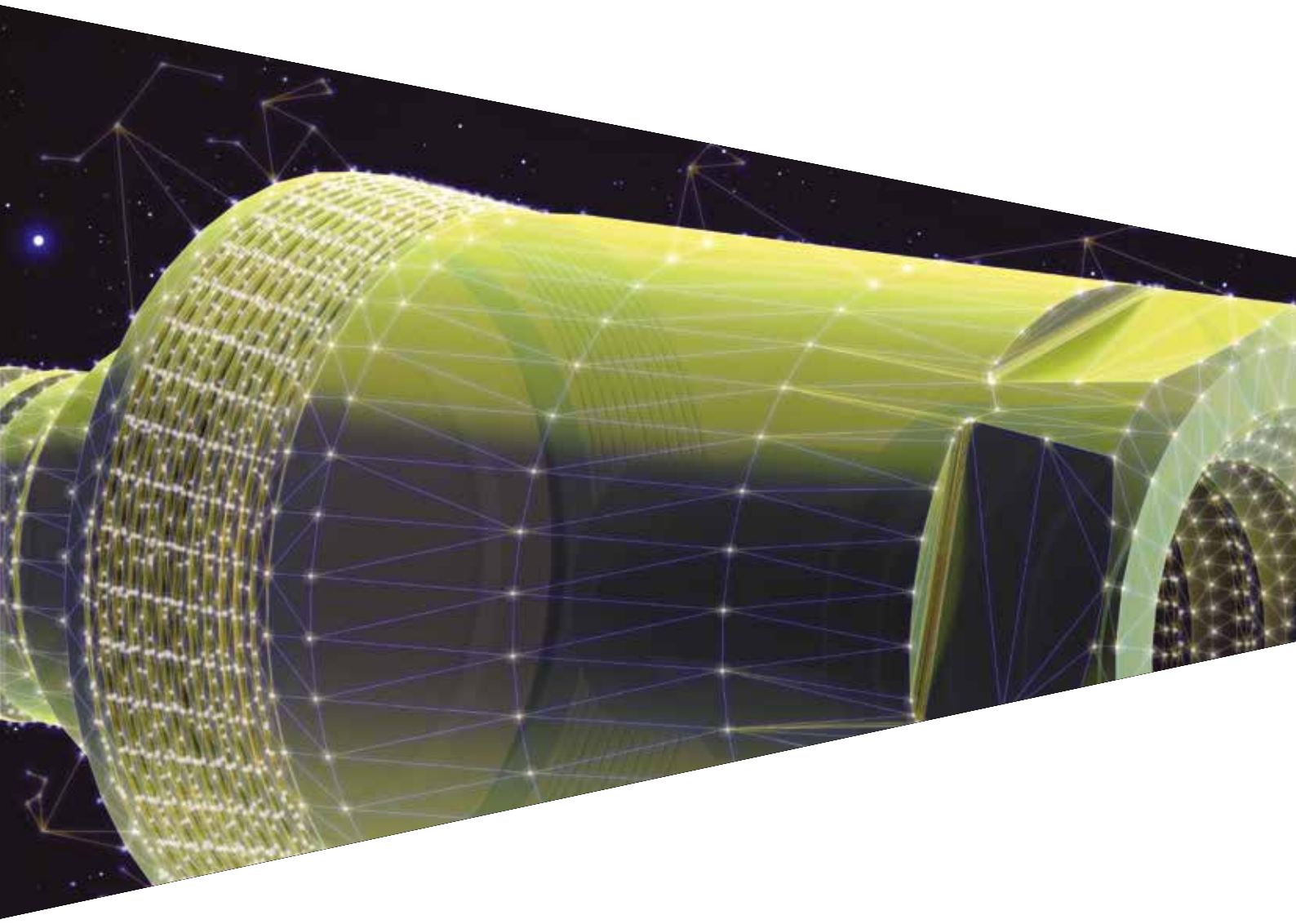
# XA Prosthesis

For SHELTA implants



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# The principles of the XA concept

The tooth crosses an epithelium and the stabilization of the soft tissues defines its survival. The **soft tissues** around the tooth are **essential to mantain its function and the bone tissue** around it. Rehabilitations on implants are submitted to the same biological concepts related to the natural tooth. In order to obtain good functionality and preserve the tissues around the rehabilitation on implants, proper stabilization of soft tissues must be reached. The connective tissue guides the other tissues: the epithelium and the bone tissue.
**XA prosthetic system** was specifically meant to **guide and thicken the connective tissue**, improving its own biotype. The space obtained among the crown, the post, the soft tissue and the bone defines an area where a major quantity of collagen will be produced, thickening the tissues and preventing the bone loss (Chamber Concept, Degidi IJPRD 2013).

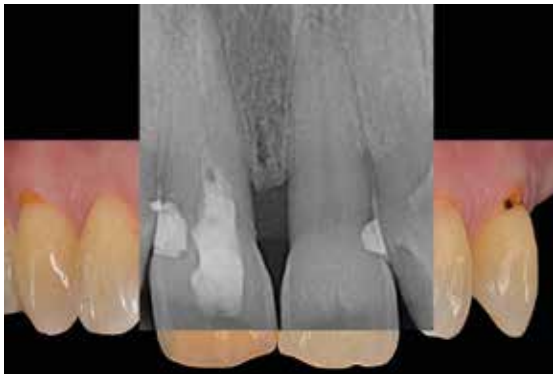
At the same time the presence of a **micro-threading** at the basis of the post **stimulates the production of collagen** (Contact Guidance Concept, Brunette IJOMI 1998 & Guillem Martí COIR 2012). The combination of the Platform Switching and the **conical structure** of the posts facilitates the **stabilization** of the circular fibers of the connective tissue at a more coronal level compared to a standard rehabilitation (Rodríguez, Vela IJOMI 2011; Rodríguez, Vela IJPRD 2016). Circular fibers stabilization is what determines a better bone level around the implant, which will improve with the passing of time. The peculiar feather-edge morphology of XA posts allows the possibility of inserting the post directly at the moment of exposure of the implant in the oral cavity, avoiding the unnecessary and noxious connections and disconnections during the prosthetic phase.
**Clinical benefits** in the use of XA posts are clear both from an aesthetic point of view, with **healthy and thick tissues**, and from the functional point of view, since the new bone tissue around the implant integrates itself permanently and **gives support and stability to the whole rehabilitation**.

# Clinical case

**By courtesy of Dr. Xavier Vela Nebot, Dr. Xavier Rodríguez Ciurana and Mr. Javier Pérez López (laboratory technician)**

The patient presents a failed of the endodontic retreatment at the incisor 1.1 and interproximal caries of the incisor 2.1. The substitution of incisor 1.1 with Shelta implant 4.25 mm and XA post for screw-retained prosthesis is planned, exploiting the micro-threading to optimize the aesthetic final result. Incisor 2.1 is rehabilitated using B.O.P.T. technique with a cap on natural post, prepared without any margin.

Frontal view: notice the gingival recession of both the incisors.

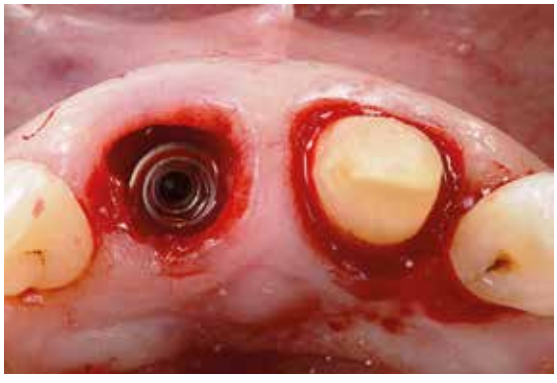


Initial case: radiographic and clinical occlusal view. The incisor 1.1 presents the failed of the endodontic retreatment, discouraging new treatments. The incisor 2.1 presents interproximal caries.

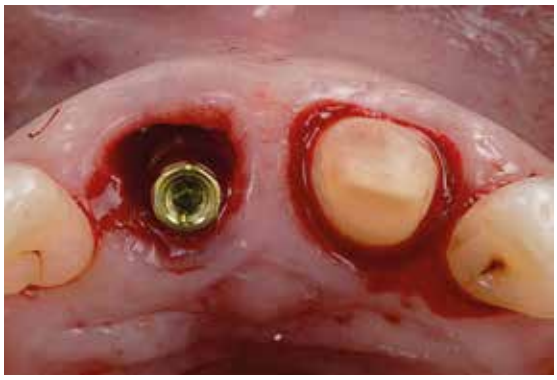
Preparation of the post on natural tooth 2.1.

Removal of the margin of the natural post with a conical incision up to the crestal bone level with the B.O.P.T. technique.

Extraction of the incisor 1.1.



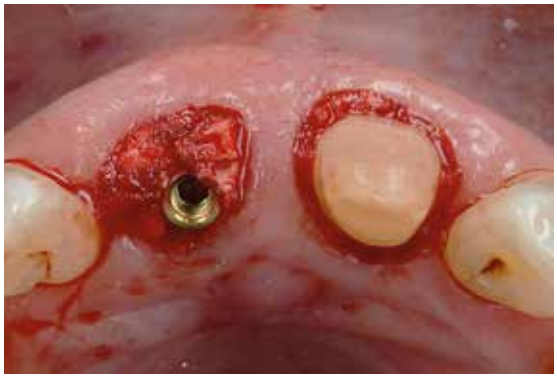
Insertion of the Shelta implant with 4.25 mm in subcrestal position, exploiting the palatal wall of the socket to obtain a favorable emergence for the realization of a screw-retained prosthesis.

Insertion of the XA post for screw-retained prosthesis: the micro-threated section remains at a subcrestal level.


Positioning of the Conoweld cap for conometric prosthesis.
Realization of a resin prosthesis incorporating the Conoweld cap and marking of the profile of the sulcus and the gingival margin.

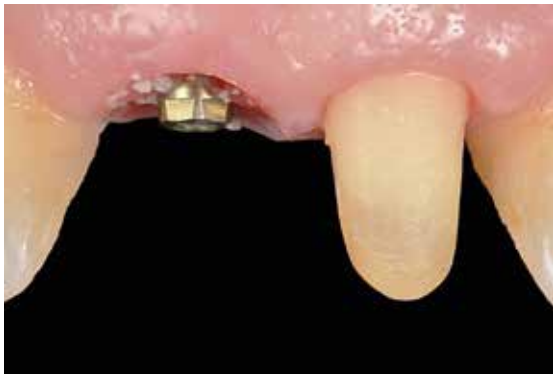

Finalization of the temporary prosthesis: vestibular and palatal profiles (mesial and distal view).

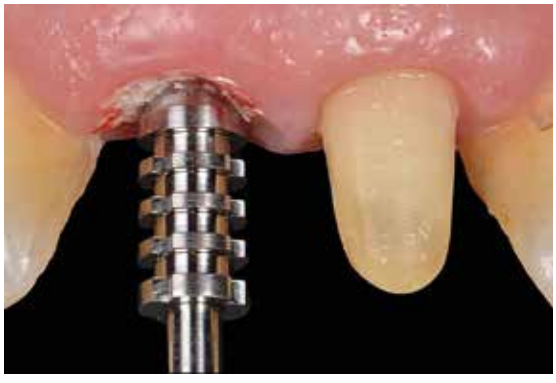
Insertion of the graft material in the soft tissues and of a collagen sponge to preserve the horizontal dimension.

Double fastening of the temporary prosthesis with chlorhexadine gel on the natural post and with the Conoweld cap on the XA post.

Follow up after 4 months: the process of the gingival stabilization is promoted by the conical profiles of both the rehabilitations. The formation of the papilla is started, which is occupying progressively the space between the two crowns.



Detail of the healing of the tissues, where it can be noticed a unidirectional cells' replacement flow up to the coronal part. This phenomenon is the result of the change of the rehabilitation and it will gradually throw the surplus graft material out of the soft tissue.



Taking the impression on the XA post with its transfer, which avoids the disconnection of the post from the implant and facilitates the stabilization of soft and hard tissues.

Reproduction of the clinical situation in the gypsum model with removable gingiva.

Definitive rehabilitation in metal-ceramic for screwing on the XA post.

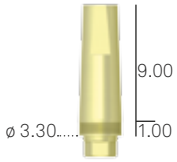
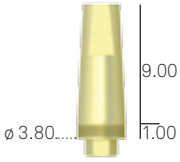
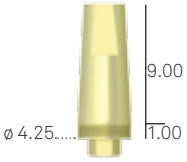
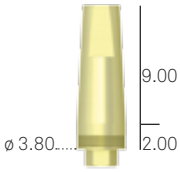
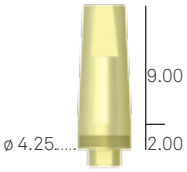
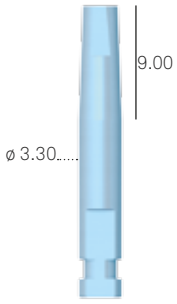
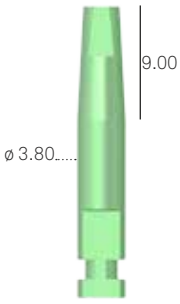
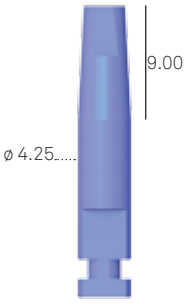
Comparison between the cap on natural tooth and the screw-retained rehabilitation on the XA post.

Follow up after 6 months: soft tissues appear healthy and continue their growth in coronal direction, they occupy progressively the interproximal space intended for the papilla. Gingival margins present the same trend of stabilization at a coronal level avoiding gingival recession.

# XA posts for cemented prosthesis

These posts, made of Gr. 5 titanium, allow cemented prosthesis to be fitted using the **One-Abutment-One-Time** technique, in which the XA post is left screwed into the patient's mouth, reproducing its form and position in the laboratory model with great precision, using a transfer and a dedicated analog.
Posts are available with diameters of 3.30, 3.80 and 4.25 to permit **Platform Switching** on the three platforms of the Shelta implant.

## XA posts for cemented prosthesis

| description | post ø 3.30 | post ø 3.80 mm | post ø 4.25 |
|---|---|---|---|
| for implants | Premium 3.30 - 3.80<br>Kohno 3.80<br>Shelta 3.80 | Premium 3.80<br>Kohno 3.80<br>Shelta 3.80 - 4.25 - 5.00 | Shelta 4.25 -5.00 |
| Premade XA post<br>Repositionable<br>Transgingival H. 1.00 mm | **SH-MD-F-330-1**<br>  | **SH-MD-F-380-1**<br>  | **SH-MD-F-425-1**<br>  |
| Premade XA post<br>Repositionable<br>Transgingival H. 2.00 mm | **SH-MD-F-330-2**<br>  | **SH-MD-F-380-2**<br>  | **SH-MD-F-425-2**<br>  |
| Single pack<br>Pack of 10 pieces<br><br>Fixation screw with conical support | **L-VMS-180**<br>**L-VMS-180-10**<br>  | Use<br>L-VMS-180 | Use<br>L-VMS-180 |
| Analog for premade XA posts for cemented prosthesis | **SH-ANA-MD-F-330**<br>  | **SH-ANA-MD-F-380**<br>  | **SH-ANA-MD-F-425**<br>  |
| Transfer for premade XA posts for cemented prosthesis | **SH-TRA-MD-F-330**<br>  | **SH-TRA-MD-F-380**<br>  | **SH-TRA-MD-F-425**<br>  |

*Recommended torque for definitive fastening of fixation screws: 20–25 Ncm.*

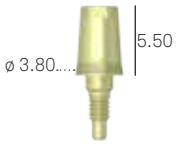
***IMPORTANT WARNING:*** *The ø 3.30 mm prosthetic components allow prosthetic Platform Switching with ø 3.80 mm implants. It is recommended to use these posts exclusively for single crowns in front sectors (excluding premolars), and only as a support for multiple prostheses in distal sectors.*
*The ø 3.80 mm prosthetic components are compatible with ø 3.80 mm, ø 4.25 mm and ø 5.00 mm implants.*
*They do not allow prosthetic Platform Switching on ø 3.80 mm implants; they allow prosthetic Platform Switching on ø 4.25 mm and ø 5.00 mm implants.*

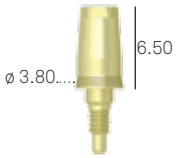
# XA posts for screw-retained prosthesis

Intermediate XA abutments, with a feather-edge morphology, offer several prosthetic possibilities of exploiting the biological benefits of the XA concept, from temporary through to final prostheses. As with the line of cemented prostheses, abutments for screw-retained prostheses can be fitted using the **One-Abutment-One-Time** technique, leaving the abutments screwed into the patient's mouth and reproducing their form and position in the laboratory model using a suitable analog.
The only available diameter of 3.80 mm permits the greatest possible prosthetic simplification, and ensures Platform Switching, which is extremely favourable in reducing peri-implant bone reabsorption to a minimum. On posts with heights of 5.50 and 6.50 mm, an extremely safe **conometric prosthesis** can be fitted, by using Conoweld caps.

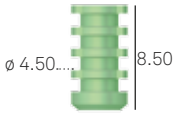
## XA posts for screw-retained prosthesis

| ø prosthetic component | ø 3.80 |
|---|---|
| for implants | Premium 3.80<br>Kohno 3.80<br>Shelta 3.80 - 4.25 - 5.00 |
| Intermediate XA abutment<br>H. 4.50 mm | **SH-ABU-F-TS-380-4** |
| Intermediate XA abutment<br>H. 5.50 mm | **SH-ABU-F-TS-380-5** |
| Intermediate XA abutment<br>H. 6.50 mm | **SH-ABU-F-TS-380-6** |
| Analog for intermediate<br>XA abutments | **SH-ANABU-F-380** |
| Transfer for intermediate<br>XA abutments | **SH-TRABU-F-380** |
| Transfer screw | **SH-VTRABU-F-200** |
| Healing cap in PEEK for<br>intermediate<br>XA abutments | **SH-CG-ABU-F-380** |

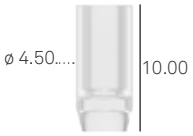
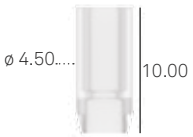
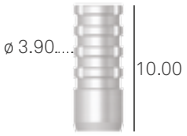
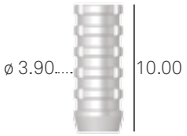






*Recommended torque for definitive fastening of directly screwed posts: 25–30 Ncm.*

## Accessories for screw-retained prosthesis on XA posts

| ø prosthetic component | ø 3.90 - 4.50 |
|---|---|
| for implants | Premium 3.80<br>Kohno 3.80<br>Shelta 3.80 -4.25- 5.00 |
| Castable sleeve for<br>XA abutments<br>Repositionable<br>Fixation screw included | **SH-CCABU-F-380**<br>  |
| Castable sleeve for<br>XA abutments<br>Non-repositionable<br>Fixation screw included | **SH-CCABU-F-380-ROT**<br>  |
| Titanium sleeve for XA<br>abutments<br>Repositionable<br>Fixation screw included | **SH-CTABU-F-380**<br>  |
| Titanium sleeve for XA<br>abutments<br>Non-repositionable<br>Fixation screw included | **SH-CTABU-F-380-ROT**<br>  |
| Fixation screw for XA<br>abutments | **A-PLAIN-VP200**<br>  |
| Final cap for<br>Conoweld luting* | **CAP-TS-DEF**<br>  |

*Recommended torque for definitive fastening of directly screwed structures on posts: 20–25 Ncm.*

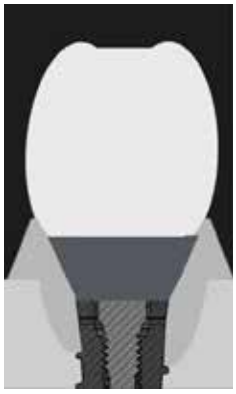
** the conometric cap CAP-TS-DEF can be used only with posts with H. 5.50 mm and 6.50 mm.*

## Prosthesis screwdrivers

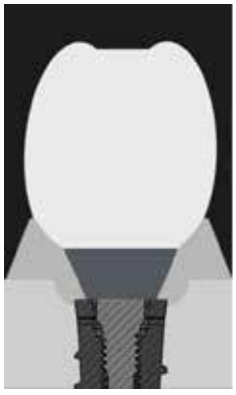
| description | code |
|---|---|
| Screwdriver for fixation screws, with hexagonal connector for ratchet or hand knob, short | **HSM-20-EX**  |
| Screwdriver for fixation screws, with hexagonal connector for ratchet or hand knob, long | **HSML-20-EX**   |
| Screwdriver for fixation screws, with hexagonal connector for ratchet or hand knob, extra-long | **HSMXL-20-EX**   |
| Driver for fixation screws, with right angle shank | **HSM-20-CA**   |

# The clinical and scientific evolution behind the development of the basic concept of XA prosthesis

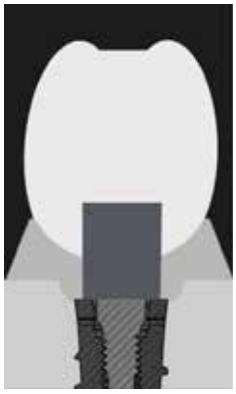
The main preoccupation of the practitioner is to limit the inexorable bone reabsorption and the apical migration of soft tissues to a minimum, as these generate many problems that are not solely aesthetic, but that can instead also be linked to the medium-term and long-term survival of the rehabilitation, due to peri-implantitis.
What we are talking about is a paradigm shift, given that with the use of **XA posts** and an adequate rehabilitation protocol, not only can apical migration be avoided, but coronal migration of the bone and of soft tissues can also be promoted over time. This implies both aesthetic improvements and greater protection against the onset of peri-implantitis.
We believe that the best way of demonstrating the evolution of the XA concept is to analyze the various protocols that we have adopted in our work in recent years, with the final aim of stabilizing tissues.



1. Implant without Platform Switching (PS) presenting an anatomical profile (divergent) that mimics the form of the tooth, and a protocol that envisions prosthesis disconnections. In this situation, tissues showed a tendency to **apical migration**. The inevitable gingival recession generated not only an aesthetic risk, but also the possibility of peri-implantitis.



2. Implant with PS presenting an anatomical profile (divergent) and a protocol that envisages prosthesis disconnections. The introduction of the concept of PS has allowed us to reduce peri-implant bone reabsorption, improving **tissue stability**. This concept allowed us to learn more about the relationship between the shape of posts and the stabilization of tissues by means of the circular fibres of connective tissue.



3. Implant with PS presenting a straight profile and a protocol that envisages prosthesis disconnections. The use of straight posts allowed us to increase tissue thickness and to improve results in a **predictable** way.

4. Implant with PS presenting a conical profile (convergent) of the XA posts and absence of disconnections. Finally, the introduction of **XA posts** for screw-retained and cemented prostheses allowed us not only to stabilize tissues, but also to promote their **coronal migration** over time.

The **tapering** of these posts promotes the short-term and long-term coronal migration of tissues. The absence of a margin (**marginless**) makes it possible to avoid the repeated disconnections and reconnections that are typical of conventional rehabilitation protocols, causing tissue destabilization.
The presence of **micro-threads** at the base of the posts promotes the alignment of fibroblasts, accelerating and increasing the production of collagen (contact guidance), a crucial factor for biological sealing.
The apparent **simplicity** of this concept satisfies a multitude of biological criteria that contributes in the search for the best possible tissue response. The use of the components is simple and facilitates the work of both the dentist and the dental technician. We took care to ensure that the posts were compatible with the different operating protocols (screw-retained or cemented prostheses), and that they could be used in all clinical situations (anterior and posterior sectors, immediate or deferred loading). For the first time, posts act as a guide for connective tissue and for the periosteum, in turn promoting bone growth. All these reasons lead us to believe that we are truly faced with a paradigm shift.

**Insanity?**
**The definition of insanity is doing the same thing over and over and expecting different results.**
**A. Einstein**

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We have met the good manufacturing standards (GMP) set forth by many countries worldwide, including the United States FDA.