

STRAUMANN® ROXOLID®

Reducing invasiveness.
Improving patient acceptance.



Roxolid®



Product overview

A SOLID FOUNDATION TO BUILD ON

Roxolid® is a high performance alloy, specifically designed by Straumann to offer higher strength than pure titanium and excellent osseointegration capabilities.

Since its launch in 2009, Roxolid® has been successfully used to help implant patients with narrow spaces or where limited bone is available. The clinical data gathered since its introduction confirm that using smaller-diameter Roxolid® Implants helps to avoid bone augmentation, reduces invasiveness and creates treatment opportunities for patients with insufficient bone.¹⁻³

DISCOVER ROXOLID®:

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**STRAUMANN® ROXOLID® –
SETTING NEW STANDARDS**

INCREASE PATIENT ACCEPTANCE

Dental implants are a well-established and predictable treatment option for replacing missing teeth. Nevertheless, some patients are apprehensive about implant treatment if bone augmentation is required. Increase patient acceptance levels by offering less invasive treatment plans.^{2, 11, 12}



Whether you are looking to increase your patients' acceptance of implant treatments, or for the peace of mind that less invasive techniques can provide. Roxolid® offers more confidence when placing reduced-diameter implants and more flexibility of treatment options with smaller implants, especially in cases where bone augmentation can be avoided.^{1, 4}

CLEAR ADVANTAGES FOR YOU AND YOUR PATIENTS

Do you have patients who are unsure about implant therapies because they are worried about grafting procedures, lengthy treatment times, or high therapy costs?

Roxolid® treatment plans can help to overcome many patient doubts – imagine the possibilities for your practice. The enhanced biocompatibility of Roxolid® Implants help to reduce the overall treatment complexity and improve patient acceptance.^{1-4, 7, 8}

The hydrophilic surface of SLActive® is designed for faster healing and higher treatment predictability, even in challenging indications.^{5, 6, 14-16}

AVOIDING INVASIVE GRAFTING PROCEDURES WITH ROXOLID® OFFERS YOU AND YOUR PATIENTS NUMEROUS BENEFITS:^{1,2}

- Minimize patient anxiety with shorter and less invasive treatment options
- Faster healing and less post-operative discomfort with smaller and shorter implants
- Minimize the mental hurdle with lower treatment costs

“

I was afraid that bone would have to be transplanted. The implant I have now was like a gift for me. ”

Elke Z., Germany, received Roxolid® Implants.

MORE TREATMENT OPTIONS

Implants in various diameters. Roxolid® reduced-diameter implants offer more treatment options with smaller and stronger implants. You can offer your patients a solution designed to fit to their individual needs.^{1, 2, 4, 11}

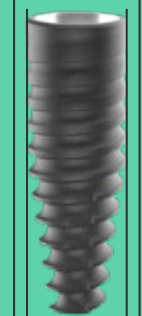
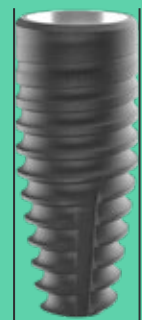
IN COMPARISON TO STRAUMANN® TITANIUM Ø 4.1 MM IMPLANTS, ROXOLID® Ø 3.3 MM IMPLANTS ALLOW YOU TO COVER THE FOLLOWING INDICATIONS:

- **Single-tooth restorations in the anterior and premolar region**
 - No limitation to lateral incisors in the maxilla, or central and lateral incisors in the mandible
- **Bridges on two Roxolid® Ø 3.3 mm Implants**
 - No combination with larger implant needed
 - No splinting of suprastructure needed
- **Full denture on two Roxolid® Ø 3.3 mm Implants**
 - No need for more than two implants in the mandible

ROXOLID® REDUCED-DIAMETER IMPLANTS HAVE MULTIPLE ADVANTAGES OVER THEIR REGULAR-DIAMETER COUNTERPARTS, SUCH AS:

- **Reduced drilling**
 - Preserves vital structures and vascularization
- **Easier placement**
 - Saves time and patient discomfort
- **Better fit in narrow spaces**
 - Leads to reduced treatment complexity

Straumann® BLT
Titanium Ø 4.1 mm



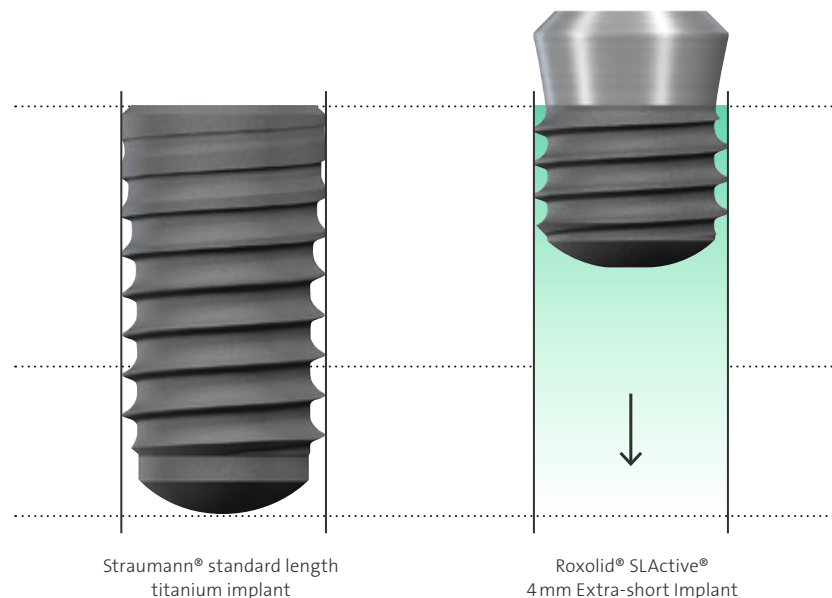
Straumann® BLT
Roxolid® Ø 3.3 mm

Roxolid® Implants are available with the well-documented SLA®, and the highly osteoconductive SLActive® surfaces. The Roxolid® Implant portfolio is available in all Straumann® implant lines, diameters and lengths.

REDUCED INVASIVENESS THROUGH USE OF **SHORTER** IMPLANTS

Straumann® has also developed a Roxolid® 4 mm Extra-short Implant, the shortest screw-type implant with internal connection on the market. This provides even more treatment options.

Smaller-sized Roxolid® Implants have the potential to preserve peri-implant structures and avoid invasive bone grafting procedures, thus safeguarding existing bone and vascular supply.



- Perfectly suitable for the treatment of partially and fully edentulous patients with very limited vertical bone availability in the posterior region
- Possibility to treat patients without complex vertical bone augmentations

GROUNDBREAKING MATERIAL

Stronger than titanium. Roxolid® is a metal alloy composed of 15 % zirconium and 85 % titanium. The combination of these two metals leads to a material with a higher tensile and fatigue strength than comparable titanium implants.

Mechanical tests have proven that Roxolid® is actually stronger than titanium grade 4. Our unique material combines high mechanical strength with excellent osteoconductivity and opens the door to a new generation of smaller implants. The improved mechanical properties of Roxolid® extend the indications in implant therapy to more challenging clinical situations and allow promoting a minimally invasive treatment approach which is particularly suitable for elderly patients with limited bone availability.^{1,2,4,11}

HIGHER TENSILE STRENGTH

550

[MPa]⁹

Standard titanium grade 4

780

[MPa]¹⁷

Straumann® titanium grade 4

953

[MPa]⁹

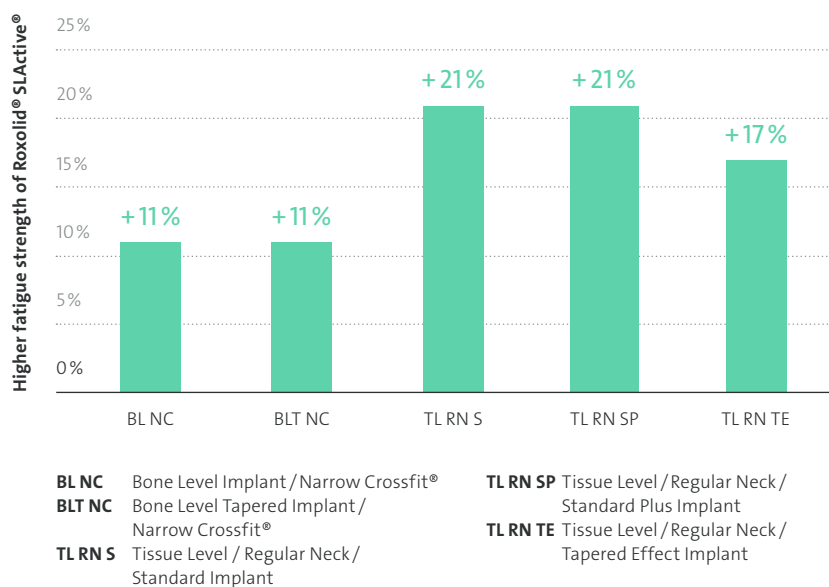
Straumann® Roxolid®

THE STRENGTH OF ROXOLID® IMPLANTS IS REFLECTED IN DAILY PRACTICE:

Roxolid® has a low fracture rate of 0.04 %.¹⁰ This is the cumulated fracture rate of all Roxolid® Implants in the market and is significantly lower compared to our titanium implants.



INCREMENTAL FATIGUE STRENGTH PER IMPLANT TYPE¹¹



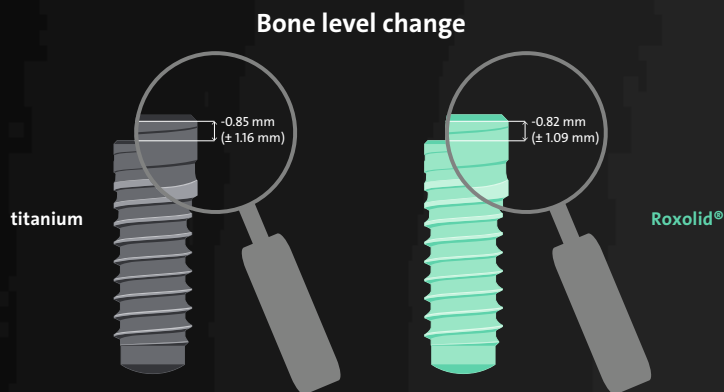
Roxolid® SLActive® (Ø3.3 mm) Implants show a higher fatigue strength in comparison to titanium SLActive® Implants.

CLINICAL PERFORMANCE

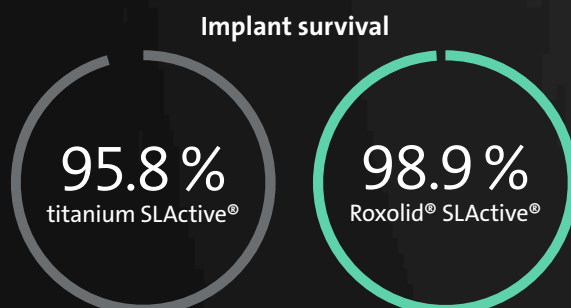
Validated results you can rely on. The successful use of Roxolid® Implants has been documented in numerous clinical indications.

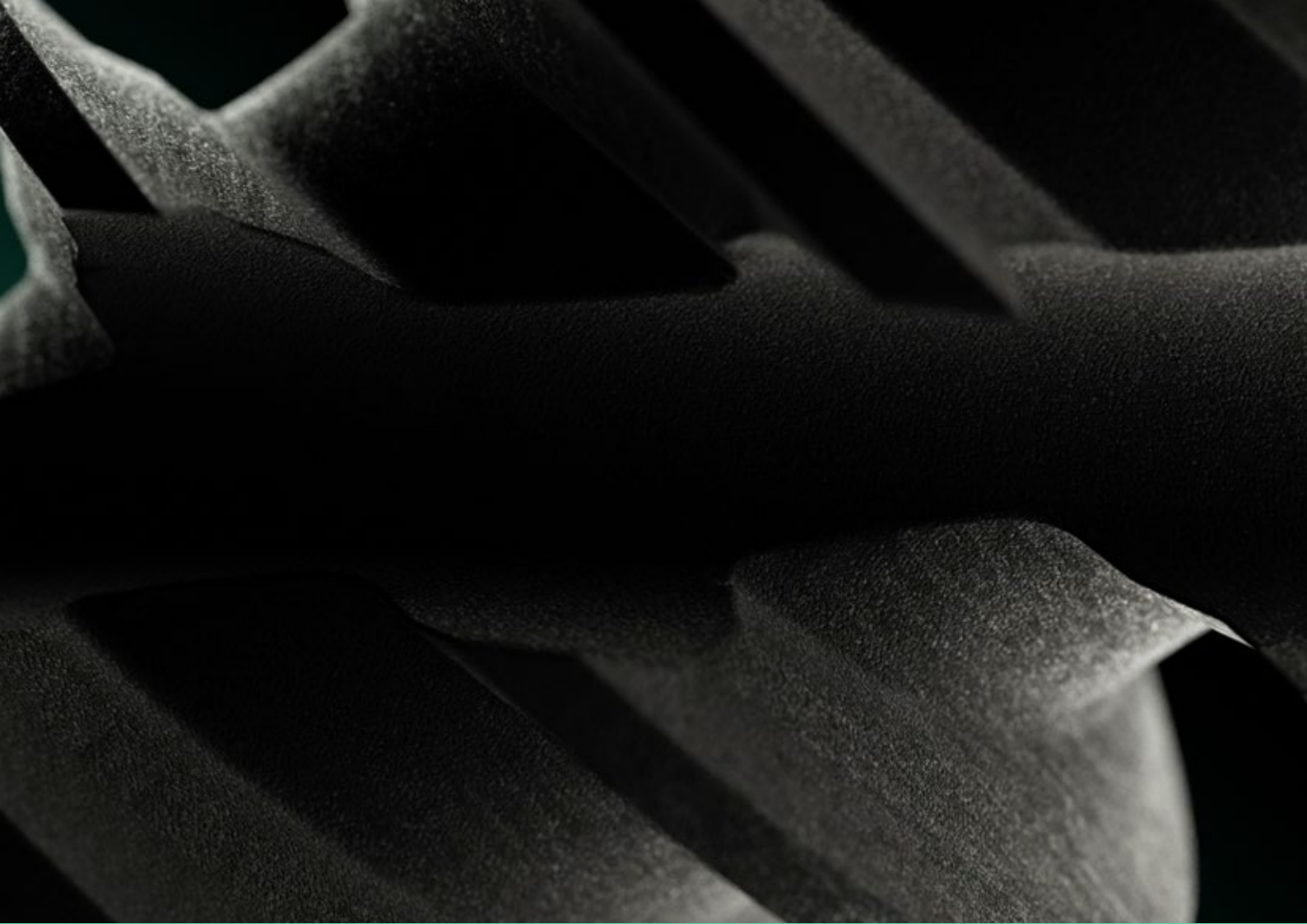
New data from a randomized multicenter study demonstrate that Roxolid® Ø3.3 mm Implants provide a safe and reliable alternative to titanium grade-4 dental implants. The 10-year follow-up data showed that success and survival are maintained over time and confirmed the credentials of small-diameter Roxolid® Implants in edentulous mandibles. There was no statistically significant difference between the functional crestal bone level changes for Roxolid® compared to titanium implants 10 years after implant placement.²

10 YEARS OF VALIDATED CLINICAL PERFORMANCE.²



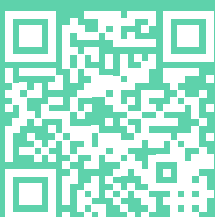
There was no statistically significant difference between the crestal bone level changes for Roxolid® compared to titanium implants ten years after implant placement.





ADVANCING ORAL IMPLANTOLOGY AND TISSUE REGENERATION

Committed to science. In collaboration with leading clinics, research institutes and universities around the world, Straumann is committed to research in the field of oral implantology and tissue regeneration. Our commitment to science and quality shows in the high amount of publicly available data on Straumann® products.



Visit www.straumann.com/science to discover a wide selection of fascinating material such as clinical reviews, case studies and publications from clinical trials in peer-reviewed journals. We also have a range of videos showing key note speakers sharing their expert opinions on implant dentistry, details on congresses and links to useful information on the web.

STRAUMANN® ROXOLID® MORE THAN SOLID

- More treatment options with smaller and stronger implants
- Increase patient acceptance by offering less invasive treatment plans
- Validated clinical proven performance

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1 Al-Nawas B, Brägger U, Meijer HJ, et al. A double-blind randomized controlled trial (RCT) of Titanium-13Zirconium versus Titanium Grade IV small-diameter bone level implants in edentulous mandibles--results from a 1-year observation period. Clin Implant Dent Relat Res. 2012 Dec;14(6):896-904. 2 Müller F et al., Small-diameter titanium grade IV and titanium-zirconium implants in edentulous mandibles: Ten-year results from a double-blind, randomised controlled split-mouth core-trial. Clin Oral Implants Res. 2024 Jan;35(1):77-88 3 Quirynen M, Al-Nawas B, Meijer HJ, et al. Small-diameter titanium Grade IV and titanium-zirconium implants in edentulous mandibles: three-year results from a double-blind, randomized controlled trial. Clin Oral Implants Res. 2015 Jul;26(7):831-40 4 Altuna P, Lucas-Taulé E, Gargallo-Albiol J, et al. Clinical evidence on titanium-zirconium dental implants: a systematic review and meta-analysis. Int J Oral Maxillofac Surg. 2016 Jul;45(7):842-50. 5 Schwarz F, Ferrari D, Herten M, et al. Effects of surface hydrophilicity and microtopography on early stages of soft and hard tissue integration at non-submerged titanium implants: an immunohistochemical study in dogs. J Periodontol. 2007 Nov;78(11):2171-84. 6 Lang NP, Salvi GE, Huynh-Ba G, et al., Early osseointegration to hydrophilic and hydrophobic implant surfaces in humans. Clin Oral Implants Res. 2011 Apr;22(4):349-56. 7 Gottlow J, Barkarmo S, Sennerby L. An experimental comparison of two different clinically used implant designs and surfaces. Clin Implant Dent Relat Res. 2012 May;14 Suppl 1:e204-12 8 Wen B, Zhu F, Li Z, et al. The osseointegration behavior of titanium-zirconium implants in ovariectomized rabbits. Clin Oral Implants Res. 2014 Jul;25(7):819-25 9 Bernhard N, Berner S, de Wild M, et al. The Binary TiZr Alloy – A Newly Developed Ti Alloy for Use in Dental Implants. Forum Implantologicum 2009 5(1) 30-39 10 Straumann, Cumulated fracture rate 2009-2023, data on file 11 Medvedev AE et al., Microstructure and mechanical properties of Ti-15Zr alloy used as dental implant material. J Mech Behav Biomed Mater. 2016 Sep;62:384-398 12 Al-Nawas B et al., A prospective non-interventional study to evaluate survival and success of reduced diameter implants made from titanium-zirconium alloy. J Oral Implantol. 2015 Aug;41(4):e118-25 13 Alsahhaf A, Alshagroud RS, Al-Aali KA, et al., Survival of Titanium-Zirconium and Titanium Dental Implants in Cigarette-smokers and Never-smokers: A 5-Year Follow-up. Chin J Dent Res. 2019;22(4):265-272 14 Cabrera-Domínguez JJ, Castellanos-Cosano L, Torres-Lagares D, et al., Clinical performance of titanium-zirconium implants with a hydrophilic surface in patients with controlled type 2 diabetes mellitus: 2-year results from a prospective case-control clinical study. Clin Oral Investig. 2020 Jul;24(7):2477-2486. 15 Nack C, Raguse J-D, Stricker A, et al. Rehabilitation of irradiated patients with chemically modified and conventional SLA implants: five-year follow-up. J Oral Rehabil. 2015 Jan;42(1):57-64 16 Nelson K, Stricker A, Raguse J-D, et al. Rehabilitation of irradiated patients with chemically modified and conventional SLA implants: a clinical clarification. J Oral Rehabil. 2016 Nov;43(11):871-872. 17 Straumann, data on file



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