive dimensions <1µm.

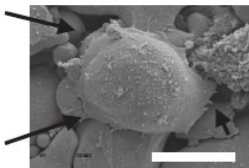
The nanostructured surface is an element conducive to increased adhesion of osteoblasts compared to conventional surfaces<sup>3</sup>.



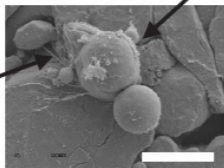
(a)  
Low magnification:  
osteoblasts on the  
nanostructured Ti6Al4V  
titanium alloy surface



(b)  
Low magnification:  
osteoblasts on the  
conventional Ti6Al4V  
titanium alloy surface

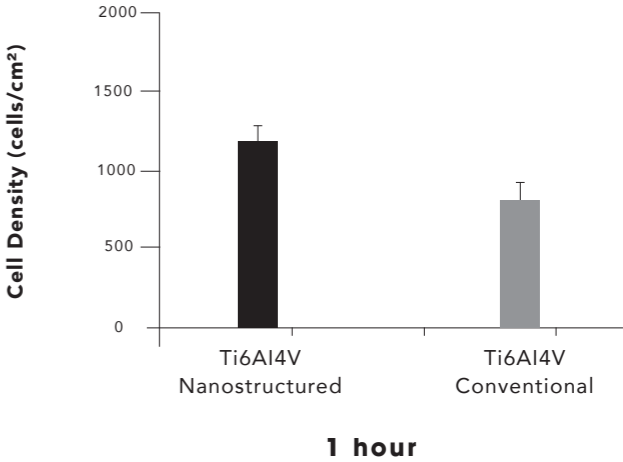
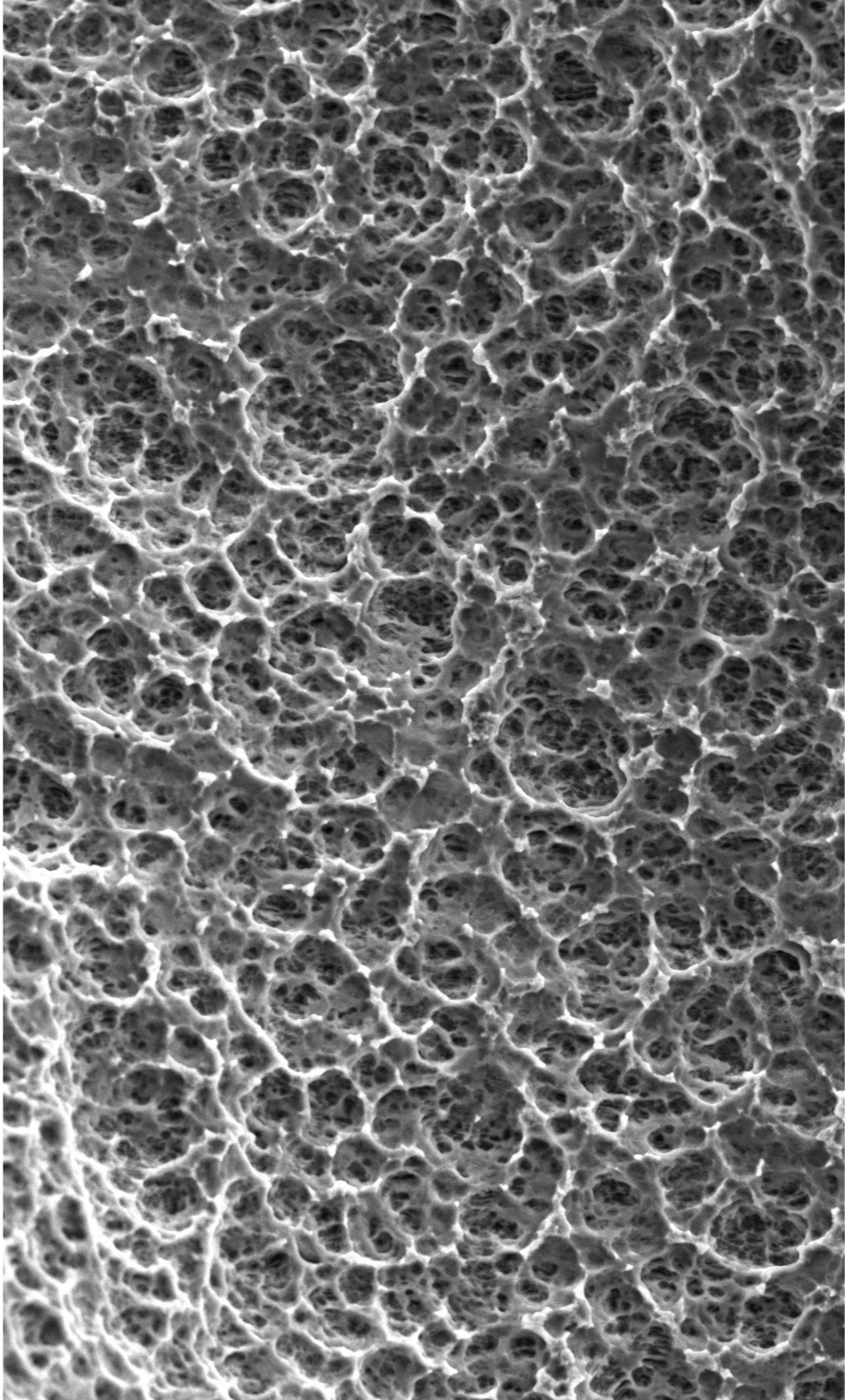


(c)  
High magnification:  
osteoblasts on the  
nanostructured Ti6Al4V  
titanium alloy surface

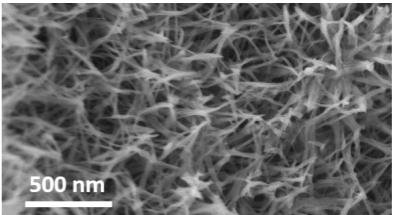
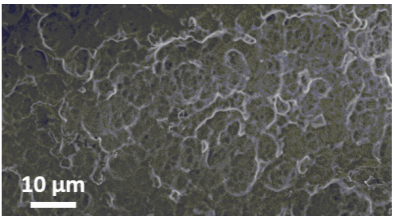
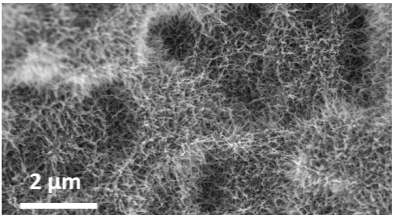


(d)  
High magnification:  
osteoblasts on the  
conventional Ti6Al4V  
titanium alloy surface

Osteoblasts observed using a scanning electron microscope on Ti6Al4V titanium alloy pellets with nanostructured and conventional surfaces. Adhesion time = 1 h (Webster & al. 2014)<sup>3</sup>.



Augmentation de l’adhésion des ostéoblastes sur l’état de surface nanostructuré en Titane Ti6Al4V comparé à l’état de surface conventionnel en Titane Ti6Al4V (temps d’adhésion = 1h), (Webster & al. 2014)<sup>3</sup>.



Kontakt™ N implant surface treatment with nanostructures (Scanning Electron Microscopy)<sup>2</sup>.

# 3

## HIGHLY HYDROPHILIC SURFACE

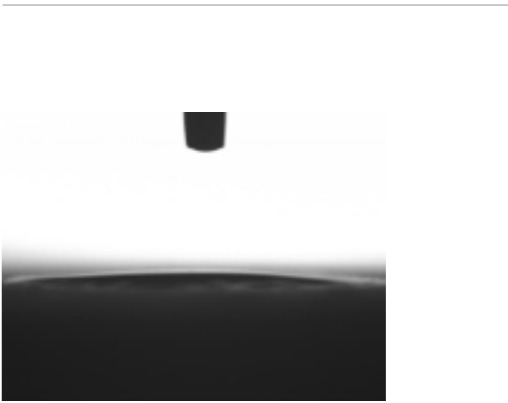
**The wettability of the surface** plays a significant role in optimizing the bone / implant contact. Highly hydrophilic surfaces are more favorable than hydrophobic surfaces concerning the interactions with biological fluids, cells and tissues perspectives<sup>4,5,6</sup>.

The Kontakt™ N implant is characterized by a highly hydrophilic nanostructured surface: **in favor of bone remineralization.**



**Contact angle measurements were performed** on the pellets with the Kontakt™ N surface treatment.

**The values obtained were all less than 10° and show a highly hydrophilic Kontakt™ N surface according to the recommendations of standard EN 828.**



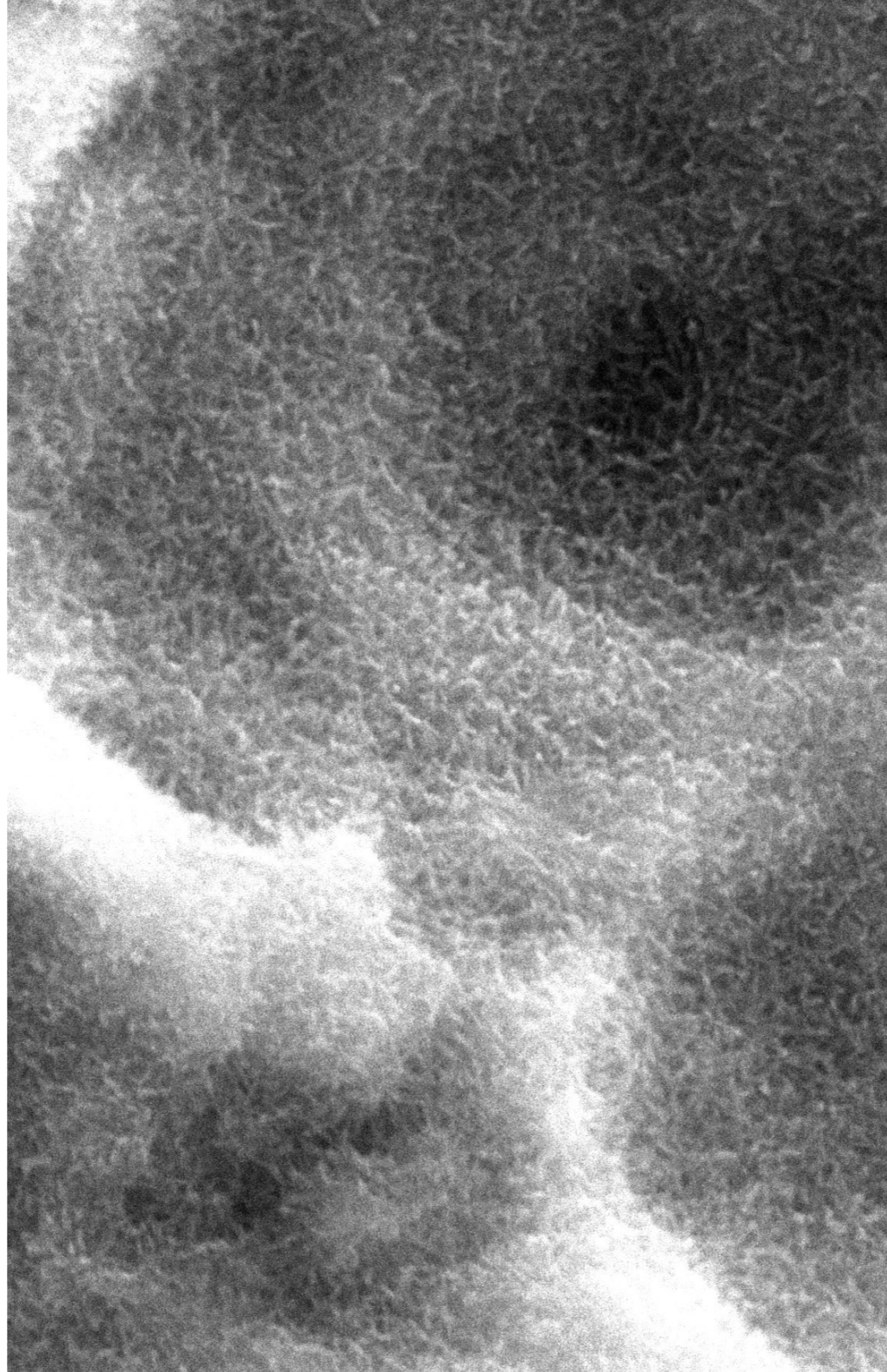
Wetting liquid mimics the properties of blood

**Angle de contact < 10°**

# 4

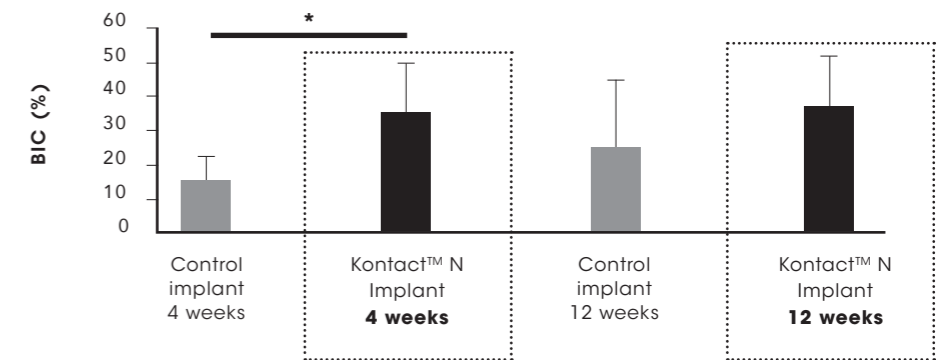
## IMPROVEMENT AND ACCELERATION OF OSSEOINTEGRATION

A preclinical study<sup>2</sup> on 6 Yucatan miniature pigs was performed to assess osseointegration (BIC %: bone / implant contact) at 4 and 12 weeks postimplantation for Kontakt™ N implant (implant test) with titanium grade V micro-rough / nanostructured surface dental versus implant with titanium grade V micro-rough / non-nanostructured surface.



The study demonstrates a higher BIC (% bone / implant contact) for Kontakt™ N implants than for control implants at 4 and 12 weeks:

statistically significant difference in the total BIC value (i.e. in the mandible and maxilla) ( $p < 0.05$ ) between the control implants and Kontakt™ N implants at 4 weeks post-implantation.

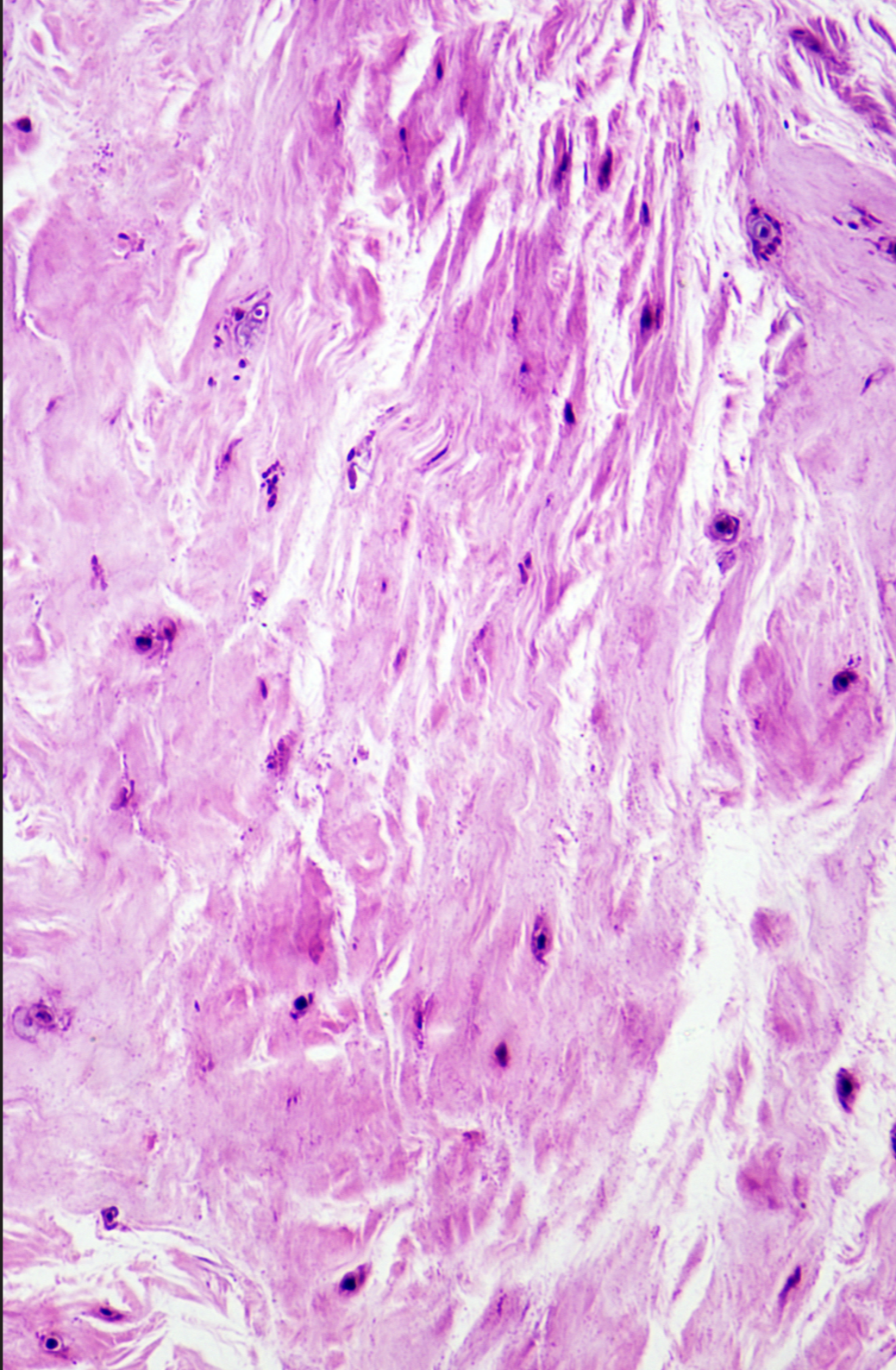


Percentage of bone / implant contact (BIC) of the control group versus test group at 4 and 12 weeks (\*  $p < 0.05$ ).

# HISTOLOGICAL STAINING

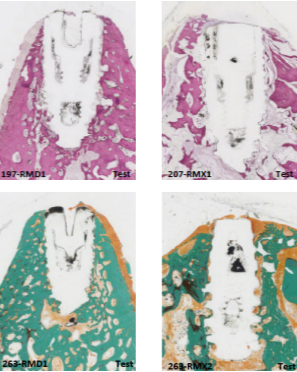
Histological staining (HES and Masson’s Trichrome, 1.5x magnification) confirmed a proper osseointegration of the Kontakt™ N implant after 4 and 12 weeks.

Opposite: 2 histological images of Kontakt™ N implants inserted in the mandible and maxilla of miniature pigs pendant 4 and 12 weeks.



## 4 WEEKS

Mandibule      Maxilla

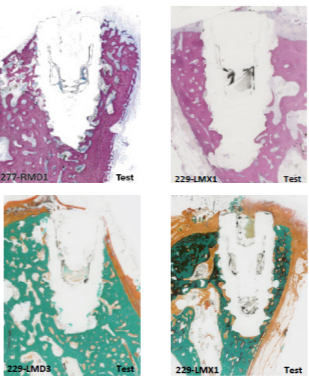


HES histological staining on 2 Kontakt™ N samples at 4 weeks post-implantation highlighting the presence of bone tissue (pink) in contact with the implants.

Masson’s trichrome staining on 2 Kontakt™ N samples at 4 weeks post-implantation highlighting the presence of bone mineralization (green) in contact with the implants.

## 12 WEEKS

Mandibule      Maxilla



HES histological staining on 2 Kontakt™ N samples at 12 weeks post-implantation highlighting the presence of bone tissue (pink) in contact with the implants.

Masson’s trichrome staining on 2 Kontakt™ N samples at 12 weeks post-implantation highlighting the presence of bone mineralization (green) in contact with the implants.

# 6

## A COMPLETE AND RELIABLE IMPLANT RANGE

for predictable and esthetic results



### AN EFFICIENT IMPLANT DESIGN

- **Cylindro-conical profile:** gradual bone condensation ensures better primary stability.
- **Surface Increaser:** the secondary thread increases the developed surface-area and promotes distribution of pressure on the immediate bone environment.
- **Constant Leaf :** the continuous sharp wings over the entire length of the implant optimize stability, reducing the bone insertion effort.
- **Chamfered and micro-structured implant neck:** the advanced chamfer design holds sufficient coagulum to enable bone construction which reinforces peri-implant soft tissue by creating an additional surface.
- **Atraumatic spherical apex** protects anatomical structure during surgery.



## THE APPROPRIATE MATERIAL AND IMPLANT SURFACE

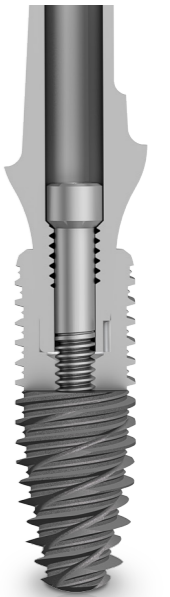
**Medical Titanium Alloy** - grade V with nanostructured (with dimensions  $< 1 \mu\text{m}$ ), micro-rough ( $R_a=1-2 \mu\text{m}$ ) and hydrophilic (angle of contact  $<10^\circ$ ) surface treatment that confer optimal wettability favorable to the adhesion of osteogenic cells for faster osseointegration.

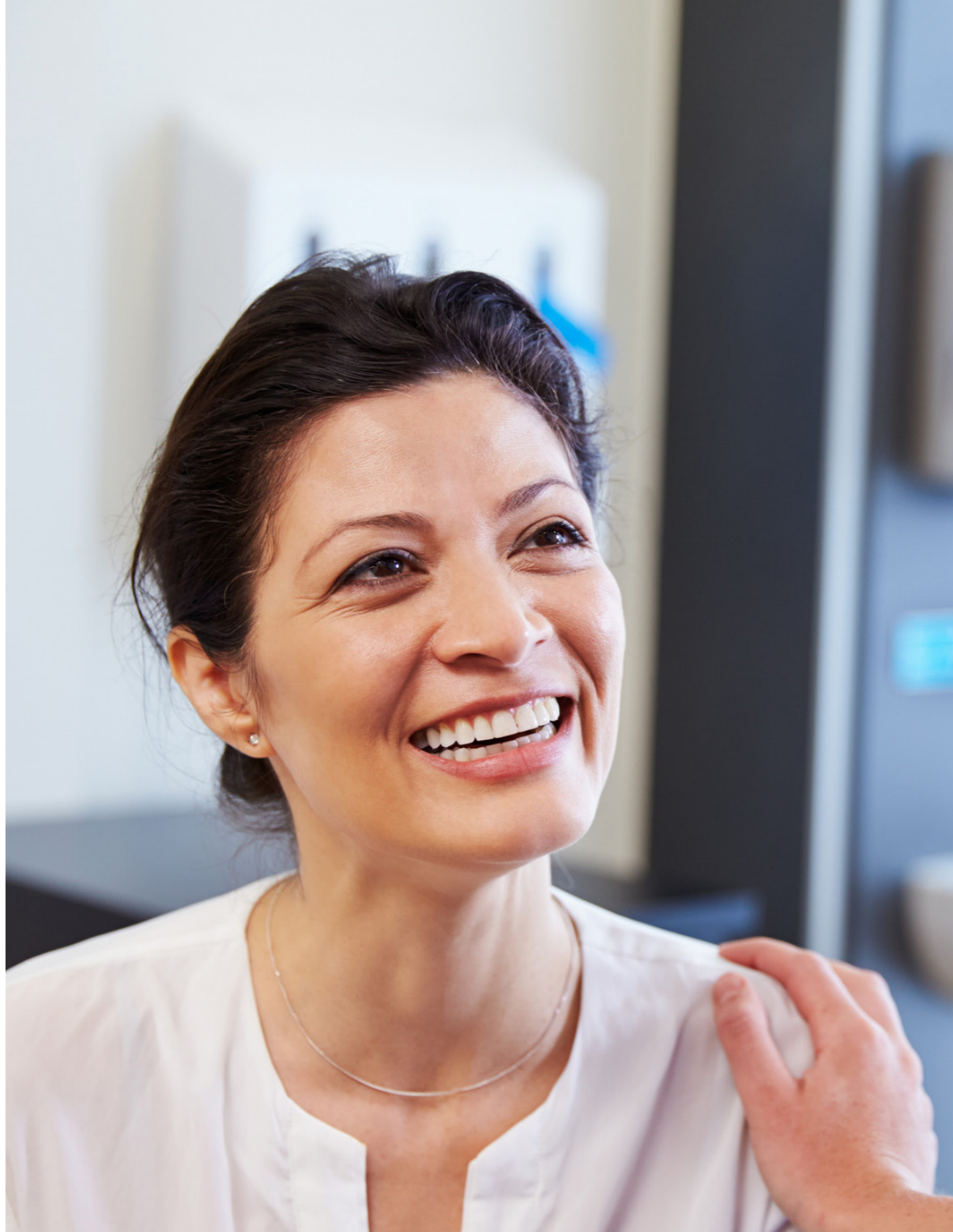
## OPTIMAL CONNECTION

**Morse-Taper connection ( $10^\circ$ ):** bacterial sealing and perfect implant-abutment adjustment, eliminate micro-movements. It strengthens the mechanical resistance of the implantabutment torque.

**STSystem indexation:** patented Morse-Taper connection presenting six positions in the implant and three in the abutment. Easy insertion of the abutment enables intuitive, fast and reliable repositioning of the prosthetic components.

Same connection as the Kontakt™ implant





## A WIDE RANGE OF PROSTHETIC SOLUTIONS

- **Single and multi-unit rehabilitation:** cement-retained, screw-retained, telescopic.
- **Stabilization of the prosthesis** with a line of Locators® and Iso-Post abutments.
- **Custom-made abutments** with a line of TiBases and Scanbodies as well as our specialized CAD/CAM machining center.



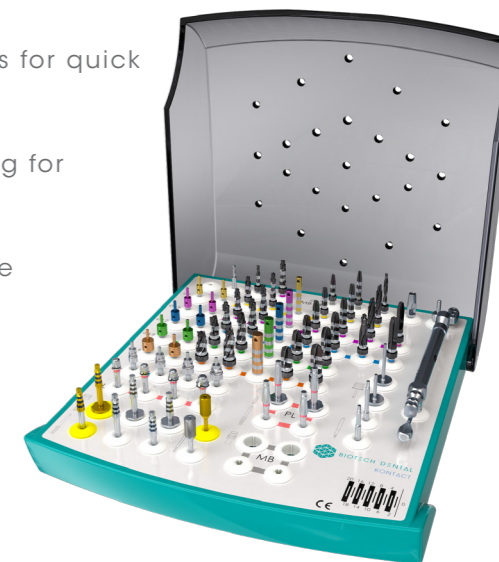
## LONG-LASTING AESTHETIC RESULTS FOR YOUR PATIENTS

- **Platform-Switching** promotes peri-implant bone and gum tissue stability<sup>7,8,9</sup> and enhances **aesthetic results**.
- **The concave profile** of the healing screws in various diameters creates an emergence profile that is perfectly suited to the tooth being replaced.
- **The 2 mm subcrestal position increases and consolidates the volume of peri-implant tissue**<sup>10,11,12</sup> which, by forming mucosal domes, promotes the preservation and formation of papilla for lasting aesthetic results.




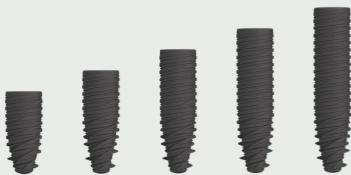



## A SINGLE KIT FOR ALL KONTACT™ IMPLANTS

- **Compact** for optimal storage.
- **Readable** thanks to colour markings for quick identification of instruments.
- **Practical** with fast and easy opening for instrument access.
- **Fully disassemblable** for a complete autoclavable cleaning.



## PRACTICAL AND EFFECTIVE TOOLS FOR A SUCCESSFUL SURGERY

- **Drills and reamers** protected by an innovative and patented **PVD coating**.
- **Reduced** heating of the drill during cutting.
- **Protection** against oxidation.
- **Increased cutting quality** and delayed wear.
- **More distinct marking:** enhances visibility and provides a better assessment of the drilling depth.

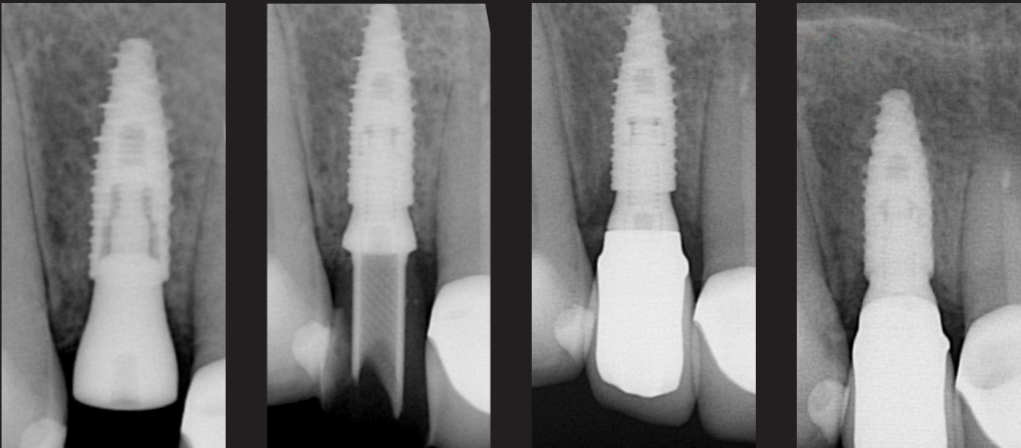
	Reference	Diameter	Length
	K3010N	Ø 3 mm	10 mm
	K3012N		12 mm
	K3014N		14 mm
	K3608N	Ø 3.6 mm	8 mm
	K3610N		10 mm
	K3612N		12 mm
	K3614N		14 mm
	K3616N		16 mm
	K4206N	Ø 4.2 mm	6 mm
	K4208N		8 mm
	K4210N		10 mm
	K4212N		12 mm
	K4214N		14 mm
	K4216N		16 mm
	K4806N	Ø 4.8 mm	6 mm
	K4808N		8 mm
	K4810N		10 mm
	K4812N		12 mm
	K4814N		14 mm
	K5406N	Ø 5.4 mm	6 mm
	K5408N		8 mm
	K5410N		10 mm
	K5412N		12 mm
	K5414N		14 mm

# 7

## CAS CLINIQUES

### 1 - Case reported by Dr. Jean-Francois THIBault (France)

Site No. 12 restored with a K3610N implant positioned subcrestally (2 mm) in a recently edentulous site following a cavity. A 1- step surgical technique with early provisional loading.

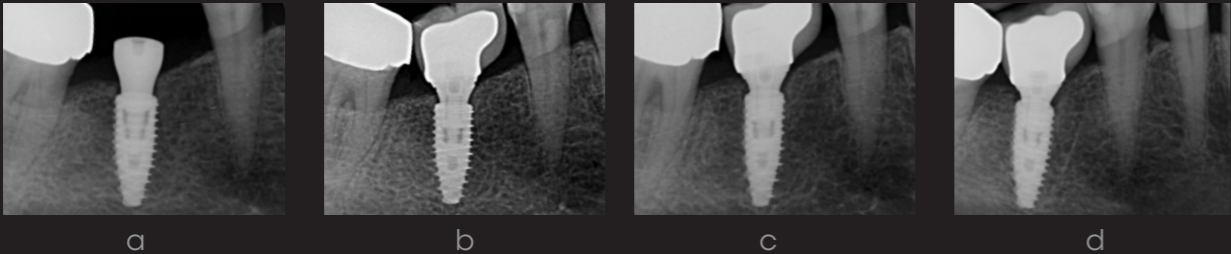


- (a) Postoperative retroalveolar.
- (b) Provisional loading in the 7 days following implantation.
- (c) Final loading in the 56 days following implantation.
- (d) Retroalveolar at 6 months following implantation.

2 - Case reported by Dr. Michel LAYET (France)

Site No. 46 restored with a K4210N implant positioned subcrestally (1 mm) in a formerly edentulous site (>6 months) following a cavity.

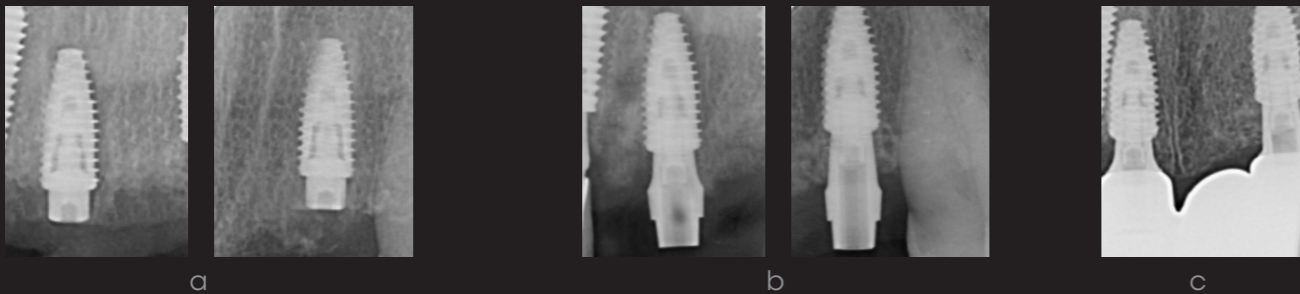
A 1-step surgical technique using the Iso-Post prosthetic system by Biotech Dental.



(a) Postoperative retroalveolar.  
(b) Retroalveolar during final loading at 59 days following implantation showing a 1mm supracrestal bone regrowth.  
(c) Retroalveolar at 4 months following implantation showing a 2 mm crestal bone regrowth.  
(d) Retroalveolar at 6 months following implantation.

Sites No. 11 and No. 22 restored with two K4210N implants positioned subcrestally (2 mm) in recently edentulous sites (<6 months) following a periodontal disease.

A 2-step surgical technique using the Iso-Post prosthetic system by Biotech Dental.

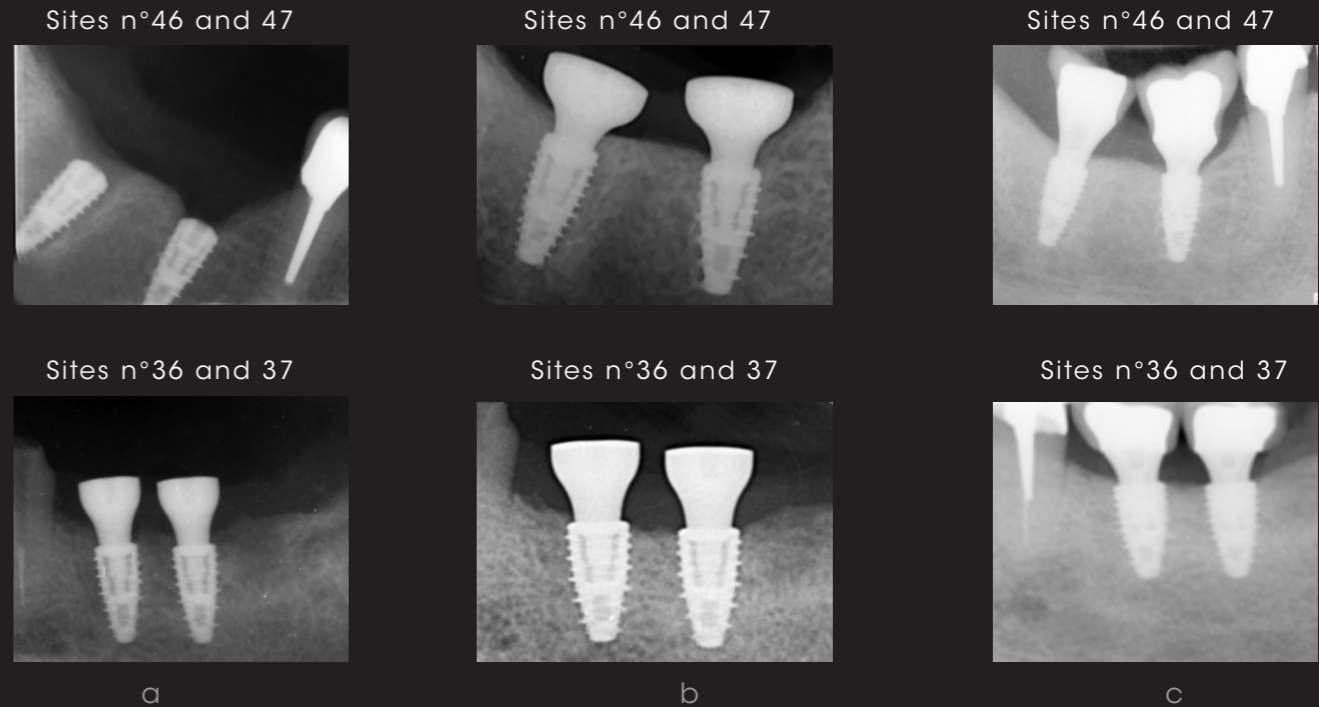


(a) Postoperative retroalveolar.  
(b) Deferred povisional loading at 68 days post-implantation showing a significant supracrestal bone regrowth.  
(c) Retroalveolar at 6 months following implantation.

3 - Case reported by Dr. Bertrand ROUSSELET (France)

Sites No. 36, 37, 46, 47 restored with 4 K4208N implants positioned subcrestally (0.5mm) in recently edentulous sites as a result of cavities.

A 1-step surgical technique with deferred loading for sites No. 36 and 37 and a 2-step surgical technique for sites No. 46 and 47.

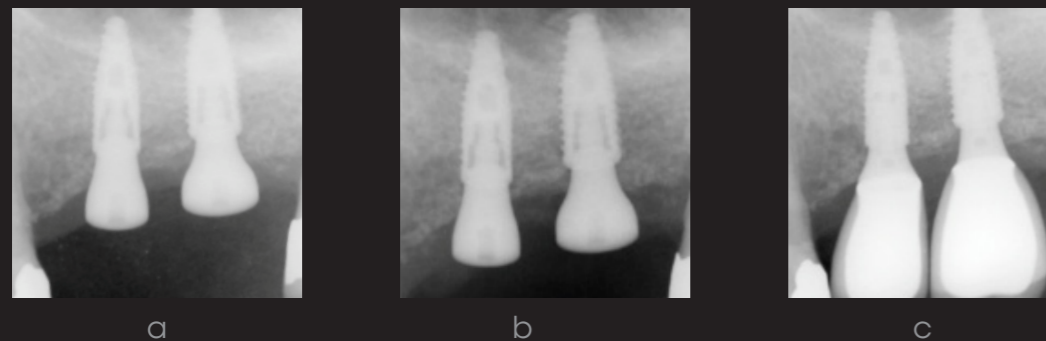


(a) Postoperative retroalveolar  
(b) Retroalveolar at 2 months following implantation  
(c) Retroalveolar at 6 months following implantation

#### 4 - Case reported by Dr. Elias KHOURY (France)

Sites No. 25 and 26 restored with K3610N and K4210N implants positioned subcrestally (2 mm) in a formerly edentulous site following a periodontal disease.

A 2-step surgical technique.



(a) Postoperative retroalveolar.

(b) Retroalveolar at 2 months following implantation.

(c) Retroalveolar at 6 months following implantation showing a 2 mm supracrestal bone regrowth.

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BIOTECH DENTAL

305, Allées de Craponne  
13300 Salon-de-Provence - France

Tel.: +33 (0)4 90 44 60 60

Fax: +33 (0)4 90 44 60 61

[info@biotech-dental.com](mailto:info@biotech-dental.com)

[www.biotech-dental.com](http://www.biotech-dental.com)



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