



Ceramic  
Implant System

**NEODENT**<sup>®</sup>  
A Straumann Group Brand



# CLINICAL CASEBOOK

Clinical Cases made by dentists from several countries revealing the concept of esthetic, versatility, and predictability in the clinical practice about the Neodent<sup>®</sup> Ceramic Implant System.

INTERACTIVE PDF 

# SUMMARY

INTERACTIVE PDF 

01



02

03



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# SUMMARY

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INTERACTIVE PDF 

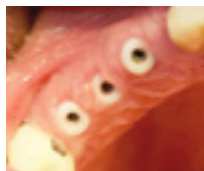


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# 01

## **Neodent® Zi Ceramic Implant System in aesthetics region: single case report, four years follow-up**

- DR. GENINHO THOMÉ  
Brazil

# About the case

Neodent® Zi Ceramic Implant System in aesthetics region:  
single case report, four years follow-up

Responsible surgeon \_\_\_\_\_



## **DR. GENINHO THOMÉ** **Brazil**

CEO of Faculdade ILAPEO  
Scientific President of Neodent®  
Master and PhD in Implantology  
Chairman of the Board of Directors of Neodent®

Collaborating team: \_\_\_\_\_

Dra. Carolina Accorsi Cartelli, Dr. Jean Uhlendof,  
Dra. Larissa Carvalho Trojan, Dr. Marcos Boaventura de Moura  
e Dr. Sérgio Rocha Bernardes

## **Neodent® materials:**



Zi Implant 4.3 x 11.5mm



Provisional Coping  
CR Abutment



Zi Base

## **Check out the video of the Clinical**

Case here:



# Patient Medical History:

Patient with a high smile line and an aesthetic complaint due to the absence of tooth 24. Throughout the clinical evaluation: panoramic and periapical radiographs; and cone beam computed tomography, it was proposed the installation of one ceramic implant in the region of the 24 tooth.



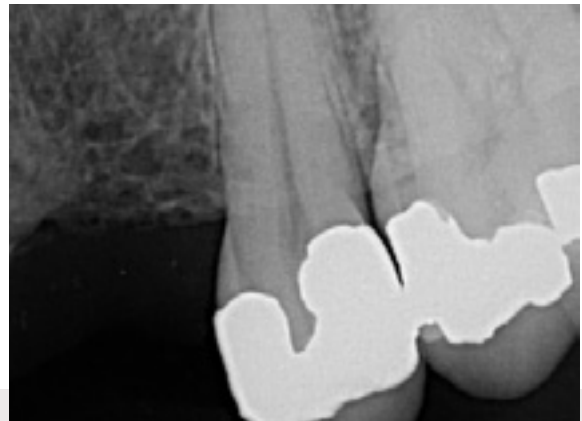
1. Initial clinical situation of the patient, vestibular view in occlusion.



2. Initial clinical situation of the patient, lateral vestibular view in the area of the tooth 24.



3. Initial clinical situation of the patient, occlusal view in the area of the tooth 24.



4. Initial radiographic situation of the patient, periapical x-ray in the area of the tooth 24

# Description of the procedure:

Initially, an anesthetic infiltration block was performed in the left superior alveolar nerve's middle portion, followed by a supra crestal incision to access the alveolar bone with a full flap. The drilling protocol was made according to the manufacturer's instructions: Initial drill, Conical drill  $\text{\O}2.0$ ,  $\text{\O}3.5$ , and  $\text{\O}4.3$ , respectively. Neodent Zi 4.3 x 11.5mm implant was installed in the region with a torque of 40N.cm, allowing immediate load application.



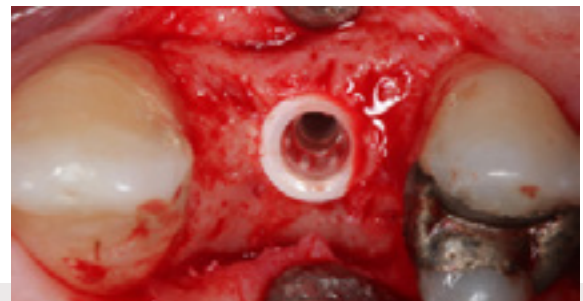
5. Complete Neodent Zi implant drilling protocol.



6. Planned osteotomy for implant installation at bone level.



7. Neodent Zi implant installation 4.3 x 11.5mm.



8. Zi-lock interface: lobular shape supports a safe force propagation to the implant and the component.



Neodent Zi 4.3 x 11.5mm implant captured in contra-angle connection: observe the conical macro geometry with trapezoidal threads that aims to assist primary stability, seeking to make the procedure more predictable.

# Prosthetic description:

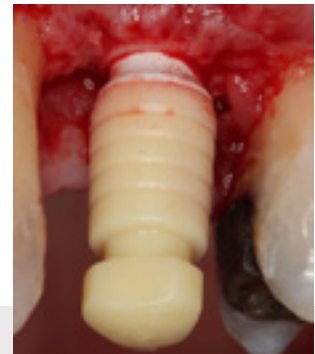
After implant installation, the PEEK CR Abutment (4.3 x 4 x 2.5 mm) was chosen for the prosthetic component. A provisional cylinder was customized to capture the acrylic resin crown and subsequent cementation. After ten months, the definitive ceramic prosthesis was installed over the Zi Base.



9. Installation of PEEK CR Abutment.



10. PEEK CR Abutment installed



11. Installation of Provisional Coping CR Abutment.



12. Customization of provisional installed over the PEEK CR Abutment.



13. Finishing, polishing, and occlusal testing of the provisional installed over the PEEK CR Abutment.



# Post-operative 15 days:



14. Temporary clinical situation of the patient, vestibular view.



15. Temporary clinical situation of the patient, implant in the region 24.



16. Clinical aspect of soft tissue with PEEK CR Abutment (4.3 x 4 x 2.5 mm) installed, lateral vestibular view in the area of the tooth 24.



17. Clinical aspect of soft tissue with PEEK CR Abutment installed, occlusal view.



18. Clinical situation after provisional resin crown installation, occlusal view.



19. Clinical situation after provisional resin crown installation, vestibular view.

# Clinical follow-up



20. Provisional crown, occlusal view.



21. Definitive crown, occlusal view.



22. New definitive crown, made after teeth whitening procedure, buccal view, four years after the surgery.



23. Provisional crown, vestibular view.



24. Definitive crown, occlusal view.



25. Four years after the surgery.

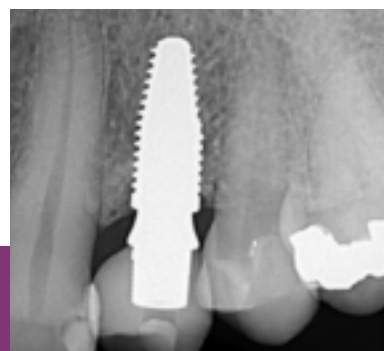
# Radiographic follow-up



10 months



20 months



Four years

# TESTIMONIAL



“With proper planning and the use of Neodent® Zi, it was possible to restore immediate loading with acceptable aesthetics. The conical macro geometry of the ceramic implant improved immediate loading in this case. The use of a metal-free prosthetic crown material increases the achievement of the aesthetic result.”

**DR. GENINHO THOMÉ**  
Brazil

“The ceramic implant has a considerable differential for having the aesthetic part and increasing our self-esteem. As for the implant, I felt more secure eating and smiling.”

**PATIENT**  
Brazil





# 02

## **A single unit implant of Neodent® Zi Ceramic Implant System in posterior region of mandible with bonegraft**

- DR. LODEWIJK VAN ZWOL  
Netherlands

# About the case

A single unit implant of Neodent® Zi Ceramic Implant System in posterior region of mandible with bonegraft

Responsible surgeon \_\_\_\_\_



**DR. LODEWIJK VAN ZWOL**  
**Netherlands**

Specialist in Implantology

## Patient Medical History:

A fifty-one years old patient, in good general health, had a partial edentulous gap in the right lower jaw.

## Planning:

After an initial clinical examination, the placement of a the Neodent® Zi implant in the region of tooth 44 was planned. The surgery was performed in two stages. The first one was the installation of the Neodent® Zi implant with enlargement of the vestibular bone wall with biomaterial. After six months, the Zi Healing Abutment was placed.

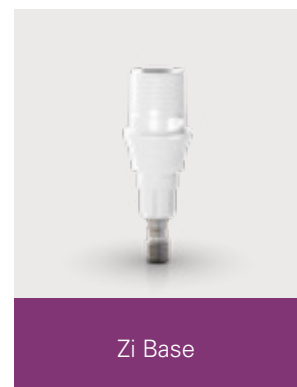
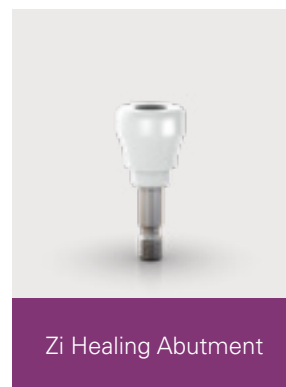
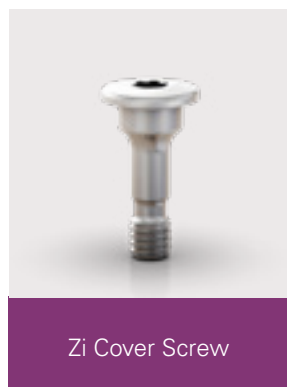
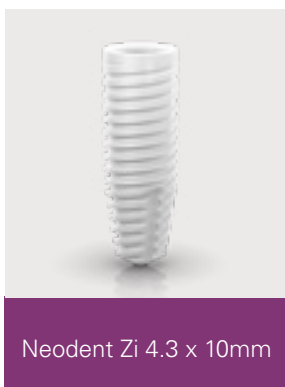
## Description of the procedure:

The local anesthesia was performed, and a slight full thickness elevation of the gingival flap was done. The drilling protocol followed the manufacturer's recommendation for type II bone: Initial Drill, Tapered Drill Ø2.0, 3.5, 4.3, Countersink Drill, and Bone Tap. The Neodent Zi 4.3 x 10mm was installed with a final torque of 45 N.cm, the Zi Cover Screw was placed, and the biomaterial was applied to enlarge the vestibular bone wall.

## Prosthetic description:

After the healing period, the final rehabilitation was performed over the Zi Base abutment, following the conventional workflow. The final crown was placed, and the occlusal adjustments were performed.

## Neodent® materials:



Panoramic radiographic of the patient.

# Surgical and prosthetic procedure:



1. Clinical situation of the area of the tooth 44.



2. Drilling protocol of Neodent® Zi implant.



3. Clinical aspect after drilling protocol of Neodent® Zi implant.



4. Zi implant installed with the Zi transfer piece.



5. Neodent® Zi implant placed area of the tooth 44.



6. Zi Cover Screw placed above Neodent® Zi implant.



7. The bone graft with the membrane is applied for bone augmentation.



8. Clinical situation after gingival suturing.

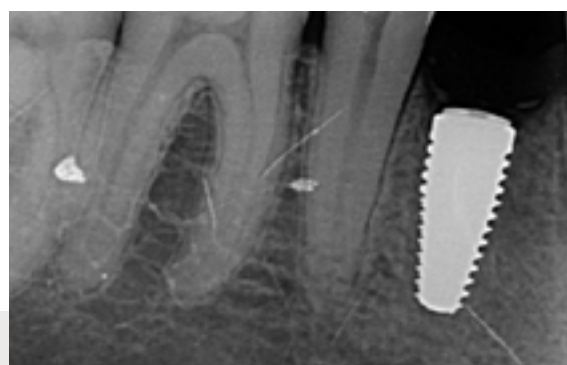
# Surgical and prosthetic procedure:



9. The radiographic situation after Neodent® Zi Implant placement.



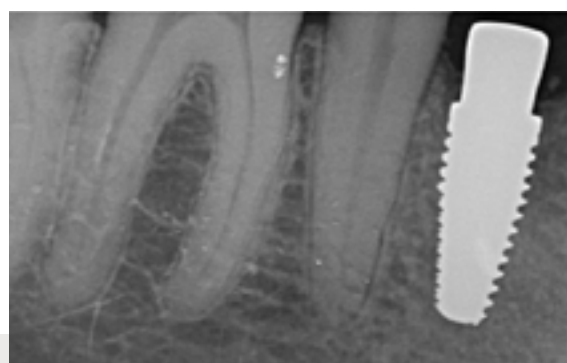
10. Clinical situation after six months of Neodent® Zi Implant placement.



11. The radiographic situation after six months.



12. Zi Healing abutment placed after six months of the surgery.



13. Radiographic situation of Zi Healing Abutment.



# Surgical and prosthetic procedure:



14. Final crown impression process.



15. Final crown installation



16. Clinical situation of final rehabilitation.



17. Radiographic aspect of rehabilitation, one year after the surgery.

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case**

The procedure was correct and easy to follow without any surprises.

## **What were the other treatment options? Why choose this solution?**

When using ceramic implants, the whole implant surface needs to be covered, one option would be with autogenous bone, due to the buccal width and the alveolar nerve this possible was riskier. For a next similar case I would augment using autogenous bone and bone substitute in combination and maybe placing the healing abutment immediately.



# 03

## **Aesthetic rehabilitation in posterior region using Neodent® Zi Ceramic Implant System**

- DR. OLIVIER CHÉRON  
Spain

# About the case

Aesthetic rehabilitation in posterior region using Neodent® Zi Ceramic Implant System

Responsible surgeon \_\_\_\_\_



**DR. OLIVIER CHÉRON**  
**Spain**

Implantodontist and Specialist in Ceramic Implants.  
Ambassador of EACim (European Academy of Ceramic Implantology)



## Patient Medical History:

A forty years old patient with good general health conditions, comes to replace a bridge from teeth 24 to 27 with an extension of 24. After the initial evaluation, the following treatment plan was decided: replace the bridge from teeth from 25 to 27 and installed a Neodent® Zi Implant in the region of tooth 24.

## Planning:

An initial digital radiography and a CBCT were performed to analyze the possibility of placing an implant in the area of tooth 24. The area did not present any periapical or intraosseous lesions. The width and height are sufficient for implantation, without showing atrophy. A mucosal retention cyst is seeing in the left maxillary sinus. The bridge was cemented with a temporary cement, until the placement of final pieces.

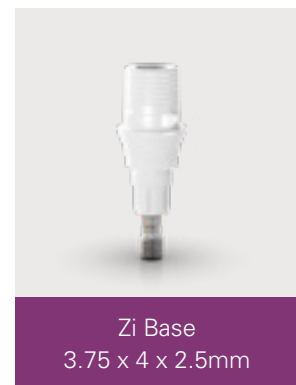
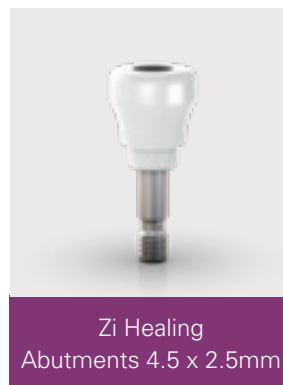
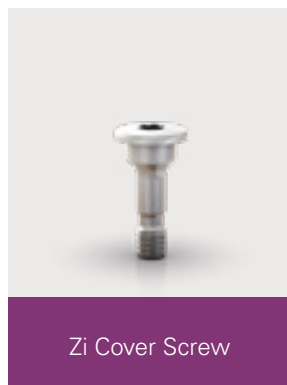
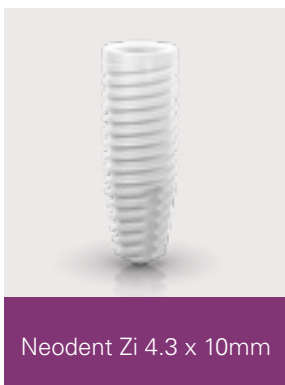
## Description of the procedure:

Local anesthesia was performed. With the gingival flap made, the drilling protocol was followed according to the manufacturer's recommendation for type II bone: Initial Drill, Tapered Drill Ø2.0, 3.5, 4.3, Countersink Drill, and Bone Tap. The Neodent® Zi implant 4.3 x 10mm was placed with a final torque of 45 N.cm. A Zi Cover Screw was placed. After suturing the old bridge was temporarily cemented.

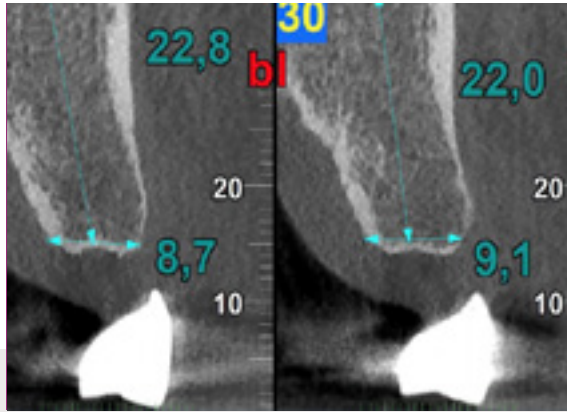
## Prosthetic description:

After three months a secondary surgery was made to place a Zi Healing Abutment 4.5 x 2.5mm. Fifteen days after the second surgery, after the Zi Implant Scanbody is captured by the intraoral scanner. The final crown is installed over the Zi Base. The crown and the bridge was placed, and the occlusal adjustments were performed.

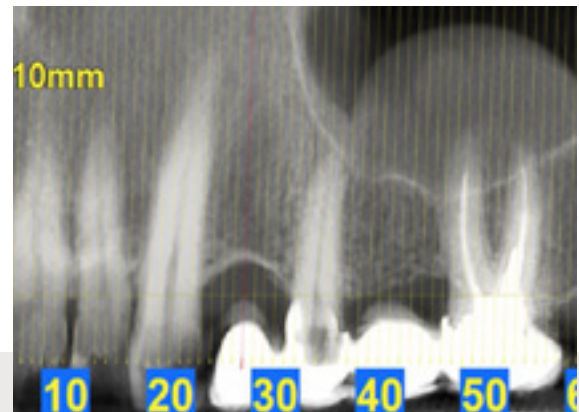
## Neodent® materials:



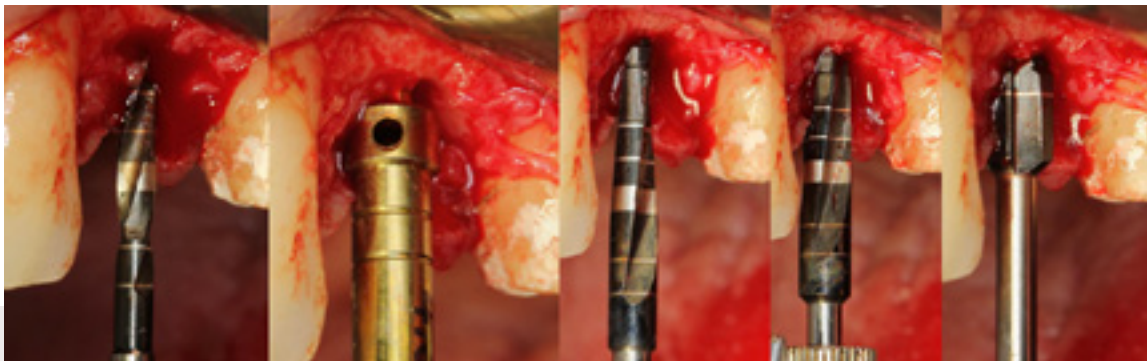
# Surgical and prosthetic procedure:



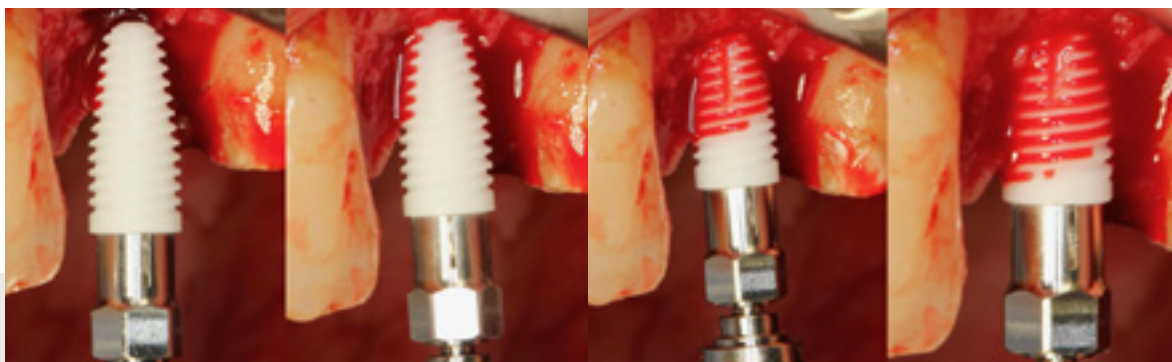
1. Initial CBCT situation.



2. Initial CBCT situation.



3. Drilling protocol of Neodent® Zi implant.

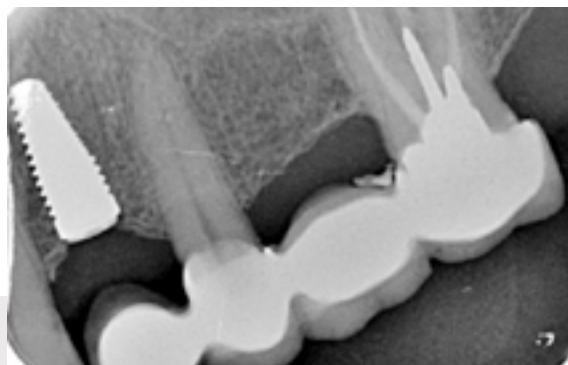


4. Neodent® Zi implant placement at region 24.

# Surgical and prosthetic procedure:



5. Zi Cover Screw installed.



6. Digital radiographic situation.



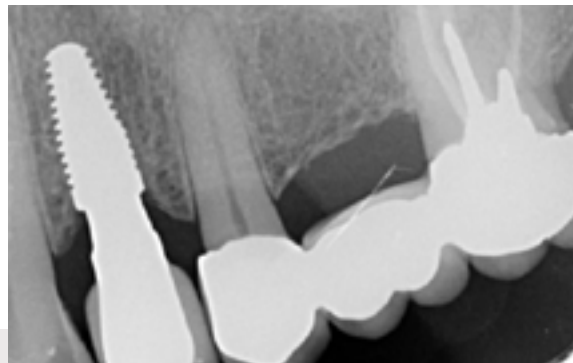
7. CAD design – lateral view after 90 days after surgery.



8. CAD design – lateral view after placement of the final crown.



9. Clinical situation of final rehabilitation.



10. Radiographic situation after placement of the final crown.

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case.**

The Neodent® Zi Implant System, it's a very stable primary implant. The Bone Level geometry provides an additional aesthetic and surgical margin. The prosthetic components are precise and versatile, promoting an aesthetic prosthetic result.

## **What were the other treatment options? Why choose this solution?**

There are 2 another options: making a new bridge (24 to 27) or 2 implants (24, 26) and two crowns (26, 25).

## **What are the challenges during treatment and how were they resolved?**

The patient would like a ceramic solution, years ago, took the option of the bridge because did not want a titanium implant. The patient came, looking for a ceramic solution.

## **Tips**

The clinical indications here for the use of this ceramic implant system is to strictly follow the surgical perforation protocol recommended by the manufacturer, in order to achieve primary stability avoiding the stress of screwing to the ceramic. This procedure requires more attention in positioning and surgical procedure.





# 04

## **Single unit rehabilitation with Neodent® Zi Ceramic Implant System, in the lower premolar area**

- DR. ENRIC PINTADO  
Spain

# About the case

Single unit rehabilitation with Neodent® Zi Ceramic Implant System, in the lower premolar area

Responsible surgeon \_\_\_\_\_



**DR. ENRIC PINTADO**  
**Spain**

Specialist in Implantology.  
Specialist in Prosthetics.

## Patient Medical History:

Fifty-three years old patient, with good general health. The patient lost the first lower premolar (34).

## Planning:

After clinical and radiographic evaluation, in addition to the dimensional inspection of the soft tissue and quality, the decision was made to replace the missing dental element with Neodent® Zi implant.

## Description of the procedure:

Two hours before the operation, 2g of antibiotics were administered to the patient. Infiltrative anesthesia was performed, followed by a gingival flap in the lingual region to preserve the maximum amount of keratinized soft tissue. The drilling protocol followed the manufacturer's recommendation for type II bone: Initial Drill, Tapered Drill Ø2.0, 3.5, 4.3, Countersink Drill, and Bone Tap. The Neodent Zi 4.3 x 13mm implant was installed at bone level with a final torque of 45N.cm, on the same day of surgery, Zi Healing Abutment was installed.

## Prosthetic description:

After the healing period, approximately two months, a follow-up was carried out for final rehabilitation. The impression of the final crown was performed, after the Zi Implant Scanbody is captured by the intraoral scanner. With the process completed, the final crown is placed on the Zi Base, screwed onto the implant.

## Neodent® materials:



Neodent Zi 4.3 x 13mm



Zi Healing Abutment



Zi Implant Scanbody



Zi Base

# Surgical and prosthetic procedure:



1. Panoramic radiographic situation of the patient.



2. Clinical situation of the tooth 34 region.



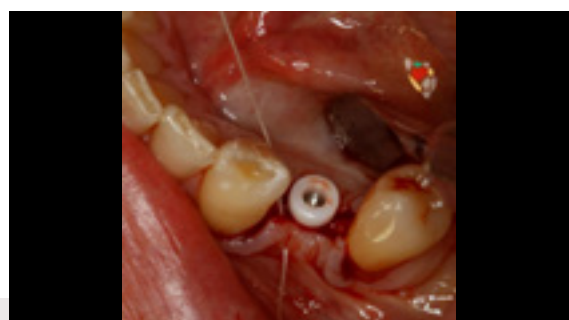
3. Drilling protocol of Neodent® Zi implant.



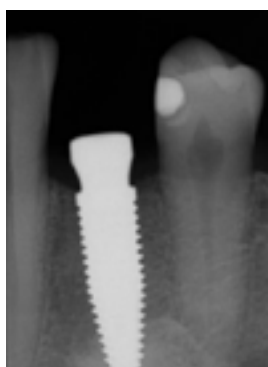
4. Neodent® Zi implant placement.



5. Neodent® Zi implant installed.



6. Zi Healing Abutment placed.



7. Radiographic situation, after placement of the Zi healing Abutment.

# Surgical and prosthetic procedure:



8. Final printed model with Hybrid Repositionable Analog Zi Implant.



9. Final crown placed at Zi Base.



10. Clinical situation of final rehabilitation.  
Lateral view in occlusion



11. Clinical situation of final rehabilitation.  
Lateral view.



12. Radiographic situation, after placement  
of the final crown.

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case.**

In my opinion, to have a ceramic implant available for our patients is alternative tool, we have for those who demand no metal in their mouth and also for aesthetic reasons like when there's a very light and thin soft tissue biotype.

## **Tips**

No problem with the drilling protocol, following the drilling sequence indicated for each bone type and ensuring to not overpass the recommended torque. The implant driver improves the experience, breaking when we over torque. It's a safe and predictable system.



# 05

## **Single-unit restoration with Neodent® Zi Ceramic Implant System in an anterior area with immediate loading**

- DR. LUIS HONORATO  
Chile
- DR. SEBASTIAN CIFUENTES  
Chile

# About the case

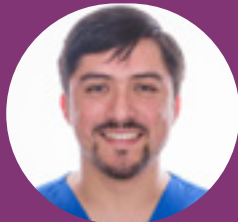
Single-unit restoration with Neodent® Zi Ceramic Implant System in an anterior area with immediate loading

Responsible surgeons \_\_\_\_\_



**DR. LUIS HONORATO**  
Chile

Specialist in Implantology.  
Member Society of Oral Implantology of Chile.



**DR. SEBASTIAN CIFUENTES**  
Chile

Doctor of Dental Surgery.  
Member Society of Prosthesis and Oral Rehabilitation of Chile.

## Patient Medical History:

Fifth-six years old patient, without health problems. Patient reports pain in the tooth 22.

## Planning:

In the clinical-radiographic examination, a root fracture was detected on tooth 22. After clinical and radiographic evaluation, in the addition to the dimensional inspection of the soft tissue and quality, the decision was made to replace the missing dental element with Neodent® Zi implant.



## Description of the procedure:

Under local anesthesia, the extraction of the upper left lateral incisor (tooth 22) was performed. Thus, the next step was to clean and remove the granular tissue present at the lesion site, enabling the drilling process according to the manufacturer's guidelines. Each step of the drilling process was accompanied by radiographic control, therefore ensuring its accuracy. The torque achieved in installing the Neodent Zi 4.3 x 11.5mm was 45N.cm, enabling immediate loading.

## Prosthetic description:

The final rehabilitation was performed using a digital workflow on a Zi Base abutment and a feldspathic screw retained crown 3 months after the implant surgery.

## Neodent® materials:



Zi Implant 4.3 x 11.5mm



Zi Base

# Surgical and prosthetic procedure:



1. Initial clinical situation.



2. Initial radiographic situation.



3. Drilling protocol of Neodent® Zi implant (Tapered Drill Ø2.0).



4. Radiographic situation of drilling protocol of Neodent® Zi implant (Tapered Drill Ø2.0).



5. Drilling protocol of Neodent® Zi implant (Direction indicator Ø4.3).



6. Radiographic situation of drilling protocol of Neodent® Zi implant (Direction indicator Ø4.3).



7. Neodent® Zi implant placement at 22 region.



8. Neodent® Zi implant placed at 22 region.



9. Radiographic situation of Neodent® Zi implant placed at 22 region.



10. Clinical situation after suturing and provisional crown placement.



11. Clinical situation, seven days follow-up.



12. Clinical situation, fourteen days follow-up.

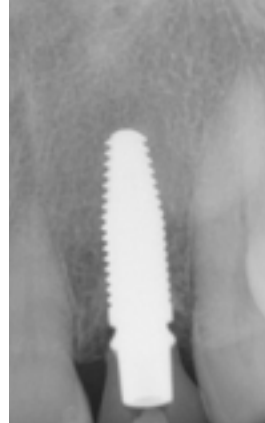


13. Placement of final crown, three months follow-up.

# Surgical and prosthetic procedure:



14. Clinical situation of final rehabilitation, two years follow-up



15. Radiographic situation of final rehabilitation, two years follow-up

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case.**

The results obtained with the Neodent Zi implant are fantastic in this case. The insertion torque obtained following the drilling protocol is exact, even in cases of immediate workflow. The possibility of working with digital workflow makes the rehabilitation phase very expedited.

## **What were the other treatment options? Why choose this solution?**

The patient wanted a fixed rehabilitation, for which an adhesive bridge could have been an option to avoid damaging adjacent healthy teeth. However, the interocclusal space was too small, so the best alternative for this patient was rehabilitation with an implant.

## **What are the challenges during treatment and how were they resolved?**

The patient reported apprehension about the titanium implant, because they are allergic to some metals. Using a ceramic implant inspired confidence with the treatment we proposed.

## **Tips.**

We recommend following the drilling protocol indicated by the manufacturer, depending on the type of bone. The depth in the apical coronal direction of the implant is a factor to consider in avoiding difficulties in the prosthetic rehabilitation phase.



# 06

## **Upper single unit rehabilitation using Neodent® Zi Ceramic Implant System**

- DR. RICCARDO SCARINGI  
Italy

# About the case

Upper single unit rehabilitation using Neodent® Zi Ceramic Implant System

Responsible surgeon \_\_\_\_\_



**DR. RICCARDO SCARINGI**  
Italy

Master degree in OralMedicine and Surgery (MSc)

## Patient Medical History:

Fifty-years old patient, with good general health. The patient had the tooth 12 traumatized and with mobility that had to be extracted

## Planning:

After a clinical and X-ray evaluation we decided to replace the tooth with an implant, and an aesthetic temporary crown without occlusal contact.

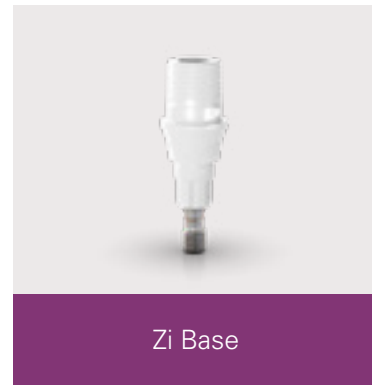
## Description of the procedure:

Local anesthesia was performed, and the tooth was extracted and replaced with an Neodent® Zi 4.3 x 13mm implant. The drilling protocol followed the manufacturer's recommendation: Initial Drill, Tapered Drill Ø2.0, 3.5, 4.3, Countersink Drill, and Bone Tap. The Neodent® Zi implant was placed with a final torque of 45 N.cm. As the implant placement reached enough torque to place an immediate crown, the PEEK CR Abutment was placed, and the provisional crown was placed above it. A connective tissue graft was placed to increase tissue mucosa.

## Prosthetic description:

After the healing period, a second provisional was made to improve the soft tissues condition. The final crown was installed over the Zi Base, following the conventional workflow. The crown was cemented and received occlusal adjustments.

## Neodent® materials:

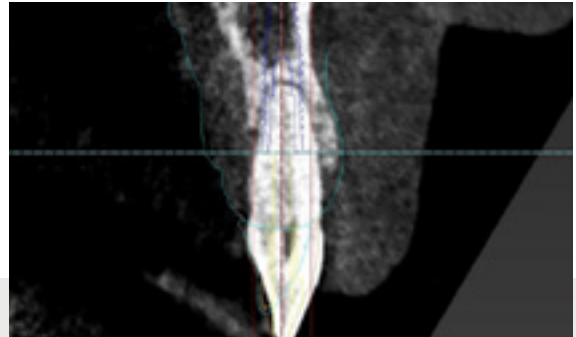




# Surgical and prosthetic procedure:



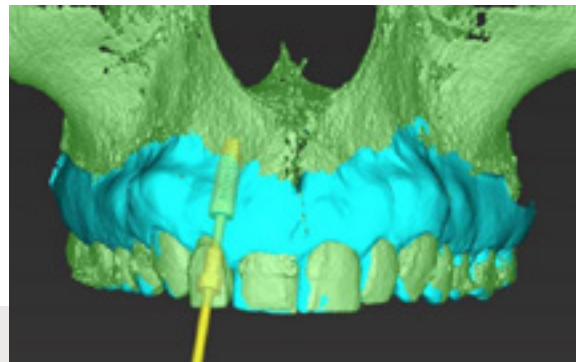
1. Initial clinical case



2. Initial CBCT.



3. Post extraction situation.



4. Digital planning with coDiagnostiX®  
Software



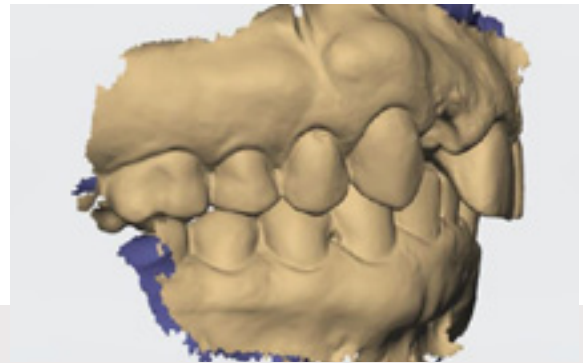
5. Implant positioned with connective graft.



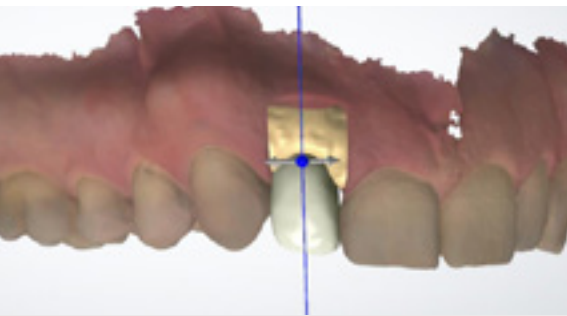
6. X-Ray control.  
Aspect of the  
provisional  
immediate  
crown



7. Design of the zenith gingival countour.



8. Digital marginal aspect after intra oral scanning.



9. Digital assesment of the technician.



10. Healing of the soft tissues.



11. Cementation phase of the crown. Retraction cord removal.



12. Buccal view of the final crown, two years and seven months after the surgery.



13. Radiographic aspect after placement of the final crown, two years and seven months after the surgery.

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case**

The impressions I have had in using the Zi implant system is that it is a very stable primary implant. The Bone Level geometry provides an additional aesthetic and surgical margin. The prosthetic components are precise and versatile improving the aesthetic prosthetic result.

## **What were the other treatment options? Why choose this solution?**

As for treatment options, we could have made an adhesive prosthesis involving healthy adjacent teeth. However, we prefer a stable and predictable procedure in the long run. We chose to extract the tooth with a grade II mobility and place a ceramic implant.

## **What are the challenges during treatment and how were they resolved?**

The challenge of this case was that the patient asked for an aesthetic and stable solution immediately. We made a choice of global ceramic restoration. When we presented the solution, it adhered very favorably.

## **Tips.**

The clinical indications here for the use of this ceramic implant system is to strictly follow the surgical perforation protocol recommended by the manufacturer, in order to achieve primary stability avoiding the stress of screwing to the ceramic.



# 07

## **Immediate Rehabilitation with Neodent® Zi Ceramic Implant System and preoperative CAD-CAM Crown on Zi Base**

- DR. MED. DENT. MATHIAS SPERLICH, M.SC.  
Germany
- DR. MED. DENT. MARKUS SPERLICH  
Germany

# About the case

Immediate Rehabilitation with Neodent® Zi Ceramic Implant System and preoperative CAD-CAM Crown on Zi Base

Responsible surgeons \_\_\_\_\_



**DR. MED. DENT. MATHIAS SPERLICH, M.SC.**  
Germany

Master in Implantology and Oral Surgery – IMC,  
Specialist in Implantology - DGI, BDIZ



**DR. MED. DENT. MARKUS SPERLICH**  
Germany

Specialist in Implantology and Implantprosthodontics –DGI

## Patient Medical History:

A fifty-six years old patient in good general health, presenting a chronic apical inflammation on tooth 22 and insufficient prosthesis.

## Planning:

Immediate loading treatment was determined after detailed examination. An immediate implant placement was performed. At the same time, an Immediate Loading with preoperatively fabricated CAD-CAM prosthesis. In preparation for this, a Cone beam computed tomography was taken, and also an intraoral scan. The data generated in this way was imported into the implant planning software. Implant position is planned digitally according to the principles of immediate implant placement. The position of the implant in the Planning Software is transferred to the CAD software Exocad via data transfer, and the implant crown was milled.

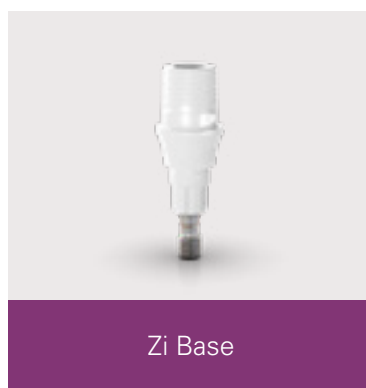
## Description of the procedure:

A fifty-six years old patient in good general health, presenting a chronic apical inflammation on tooth 22 and insufficient prosthesis.

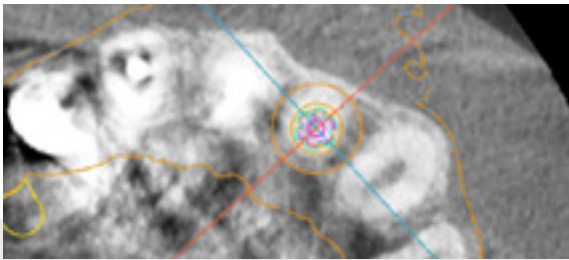
## Prosthetic description:

The therapeutic restoration will be worn for at least 6 months. After that, an Intraoral scan is performed for the definitive restoration.

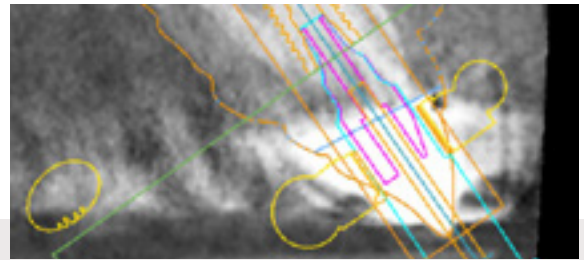
## Neodent® materials:



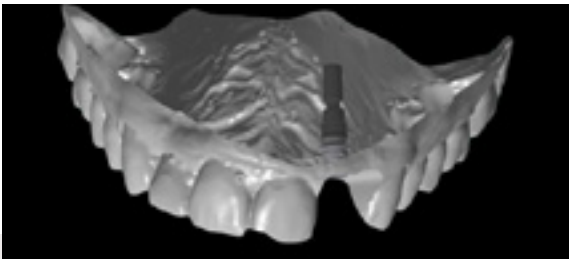
# Description of the procedure:



1. Implant treatment planning software, transversal slice.



2. Implant treatment planning software, sagittal slice.



3. Computer aided design, implant position.

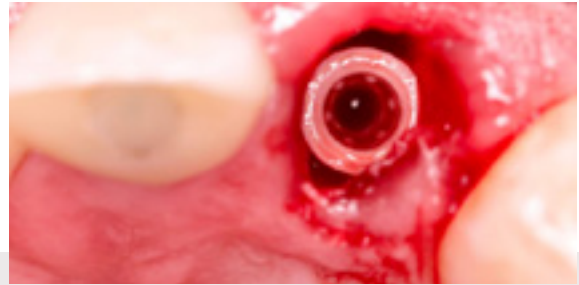


4. Computer aided design, crown position and design.

# Surgical and prosthetic procedure:



5. Clinical situation of alveolar ridge, after extraction of tooth 22.



6. Neodent® Zi implant placement at 22 region.



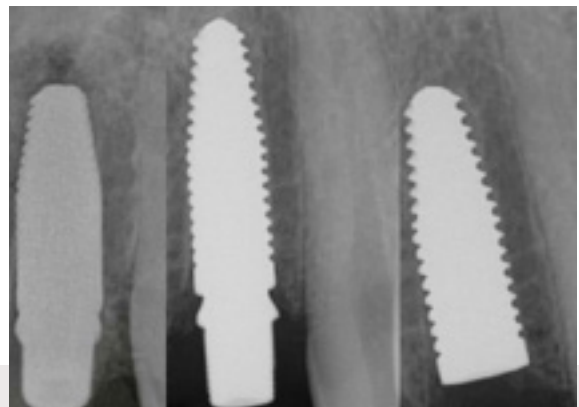
7. Immediate loading was performed with the installation of a provisional tooth, vestibular view.



8. Immediate loading was performed with the installation of a provisional tooth, occlusal view.



9. Closing of implant screw access channel in the provisional crown.



10. radiographic situation respectively: postoperative | three months | before IO scan



# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case**

The Neodent Zi Implant System is the ceramic implant chosen for our immediate loading treatment concept. It enables high torques of more than 35 N.cm, indispensable for immediate loading treatment. The Zi Lock internal connection has an innovative connection that allows work to be executed with the highest precision. Only the internal connection will enable us to fabricate the prosthetics preoperatively. In this case it was reproducible, safe, and highly innovative.

## **What were the other treatment options? Why choose this solution?**

Alternatively, an attempt at conservative treatment would have been possible: a root canal treatment and a prosthetic restoration with a crown. However, since the patient already had two unsuccessful root canal treatments, including root tip resection, they categorically rejected this kind of treatment. The patient expressed that they want to receive an immediate loading treatment.

## **What were the challenges during the treatment and how were they solved?**

The challenge with this kind of treatment always is in preoperative planning. In this phase, the foundations must be laid for the necessary primary stability and the accuracy of fit of the preoperatively fabricated prosthetics.

## **Tips.**

Follow the prescribed drilling protocol and avoid experimentation. If you observe these points, the Neodent Zi implant will be an equal player to existing modern titanium implants and offer all the advantages of ceramic.



# 08

## **The applicability of Neodent® Zi Ceramic Implant System in two prosthetic workflows - immediate and late loading**

- DR. IVETE APARECIDA DE MATTIAS SARTORI  
Brazil
- DR. ELISA MATTIAS SARTORI  
Brazil

# About the case

The applicability of Neodent® Zi Ceramic Implant System in two prosthetic workflows - immediate and late loading

## Responsible surgeons

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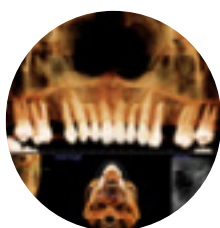
### **DR. IVETE APARECIDA DE MATTIAS SARTORI** **Brazil**

Master and PhD in Oral Rehabilitation (FORP-Ribeirão Preto/ USP)  
Professor of the Master and Doctorate in the Implantology program  
(Ilapeo-Curitiba)  
Neodent Scientific Consultant



### **DR. ELISA MATTIAS SARTORI** **Brazil**

Specialist in Oral and Maxillofacial Surgery (USC-Bauru/CFO) Master  
and PhD in Dentistry with concentration area in Oral and Maxillofacial  
Surgery (FOA - Araçatuba/UNESP)  
Professor of the Master and Doctorate in the Implantology Program  
(Ilapeo-Curitiba)



### **PATIENT MEDICAL HISTORY**

Patient, born in 1972. There was absence of teeth 25,15 and 46. Regarding the health condition of the patient, it did not present any risk for surgery.



### **PLANNING**

Initial clinical examination, upper and lower anatomical impression, periapical X-ray, computed tomography of the maxilla.  
Waxing of the areas and preparation of surgical guides. Surgical guide was made in the laboratory.

## Description of the procedure:

The surgery began with vestibular and palatine infiltrative anesthesia was performed. After that, a crestal incision and flap detachment were performed. The drilling protocol followed the manufacturer's recommendation for bone type III - Initial Drill, Tapered Drill Ø2.0, 3.5, 4.3, Countersink Drill. 2 Zi 4.3 x 10mm implants were placed, with torque of 20N.cm in the region of element 15 and 32N.cm in the region of element 25. In the region of tooth 15, the Zi Healing abutment was installed and in the region of tooth 25, considering the torque reached, the PEEK CR Abutment was installed and the provisional crown was made on the provisional Coping.

## Prosthetic description:

After the osseointegration period of the implants, the impression was performed with addition silicone. The definitive crowns were made in e-max and cemented on the Zi Base.

## Neodent® materials:



2 Zi 4.3 x 10mm  
implants



1 Zi Healing abutment  
(element 15)



1 PEEK CR abutment  
(element 25)



2 Zi Base

# Surgical and prosthetic procedure:



1. Initial clinical aspect  
tooth region 15



2. Initial clinical aspect  
tooth region 15



3. Initial radiographic aspect  
tooth region 15



4. Initial clinical aspect  
tooth region 25



5. Initial clinical aspect  
tooth region 25



6. Initial radiographic aspect  
tooth region 25



7. Flap detachment – tooth  
region 15



8. Drilling protocol - drilling  
depth check



9. Placement of the Zi 4.3 mm  
implant in the tooth region 15

# Surgical and prosthetic procedure:



10. Radiography after impant placement.



11. Placement of Zi Healing Abutment



12. Radiography after Zi Healing abutment placement.



13. Flap detachment – tooth region 25.



14. Drilling protocol - drilling depth check.



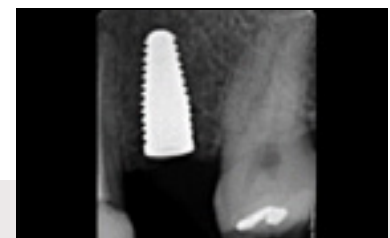
15. Radiographic check.



16. Placement of the Zi 4.3 implant in the tooth region 25.



17. Zi 4.3 implant placed in the tooth region 25.



18. Radiography after impant placement.



19. Placement of Zi PEEK CR Abutment.



20. Placement of Zi prosthetic cylinder.



21. Provisional crown of tooth region

## FOLLOW-UP TOOTH 15



22. Clinical and radiographic control of tooth region 15, 14 days.



23. Clinical and radiographic control of tooth region 15, 28 days.



24. Clinical and radiographic control of tooth region 15, 40 days.

## FOLLOW-UP TOOTH 25



25. Clinical and radiographic control of tooth region 25, 14 days.



26. Clinical and radiographic control of tooth region 25, 28 days.



27. Clinical and radiographic control of tooth region 25, 40 days.



28. Clinical impression with closed tray post.



29. Final crown at lab's model.



30. Clinical aspect after the placement of the final crown – tooth region 25.



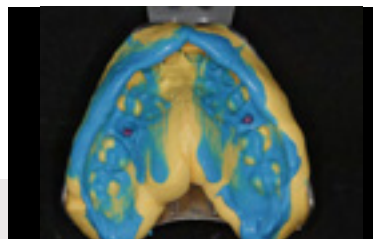
31. Clinical aspect after the placement of the final crown – tooth region 25.



32. Radiographic aspect after the placement of the final crown – tooth region 25.



33. Clinical impression with closed tray post.



34. Placement of the Zi 4.3 implant in the tooth region 25.



35. Zi 4.3 implant placed in the tooth region 25.



36. Radiography after impant placement.



# Learning outcomes from the doctor

## Questions and answers

### **PROFESSIONAL OPINION OF THE PRODUCT AND THE PROCEDURE:**

The installation of the implants was straightforward. The tapered drills are the same as those I have already used, bring familiarity to the procedure. I instrumented the entire size of the implants by the characteristic of the implant. The implant was installed by motor/contra-angle. And the final torque measured with torque wrench. Regarding the prosthetic part I found very good the fact that the PEEK CR Abutment offers the option of the temporary cylinder / transfer. I used as a cylinder and greatly optimized the prosthetic procedure of the case. As for the Zi healing Abutment used in element 15, I observed a great advantage because it allowed the soft tissue manipulation technique (for volume gain) at this stage, since it provided tissue support.

### **What were the other treatment options?**

Alternatively, an attempt at conservative treatment would have been possible: a root canal treatment and a prosthetic restoration with a crown. However, since the patient already had two unsuccessful root canal treatments, including root tip resection, they categorically rejected this kind of treatment. The patient expressed that they want to receive an immediate loading treatment.

### **There was any challenge during the treatment?**

The challenge with this kind of treatment always is in preoperative planning. In this phase, the foundations must be laid for the necessary primary stability and the accuracy of fit of the preoperatively fabricated prosthetics.

### **Tips**

Need for careful surgical instrumentation planning due to the characteristics of the Zi implant.



# 09

## **Aesthetic rehabilitation in anterior and posterior teeth in maxilla using Neodent® Zi Ceramic Implant System**

- DR. EDUARDO BORIE  
Chile

# About the case

Aesthetic rehabilitation in anterior and posterior teeth in maxilla using Neodent® Zi Ceramic Implant System

Responsible surgeon \_\_\_\_\_



**DR. EDUARDO BORIE**  
**Chile**

Associate Professor, Universidad de La Frontera, Temuco, Chile  
Master degree in Sciences (MSc)  
Doctor degree in Sciences (PhD)

## Patient Medical History:

Fifty-eight years old patient, as a medical condition, the patient reported having diabetes but was controlled with medicaments. The patient comes for a crown fracture of the upper right canine region and dislodgement of the fixed prosthesis including teeth 15, 14, 13 and 12. At the intraoral observation, was identified that the fixed prosthesis was supported only by teeth 15 and 13, and tooth 13 had a critical fracture.

## Planning:

An initial CBCT and X-ray were taken and then planned three 4.3 x 11.5mm Neodent® Zi implants in the 14, 13 and 12 regions, maintaining the tooth 15. A temporary immediate removable prosthesis was planned too, due to the esthetic compromise of the treated region.

## Prosthetic description:

Antibiotics were administered 2 hours previous to surgery. First, the fixed prosthesis was drilled and cut at the 15 region, maintaining the metal-ceramic crown of tooth 15. Then, anesthesia was performed, a mucoperiosteal flap was raised and the fractured root of tooth 13 was extracted with a lever and forceps. Subsequently, Initial Drill, Tapered Drill Ø2.0, 3.5 and 4.3 were used and the three Neodent® Zi implants of 4.3 x 11.5 mm were placed at 12,13,14 region, at the bone level and achieving a torque of 32, 25, and 25 N.cm, respectively. Zi Cover Screw were placed in the implants to avoid possible complications with the implants that achieved torque less than 30 N.cm, and subsequently cortical allograft was placed to fill the gap in the socket of 13 tooth. Finally, the flap was sutured and the temporary immediate removable prosthesis of teeth 12,13,14 was inserted.

## Description of the procedure:

After 3 months of follow-up, the Zi Cover Screw were removed, and Zi Healing Abutments ø4.5 were placed to finally take a conventional impression using Zi Base of 4.5 x 1.5mm in 12 and 14 implant and a Zi Base 4.5 x 2.5mm in region 13. E-max crowns were requested and then cemented with resin cement. Finally, the crowns were screwed at 32 N.cm and the case was finished, with a perfect smile and a very grateful patient.

## Neodent® materials:



Neodent Zi 4.3 x 13mm



Zi Healing  
Abutment ø4.5



Zi Base 4.5 x 1.5mm



Zi Base 4.5 x 2.5mm

# Surgical and prosthetic procedure:



1. Fractured root of tooth 13.



2. The fractured root of tooth 13 was extracted.



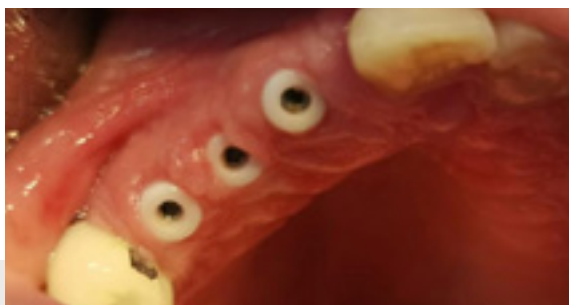
3. Neodent® Zi implants placed at 12, 13 and 14 region.



4. Neodent® Zi implants placed at 12, 13 and 14 region. The gap was filled with cortical allograft.



5. The gingival flap was sutured.



6. Clinical aspect of implants after 3 months post surgery.



7. Occlusal view, clinical aspect of final rehabilitation after 90 days postsurgery.



8. Lateral view, clinical aspect of final rehabilitation after 90 days postsurgery.

## Testimonial

### **Professional opinion of the product and procedure, focusing on your learning from the case**

The Zi implant could be a good alternative for lost teeth in the esthetic region, however, the reminescent bone needs to be adequate for the implant diameter.

### **What were the other treatment options? Why choose this solution?**

The case could be treated with titanium implants too, however, by the socio-economic condition of the patient we decided to help her and treat her with zirconia implants in the esthetic region.

### **What are the challenges during treatment and how were they resolved?**

The implant's diameter was a constant concern during the surgery due to the proximity that the implant could have to the adjacent roots and between implants. Fortunately, the drilling processes were controlled with X-rays until the final placement of the implant.



# 10

## **Immediate loading single unit rehabilitation with Neodent® Zi Ceramic Implant System in the upper anterior region**

- DR. JORGE JOFRÉ  
Chile

# About the case

Immediate loading single unit rehabilitation with Neodent® Zi Ceramic Implant System in the upper anterior region

Responsible surgeon \_\_\_\_\_



**DR. JORGE JOFRÉ**  
**Chile**

Professor at the School of Dentistry, University of Concepción, Chile  
Doctor degree in (PhD)  
Specialist in Prosthodontics and Oral Implantology.

## Patient Medical History:

A fifty-four years old patient in good general health. They had come with a root perforation in the area of the upper central incisive (tooth 21).

## Planning:

After the clinical examinations and observing the image exams obtained from the patient, the strategy suggested for rehabilitation was the extraction of the residual root and restoration of the patient in immediate loading using Neodent® Zi implant since the region affected by the trauma (tooth 21) has a high aesthetic demand.

## Description of the procedure:

The process came after the following sequence. First, the extraction was performed, as well as the removal of the adjacent infected tissue. The drilling protocol was performed according to the manufacturer's instructions. The implant reached the stability necessary to carry out the immediate loading, so the Zi Base was ready for the placement of the temporary dental element.



## Prosthetic description

After the healing period, the final crown performed was over the Zi Base abutment. The crown was placed, and the occlusal adjustments were performed

### Neodent® materials:



Zi Implant 4.3 x 13mm

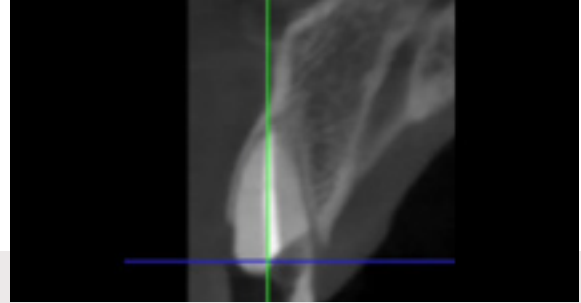


Zi Base

# Surgical and prosthetic procedure:



1. Initial clinical appearance of tooth 21.



2. Radiographic aspect of tooth 21.



3. Extraction of residual root from tooth 21



4. Drilling protocol of Neodent® Zi implant



5. Neodent® Zi implant placement at 21 region



6. The primary stability was achieved with 45 N.cm final torque.



7. A provisional abutment was installed for rehabilitation with immediate loading.



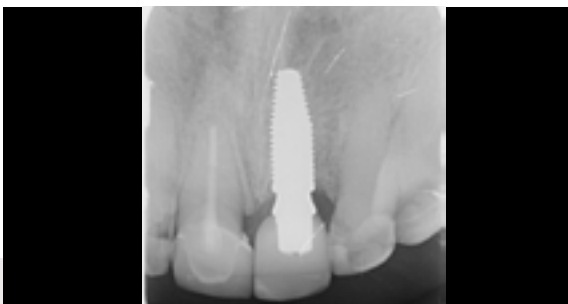
8. Immediate loading was performed with the installation of a provisional tooth.



9. Clinical aspect after fourteen days of the surgery



10. Clinical aspect after six months of the surgery.



11. Radiographic aspect after two years of the surgery



12. Clinical aspect of final rehabilitation, two years of the surgery.

# Testimonial

## **Professional opinion of the product and procedure, focusing on your learning from the case.**

In general, the procedure did not differ from the conventional one, except for the limitations in implant diameter and torque that can be applied.

## **What were the other treatment options? Why choose this solution?**

- Extraction, alveolar preservation, soft tissue graft, delayed implant, emergence profile shaping with provisional restoration (6 months).
- Extraction, immediate implant, soft tissue graft and bone graft to seal the gap, healing abutment, shaping the emergence profile with delayed provisional (3 months).
- Extraction, implant, soft tissue graft and bone graft to seal the gap. Immediate provisional.
- Extraction, implant and immediate provisional (Prosthetic socket seal). We chose this option because it is the most efficient: we achieve a good result with a predictable procedure, without unnecessary material expenses and all the benefits this has for the patient. A patient centered outcome.

## **What are the challenges during treatment and how were they resolved?**

The main challenge was to achieve an optimal initial stability of the implant to allow immediate provisionalization, but not to exceed the limits allowed by this implant.

### **Tips.**

Follow the drilling sequence indicated for each type of bone. Evaluate the planned depth of the implant considering that the height of the available abutments is not more than 2.5mm.



# 11

## **Soft tissue management follow-up in a lower rehabilitation with Neodent® Zi Ceramic Implant System**

- DR. MATTHIEU GOUDAL  
France

# About the case

Soft tissue management follow-up in a lower rehabilitation with Neodent® Zi Ceramic Implant System

Responsible surgeon \_\_\_\_\_



**DR MATTHIEU GOUDAL**  
**France**

Phd Dental Surgeon  
Dental implant specialist  
ITI study club director

## Patient Medical History:

Seventy-one years old patient with, good general health, no medication.  
The patient has many dental restoration in various alloys and she was interested in ceramic implant.

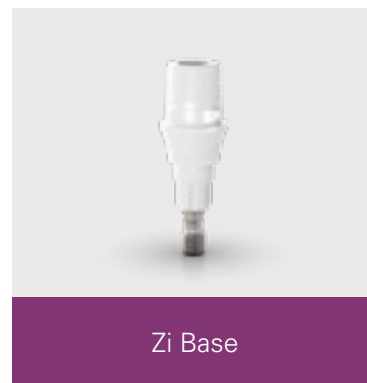
## Planning:

Virtual planning performed with coDiagnostiX.

## Description of the procedure:

The case started with a flap detachment in order to be safer giving the soft tissue condition. The drilling protocol was freehanded and followed the manufacture's recommendation – Initial Drill, Tapered Drill 2.0, Tapered Drill 3.5, Tapered Drill 4.3. Since it was a bone type 3 the use of Countersink Drill was necessary. Also it was important to perform the cervical osteotomy and avoid compression on cortical bone

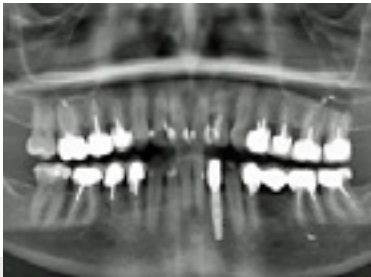
## Neodent® materials:



## Prosthetic description:

The digital workflow was followed by the scanning on patient's mouth.  
The final crown was produced over the Neodent Zi Base.

## Surgical and prosthetic procedure:



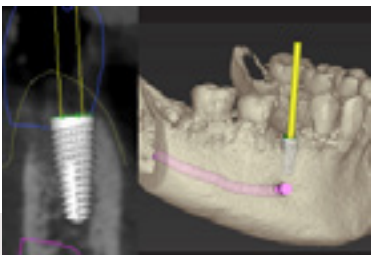
1. Initial X-ray.



2. Initial clinical aspect  
- frontal view



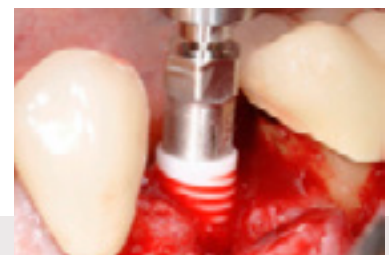
3. Initial clinical aspect  
- occlusal view.



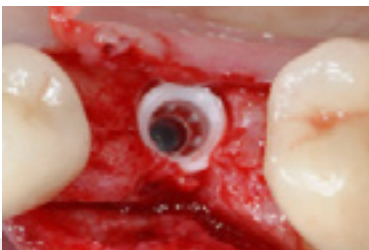
4. Implant planning



5. A provisional abutment  
was installed for rehabilitation  
with immediate loading.



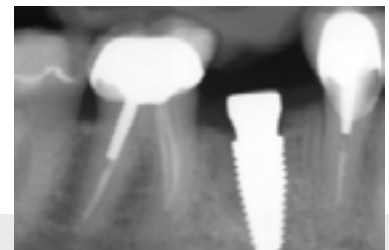
6. Immediate loading was  
performed with the installation  
of a provisional tooth.



7. Neodent Zi implant  
4.3mm placed.



8. Neodent Zi Healing abutment  
placed right after the implant  
placement.



9. X-ray after the implant  
placement.

## Soft tissue management follow-up in a lower rehabilitation with Neodent® Zi Ceramic Implant System



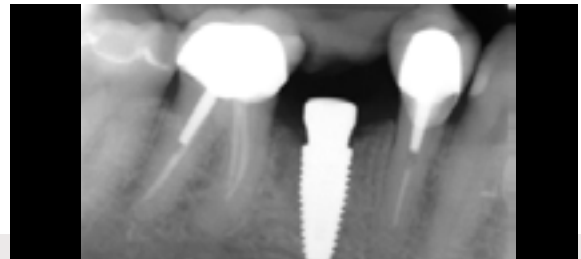
10. Clinical aspect – 14 days of follow-up.



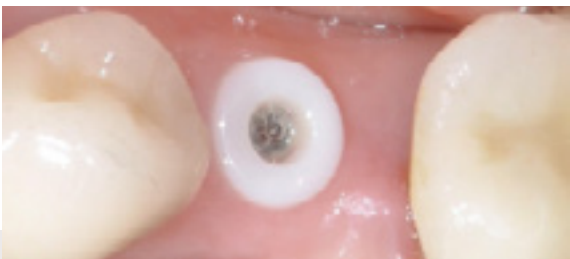
11. X-ray – 14 days of follow-up



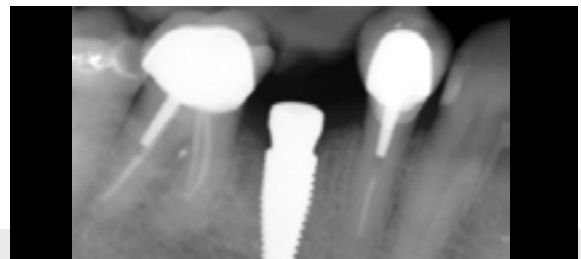
12. Clinical aspect – 28 days of follow-up.



13. Finishing the implant installation with the transfer piece.



14. Clinical aspect – 40 days of follow-up.



15. X-ray – 40 days of follow-up.



16. Clinical aspect – 60 days of follow-up.



17. X-ray – 60 days of follow-up



## Soft tissue management follow-up in a lower rehabilitation with Neodent® Zi Ceramic Implant System



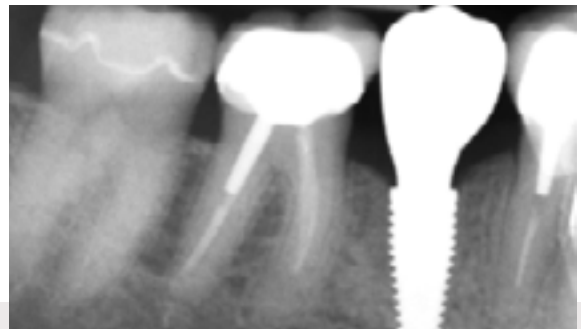
18. Scanbody placed for digital workflow



19. 60 days after the surgery – soft tissue aspect.



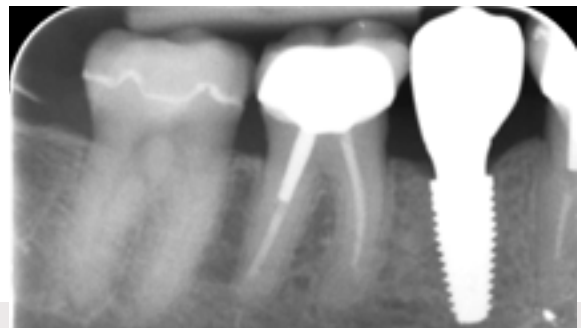
20. Final single crown installed.



21. Final single crown installed - radiographic aspect.



22. Final single crown, buccal view, 22 months after the surgery.



23. Final single crown, radiographic aspect, 22 months after the surgery.



# 12

## **Immediate aesthetic rehabilitation with Neodent® Zi Ceramic Implant System**

- DR. RICARDO KERN  
Brazil

# About the case

Immediate aesthetic rehabilitation with Neodent® Zi Ceramic Implant System

Responsible surgeon \_\_\_\_\_



## **DR. RICARDO KERN** **Brazil**

Masters in Periodontology – UEPG;  
Executive MBA – FGV, Brasil;  
Specialist in Periodontology – ABO-PR;  
Specialist in Implantology – ABO-PR

## **Patient Medical History:**

Twenty-seven years old patient with good general health. The patient had an implant with peri-implantitis and mobility on the region of tooth 11. Above this implant there was a provisional crown made in acrylic resin.

## **Planning:**

On the initial evaluation it was performed a digital x-ray, impression in alginate and it was subscribed the pre-surgical medication.

## **Description of the procedure:**

The local anesthesia was performed and the existent implant was removed with a Retrifer. The drilling protocol followed the drilling sequence recommended by the manufacturer for a bone type IV: Initial Drill, Tapered Drill 2.0, Tapered Drill 3.5, Tapered Drill 4.3, Countersink Drill and Bone Tap. The Neodent Zi 4.3 x 11.5mm was placed with a final torque of 45 N.cm. Since the placement of the implant reached enough torque to place a immediate crown, the PEEK CR Abutment was placed and the provisional crown was placed above it. In the gap was filled with biomaterial.

## Prosthetic description:

After the healing period the final crown performed was over the Zi Base abutment, following the conventional workflow. The crown was placed and the occlusal adjustments were performed.

## Neodent® materials:



Zi Implant 4.3 x 11.5mm



PEEK CR Abutment



Zi Base

## Surgical and prosthetic procedure:



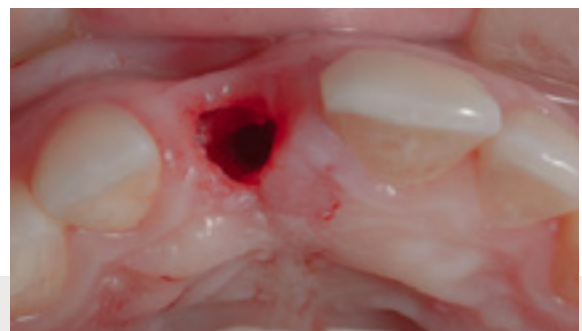
1. Initial clinical aspect.



2. Initial radiographic aspect.



3. Initial clinical aspect after the old crown removal.



4. Clinical aspect after implant removal.

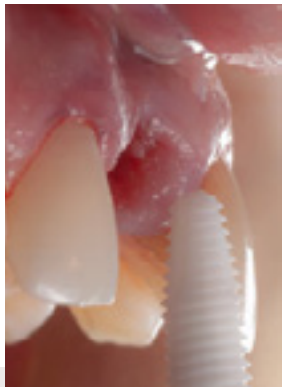
# Immediate aesthetic rehabilitation with Neodent® Zi Ceramic Implant System



5. Neodent Zi drilling protocol.



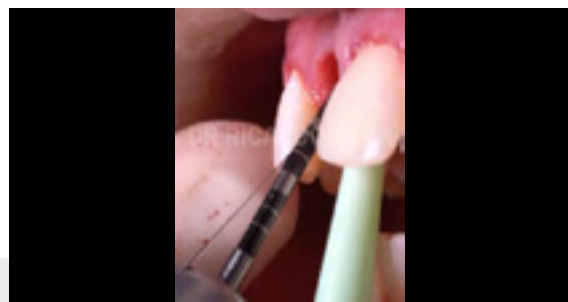
6. Bone tap applicability.



7. Neodent Zi implant placement.



8. Neodent Zi implant placed.



9. Temporary crown production.



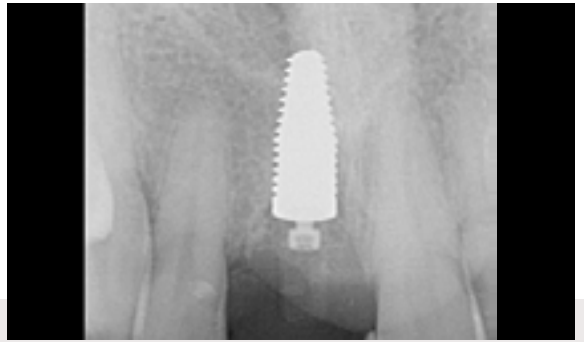
10. Clinical aspect after sutures and placement of the provisional crown.



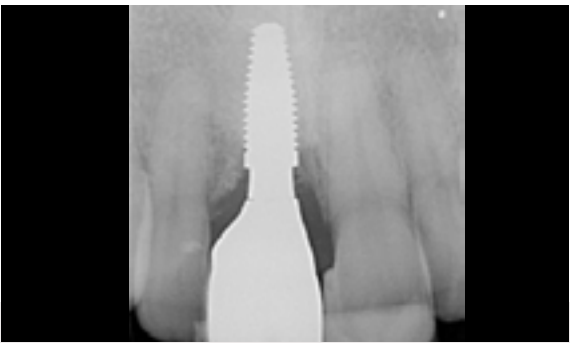
11. Clinical aspect of the soft tissue condition after 3 months of healing.



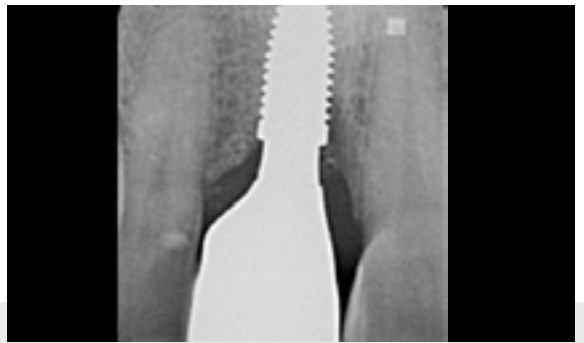
12. Clinical aspect after final crown placement.



13. Radiographic aspect of the provisional immediate crown.



14. Radiographic aspect of the final crown try-in.



15. Radiographic aspect 6 months of follow-up of the final crown.

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## Learning outcomes from the doctor

### Questions and answers

#### **PROFESSIONAL OPINION OF THE PRODUCT AND THE PROCEDURE:**

The impressions that I had in the use of Zi implant system is that it is an extremely accurate implant system specially in relation to the fittings: temporary fittings, fitting of the definite Zi Base - The stability accuracy of the abutments it is outstanding.

## What were the other treatment options?

The challenge of this case was that the patient asked for a metal free solution. This could be since he had lost previously a titanium implant. When we presented the ceramic solution, he adhered in a very favorable way.v

## Tips.

The clinical tips here for the use of this implant system is to follow strictly the drilling protocol recommended by the manufacturer, in order to achieve the primary stability. In order to do this, it requires a little more attention in identifying the type of bone that we are working to follow the correct drilling sequence we can stay in the stability window and end up not and passing a torque above the recommended.



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