



## SCREW-RETAINED HYBRID THERAPY FOR YOUR EDENTULOUS PATIENTS



COMMITTED TO  
**SIMPLY DOING MORE**  
FOR DENTAL PROFESSIONALS<sup>SM</sup>

## Edentulous patients can benefit with implant-supported dentures

Advances in dental technology and clinical research support the placement of immediately loaded implants in appropriate clinical circumstances. The screw-retained hybrid offers a secure, cost-effective treatment that can give your patients a reason to smile again.

In 2008 the International Team for Implantology (ITI), a worldwide leading independent academic and research organization, conducted the 4th ITI Consensus Conference to review the available scientific evidence for loading protocols in implant dentistry.

ITI Consensus Statement, Statement 4 (Summary, Pg. 9.) "In the case of the edentulous maxilla, the literature supports immediate loading of microrough implants with fixed prostheses."\*

- "In some cases, tilting the more distal implants can be considered an option to support a maxillary fixed prosthesis. Distally tilted implants allow a reduction of the cantilever length and provide additional distal support to the prosthesis." Pg. 54. (P. Casentini, D. Wismeijer, M. Chiapasco)\*
- "The scientific literature on immediate loading with fixed provisional prostheses in the edentulous maxilla presents an implant survival rate ranging from 95.4% to 100%." Pg. 63. (G.O. Gallucci)\*
- "Little scientific evidence exists to indicate the minimum number, diameter, length, and ideal position of the implants to support a maxillary fixed prosthesis." Pg. 48. (P. Casentini, D. Wismeijer, M. Chiapasco)\*

\*Citation: ITI Treatment Guide

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### Overview of a screw-retained case



Fig 1: Pre-operative view of patient situation.

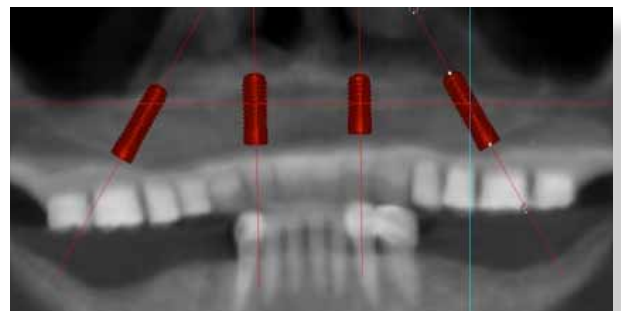


Fig 2: X-ray view of implant treatment plan. Note 30° angle of posterior implants and placement in first molar area.



Fig 3: Provisional fixed hybrid prosthesis in place day after surgery.

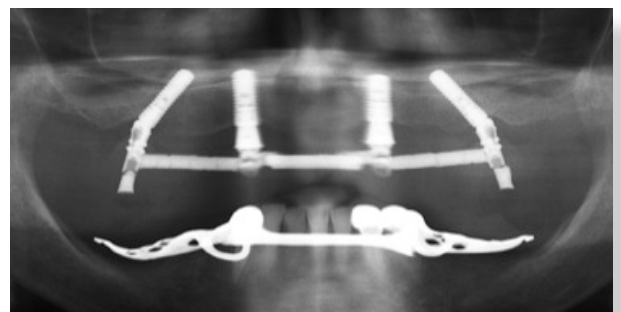
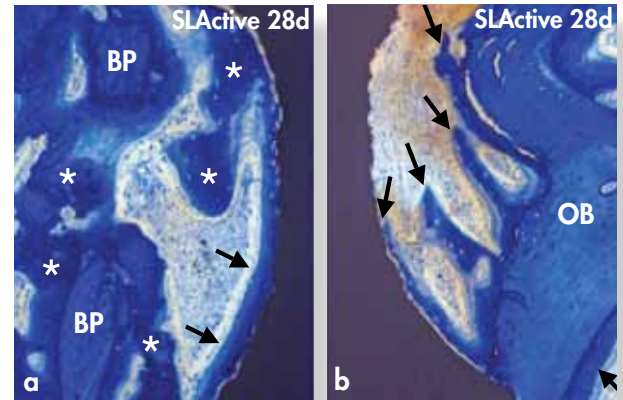


Fig 4: Three year post operative x-ray.

## SLActive® – High Stability and Predictability

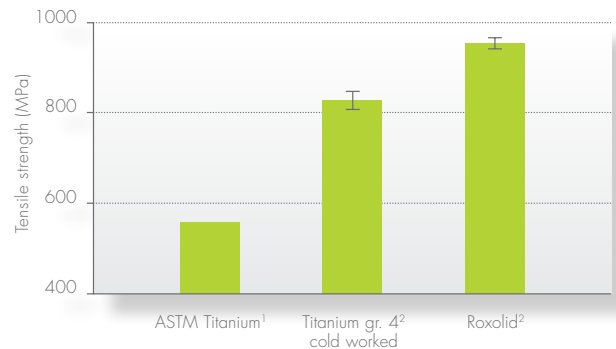
Straumann's SLActive implant surface is designed to provide faster osseointegration and greater confidence in implant treatment. Thanks to its unique properties of hydrophilicity and chemical activity, SLActive implants have been shown to provide success rates of 98% in immediate loaded situations and 97% success rates in early loading situations.<sup>1</sup> Results of human histological analysis reveal that SLActive implants showed significantly higher bone-to-implant contact after 28 days compared to the hydrophobic SLA surface.<sup>2</sup> (Fig 1)



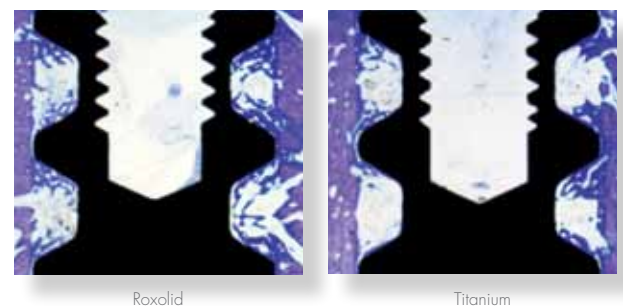
**Fig 1:** Light micrographs illustrating the peri-implant tissues of an SLActive surface after 28 days of healing. New bone is found in form of either thin coating on both the implant surface and old bone (OB) (arrows), as struts of woven bone trabeculae extending from the old bone toward the implant surface (arrows), or as larger and more mature woven bone areas connecting isolated bone particles (\*).<sup>7</sup>

## Secure Smiles with Small Diameter Roxolid® Implants

The combination of Roxolid material and SLActive specifically addresses two important parameters: exposure to high chewing forces and good osseointegration. Mechanical tests have demonstrated higher fatigue and tensile strengths of Roxolid implants compared to Straumann's titanium implants<sup>5</sup> (Fig 2). This high strength is combined with the hydrophilic SLActive surface, whose excellent osseointegration properties have been shown in various pre-clinical<sup>3,4</sup> and clinical studies<sup>3,4</sup> (Fig 3). This delivers peace of mind for treatments with small diameter implants.



**Fig. 2:** Tensile strength of Roxolid is greater than annealed and cold worked titanium.<sup>3</sup>



**Fig. 3:** Histological analysis showing Roxolid (left) and titanium (right). They have shown a better bone in-growth behavior as measured by BATA (bone area to total area) with Roxolid compared to Straumann's titanium.<sup>3,6</sup>

<sup>1</sup> J. Ganeles, A. Zöllner, J. Jackowski, C. ten Bruggenkate, J. Beagle, F. Guerra Clin. Oral Impl. Res 2008;19:1119-1128.

<sup>2</sup> Lang NP, Salvi GE, Huynh-Ba G, Ivanovski S, Donos N, Bosshardt DD. Clin. Oral Implants Res. 2011;22:349-356.

<sup>3</sup> Data on file, used for all Straumann® titanium and Roxolid implants

<sup>4</sup> Stone P, "Experience new confidence and freedom with small diameter implants", 1 yr preliminary data of pilot study, oral presentation at the EuroPerio 2009, Stockholm

<sup>5</sup> Norm ASTM F67 (states min. tensile strength of annealed titanium)

<sup>6</sup> Gottlow J et al. Preclinical data presented at the 17th Annual Scientific Meeting of the European Association for Osseointegration (EAO), Warsaw

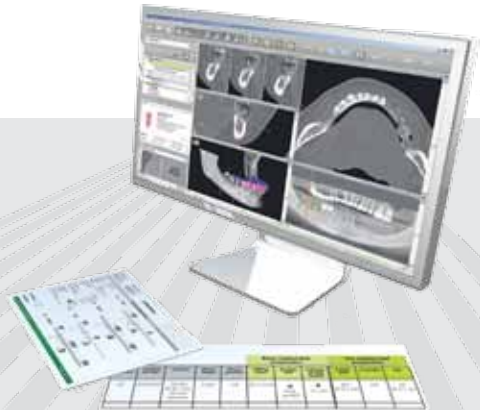
<sup>7</sup> Lang NP, Salvi GE, Huynh-Ba G, Ivanovski S, Donos N, Bosshardt DD. Early osseointegration to hydrophilic and hydrophobic implant surfaces in humans. Clin. Oral Impl. Res. 22, 2011; 349-356.



## **Straumann® CARES® Guided Surgery** A Digital Planning Solution

### coDiagnostiX™

- Straumann CARES Guided Surgery allows you to find the optimal implant position and plan for a more predictable esthetic result
- Sophisticated visualization features allow you to explain the advantages of your treatment option to the patient



### gonyX™

- Local lab fabricates scan and surgical templates, ensuring a quick turnaround time and guaranteed fit at time of surgery



### Surgical Instruments

- Guided surgery instrumentation kit provides comprehensive instrumentation with depth stops designed for precise implant placement












## **Prosthetic Planning Kit** An Intra-Oral Planning Solution












### CrossFit® Planning Kit

- Intra- and extra-oral prosthetic planning for all NC and RC abutments
- Fabricated of sterilizable polymer material



## Screw-retained hybrid prosthetic portfolio

Description	Impression Post		Analog	Temporary Abutment	Final Abutment/ Coping
	Open	Closed		Screw	
<b>Regular Connection</b>					
RC Multi-Base abutment 0° D 4.5 mm, H 1.0 mm/Coping					022.4741/ 023.4741-gold or 023.4744-plastic
RC Multi-Base abutment 0° D 4.5 mm, H 2.5 mm/Coping	 025.4242	 025.4241-04	 025.4141	 024.4342	022.4742/ 023.4741-gold or 023.4744-plastic
RC Multi-Base abutment 0° D 4.5 mm, H 4.0 mm/Coping					022.4744/ 023.4741-gold or 023.4744-plastic
RC Multi-Base abutment 0° D 6.5 mm, H 1.0 mm/Coping					022.4761/ 023.4761-gold or 023.4764-plastic
RC Multi-Base abutment 0° D 6.5 mm, H 2.5 mm/Coping	 025.4262	 025.4261-04	 025.4161	 024.4362	022.4762/ 023.4761-gold or 023.4764-plastic
RC Multi-Base abutment 0° D 6.5 mm, H 4.0 mm/Coping					022.4764/ 023.4761-gold or 023.4764-plastic
RC Multi-Base abutment 25° A/ Coping	 025.4206		 025.4106	 024.4307	022.4782/ 023.4701-gold or 023.4704-plastic
RC Multi-Base abutment 25° B/ Coping					022.4786/ 023.4701-gold or 023.4704-plastic

<b>Narrow Connection</b>					
NC Multi-Base abutment 0° D 3.5 mm, H 1.0 mm/Coping					022.2731/ 023.2731-gold 023.2734-plastic
NC Multi-Base abutment 0° D 3.5 mm, H 2.5 mm/Coping	 025.2232	 025.2231-04	 025.2131	 024.2332	022.2732/ 023.2731-gold 023.2734-plastic
NC Multi-Base abutment 0° D 3.5 mm, H 4.0 mm/Coping					022.2734/ 023.2731-gold 023.2734-plastic
NC Multi-Base abutment 0° D 4.5 mm, H 1.0 mm/Coping					022.2741/ 023.2741-gold 023.2744-plastic
NC Multi-Base abutment 0° D 4.5 mm, H 2.5 mm/Coping	 025.2242	 025.2241-04	 025.2141	 024.2342	022.2742/ 023.2741-gold 023.2744-plastic
NC Multi-Base abutment 0° D 4.5 mm, H 4.0 mm/Coping					022.2744/ 023.2741-gold 023.2744-plastic
NC Multi-Base abutment 25° A/ Coping	 025.2206		 025.2106	 024.2307	022.2782/ 023.2701-gold 023.2704-plastic
NC Multi-Base abutment 25° B/ Coping					022.2786/ 023.2701-gold 023.2704-plastic

# Clinical Case Presentation

Dr. Steven Fuqua ■ Southlake, TX



Fig 1: Intra-oral view of 62 year old male.



Fig 2: Pre-operative x-ray of patient.



Fig 3: Day of surgery in mouth situation.

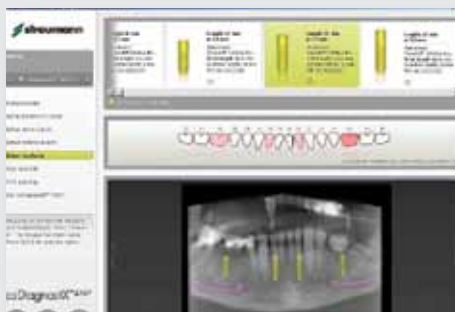


Fig 7: coDiagnostiX Planning software showing position of planned implant sites. Note: Roxolid implants have been planned for use in this case<sup>1</sup>.

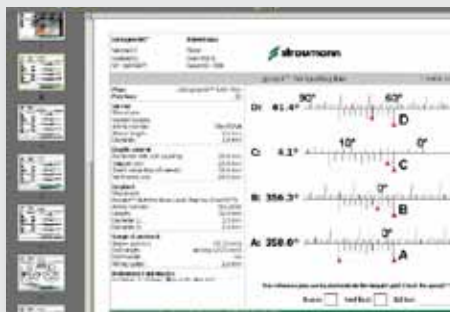


Fig 8: Copy of gonyX template plan. This plan is the basis from which the scanning/surgical template is created.



Fig 9: Fabrication of the surgical guide on the gonyX.



Fig 13: Occlusal view of mandible showing depth gauge indicators in anterior osteotomies with template fixation pins in the posterior osteotomies.



Fig 14: Implants placed with temporary abutments placed. The temporary abutments were trimmed to length and are ready to be processed into the temporary prosthesis.



Fig 15: Temporary prosthesis in patients mouth.

<sup>1</sup>Roxolid implants are not indicated for use in the molar region





**Fig 4:** Custom made scanning template on patient model.



**Fig 5:** View of scanning template in patient's mouth prior to scanning.



**Fig 6:** View of loaded DICOM file in Straumann coDiagnostiX.



**Fig 10:** Custom made surgical template on patient model. Template was created using the scanning template and the gonyX.



**Fig 11:** Surgical guide and temporary prosthesis.



**Fig 12:** The planned extractions were completed and the surgical guide was fitted on to the remaining teeth for anchorage. After implant placement, the remaining teeth will be extracted.



**Fig 16:** Temporary prosthesis with temporary abutments processed in place. Acrylic was used to process the abutments into the prosthesis. Notice the flanges on the prosthesis have been removed for patient comfort.



**Fig 17:** Patient in mouth situation after placement of temporary prosthesis.



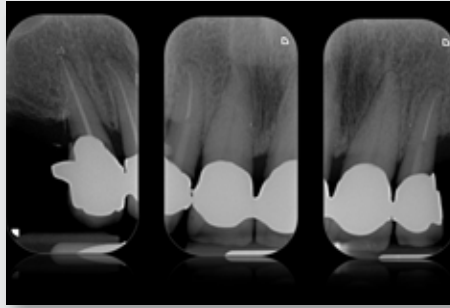
**Fig 18:** Post operative x-ray showing implants and temporary prosthesis in place.

## Clinical Case Presentation

Dr. Sergio Piano ■ Genoa, Italy



**Fig 1:** Intra-oral view of a 73-year-old female patient before treatment: on the upper jaw, a removable prosthesis is connected to a compromised bridge located in the frontal area. The patient requested a fixed rehabilitation.



**Fig 2:** X-ray images showing the involved hopeless teeth in the upper frontal area.



**Fig 3:** After taking a first impression, a master model is made and, on the basis of a diagnostic wax-up, the diagnostic guide is produced.



**Fig 7:** At this point, it is important to check the occlusion given that this guide will also be used as an impression tray and for the recording of the occlusion.



**Fig 8:** The indicated direction of the guide is shown by the position of the pin.



**Fig 9:** An occlusal view of the four BL implants in the planned position.



**Fig 13:** After removing the guide, it is sent to the lab to produce the prosthesis.



**Fig 14:** The compatibility of the titanium structure with the planned teeth position is checked simply by using the guide.



**Fig 15:** The prosthesis is ready to be delivered the following day.





**Fig 4:** By placing metal rods as radio-opaque markers on the guide, the resulting x-rays indicate the correct direction of the drilling axes in the posterior area.



**Fig 5:** Frontal view of the remaining compromised teeth.



**Fig 6:** The teeth are extracted and the flap is raised.



**Fig 10:** In the next step, Multi-Base abutments (3 straight and 1 angled) are screwed onto the fixtures.



**Fig 11:** After suturing, titanium temporary copings are placed onto the Multi-Base abutments to be used as transfers.



**Fig 12:** The surgical guide is now used as an impression tray. After having protected the tissue with rubber dam, the temporary copings are connected to the guide with resin in order to ensure that the positioning of the implants is able to be precisely transferred to the lab technician. During the resin polymerization, the patient's mouth is kept in the correct occlusion whilst all required data is obtained.



**Fig 16:** Frontal view of the prosthesis on the cast model.



**Fig 17:** The final x-ray images confirm the correctly-planned implant positioning.



**Fig 18:** After 3 months, the prosthesis is simply relined in order to be transformed into a low-cost final rehabilitation.







## Literature List

For continued reading on edentulous solutions, the below resources are available:

### ITI Treatment Guide Volume 4. Loading Protocols in Implant Dentistry: Edentulous Patients

Wismeijer, D., Casentini, P., Gallucci, G., Chiapasco, M. (2010)  
Berlin. Quintessence Publishing Co, Ltd.

### Immediate and early loading of Straumann implants with a chemically modified surface (SLActive®) in the posterior mandible and maxilla: 1-year results from a prospective multicenter study

J. Ganeles, A Zollner, J. Jackowski, C. ten Bruggenkate, J. Beagle, F. Guerra  
Clin. Oral Impl. Res 2008;19:1119-1128.

**Abstract:** 383 SLActive implants were placed in the mandible and/or maxilla of 266 patients restored immediately or after 28-34 days. Survival rates after 12 months were high and were not significantly different between the two groups. Similarly, the change in mean bone level was not significantly different between the groups, after adjusting for implantation depth, and several cases of bone gain were observed.

#### Conclusions:

- Immediate and early loading with Straumann SLActive implants yields excellent survival rates (98% and 97% after 1 year)
- Immediate loading is as successful as early loading with Straumann SLActive implants
- Successful implant treatment is possible with Straumann SLActive even in poor quality bone
- No implant failures were evident in Type IV bone
- Bone gain was observed in 16% of the implants

### Enhanced implant stability with a chemically modified SLA® surface: a randomized pilot study

T.W. Oates, P. Valderama, M. Bischof, R. Nedir, A. Jones, J. Simpson, H. Toutenburg, D.L. Cochran  
Int J Oral Maxillofac Implants 2007;22:755-760.

**Abstract:** Implant stability, measured by resonance frequency analysis, was compared for SLA and SLActive implants over the first 12 weeks following implant placement in humans. After an initial decrease in stability for both groups, stability increased with SLActive implants at a much earlier stage than with SLA implants (2 weeks versus 4 weeks).

#### Conclusions:

- Significant improvement in the stability pattern with SLActive
- Increased stability at an earlier stage with SLActive (break point after 2 weeks with SLActive versus 4 weeks with SLA)
- Results suggest faster healing and osseointegration with SLActive
- SLActive has the potential for reduced risks and more predictability in early/immediate loading procedures

To implement screw retained hybrid cases in your practice today,  
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[www.straumann.com](http://www.straumann.com)



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