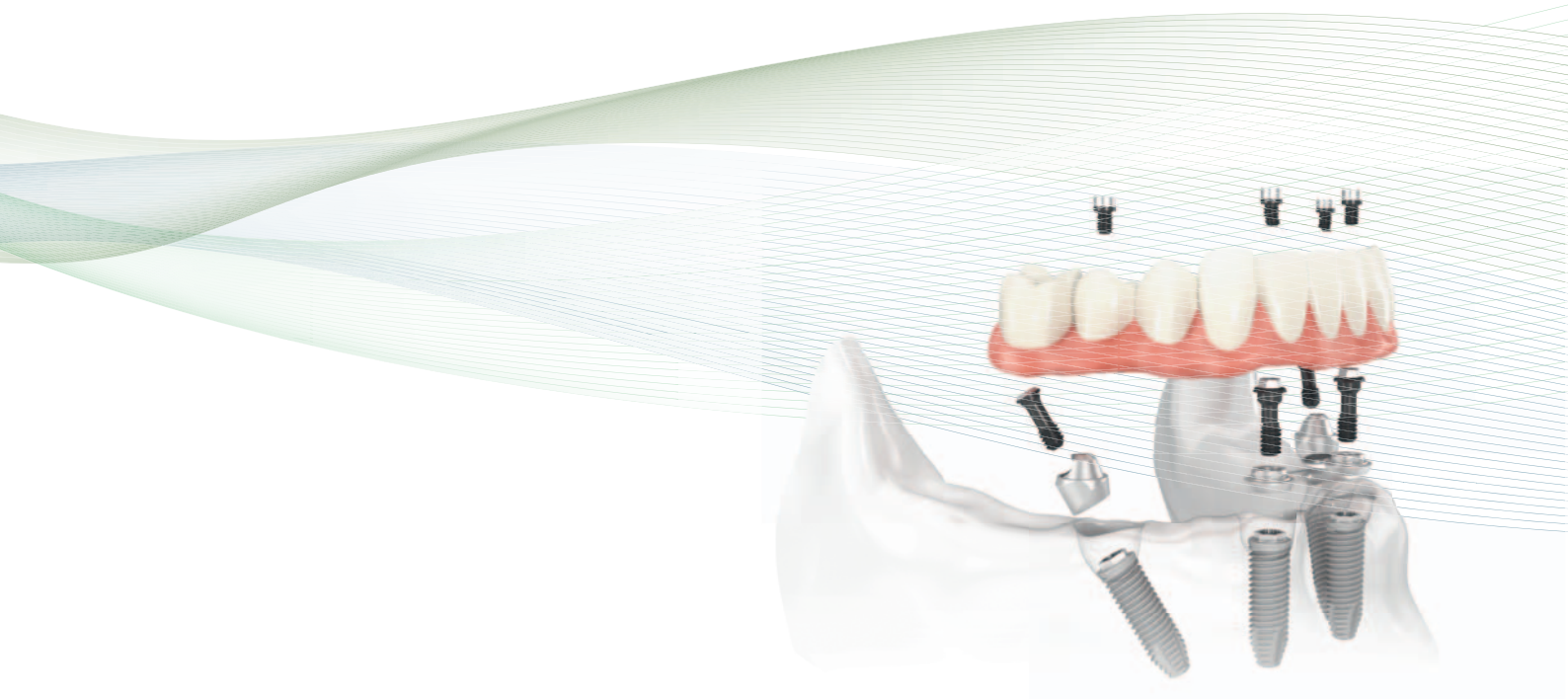


All-on-4™

TREATMENT CONCEPT FOR EDENTULOUS ARCHES



At a glance.

Principle	Four implants – two straight implants in the anterior and two angled implants in the posterior – supporting a provisional, fixed and immediately loaded full-arch prosthesis
Benefits	<ul style="list-style-type: none"> – Angled posterior implants help avoid relevant anatomical structures, can be anchored in better quality anterior bone and offer improved support of the prosthesis by reducing cantilevers – Angled posterior implants help eliminate the need for bone grafting by increasing bone-to-implant contact – Final restoration with fixed or removable prosthetic solutions – Efficient treatment flow results in shorter treatment times and improved patient satisfaction – All-on-4 Guide for accurate placement of implants and abutments – Can be combined with the computer-aided diagnostics and treatment concept NobelGuide
Indications	Edentulous mandible or maxilla
Surgical access	Open flap; with NobelGuide: flapless, mini-flap and flap
Prosthetic flexibility	<ul style="list-style-type: none"> – Fixed provisional (metal-reinforced) acrylic prosthesis – Fixed final prosthesis: NobelProcera Implant Bridge in Titanium with acrylic veneering, or individual NobelProcera crowns cemented to the bridge framework – Removable final prosthesis: overdenture on a NobelProcera Implant Bar Overdenture
Available implant systems	<ul style="list-style-type: none"> – All Nobel Biocare implant systems with Multi-unit Abutments – NobelSpeedy: the widely documented implant for All-on-4
NobelGuide	<ul style="list-style-type: none"> – Prosthetic-driven diagnostics, treatment planning and guided surgery system

All-on-4™ – a proven and successful concept for edentulous patients.

The All-on-4 treatment concept was developed to provide edentulous patients with an efficient and effective restoration using only four implants to support an immediately loaded full-arch prosthesis.*

Angled posterior implants

By tilting the two posterior implants, longer implants can be used in minimum bone volume, thereby increasing bone-to-implant contact and reducing the need for vertical bone augmentation (bone grafting). In addition, the angled posterior implants can be anchored in better quality anterior bone and offer improved support of the prosthesis by reducing cantilevers.

Good clinical results

Biomechanical measurements show that tilted implants, when part of prosthetic support, do not have a negative effect on the load distribution.^{1,2} The tilting of implants has been used in clinical practice for over a decade and has shown good results.^{3–19}

Overall published data on the All-on-4 concept shows cumulative survival rates between 92.2 and 100%.^{20–26} The concept is supported by good clinical outcomes from studies using protocols in which four implants have been placed to support a full-arch prosthesis.²¹

- Full-arch restoration with only four implants
- Reduced need for bone grafting
- Immediately loaded for efficient and time-saving treatment
- For fixed and removable final prosthetic solutions
- Scientifically proven and documented

Planning with NobelGuide

All-on-4 can be planned and performed using the NobelGuide treatment concept, ensuring accurate diagnostics, planning and implant placement. The NobelGuide Software allows for detailed diagnostics such as the identification of available bone, virtual implant placement according to the anatomical situation and the prosthetic needs, and the ordering of the individualized surgical template. NobelGuide supports minimally invasive flapless techniques as well as surgical access through mini-flaps and full flaps, with the surgical template ensuring guided and therefore exact implant placement.



Provisional prosthesis for immediate loading



Angled Multi-unit
Abutment
(17° or 30°)



Straight
Multi-unit
Abutment

* If one-stage surgery with immediate loading is not indicated, cover screws are used for submerged healing.

All-on-4™ – the efficient treatment concept with immediate loading.

High stability with only four implants

Angled posterior implants can be anchored in better quality anterior bone and offer improved support of the prosthesis by reducing cantilevers.

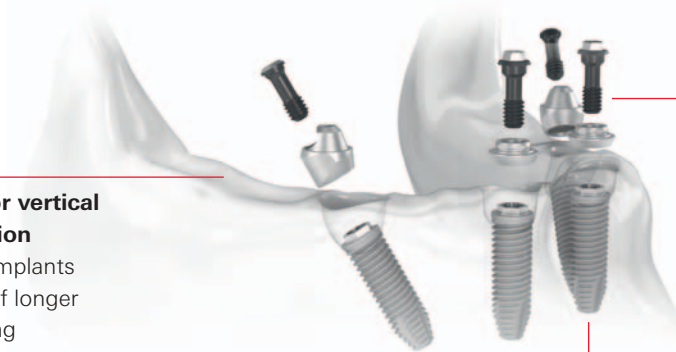


Wide variety of prosthetic options

- Fixed provisional prosthesis for immediate loading.
- Fixed and removable solutions for final restoration.

Reduced need for vertical bone augmentation

Angled posterior implants allow for the use of longer implants, increasing bone-to-implant contact and reducing the need for bone grafting.



For all Nobel Biocare implant systems

Multi-unit Abutments are available for all Nobel Biocare implant systems.

Preservation of vital structures

Angled posterior implants help avoid the mandibular nerve and the maxillary sinus.

With or without NobelGuide

- Safe and minimally invasive surgery with full 3D diagnostics and planning using NobelGuide.
- Traditional open flap surgery using the All-on-4 Guide for accurate placement of implants.

NobelSpeedy

- Widely documented implant for All-on-4.
- Slightly tapered with a more pronounced apical taper allowing for under-preparation.
- Designed to achieve high primary stability in soft to medium bone and to shorten drilling protocols.

All-on-4™ – for fixed and removable prosthetic solutions.

Only four implants needed

The All-on-4 treatment concept, with its use of straight and angled Multi-unit Abutments, allows for a firmly-seated restoration on only four implants – two placed vertically in the anterior, two placed at an angle of up to 45° in the posterior region.

By tilting the two posterior implants, the bone-to-implant contact is enhanced, providing optimal bone support even with minimum bone volume.²¹ Additionally, tilting of implants in the maxilla allows for improved anchorage in better quality anterior bone and bicortical anchorage in the cortical bone of the sinus wall and the nasal fossa.²¹

Tilting of the posterior implants also helps avoid vital structures, such as the mandibular nerve or the maxillary sinus, and results in a better distribution of implants along the alveolar crest, which optimizes load distribution and allows for a prosthesis with up to 12 teeth and minimal cantilevers.²⁰

Multi-unit Abutments

Nobel Biocare offers straight, as well as 17° and 30° angled Multi-unit Abutments for all Nobel Biocare implant systems. The abutments are available with various collar heights to match the thickness of the soft tissue.

Fixed and removable prosthetic solutions

With All-on-4, patients benefit from an immediate implant-supported restoration, as a provisional prosthesis is screwed onto the implants right after surgery.*

Final solutions include both fixed and removable prostheses:

- Fixed solutions include NobelProcera Implant Bridge Titanium with acrylic veneering, or individual NobelProcera crowns cemented to the bridge framework.
- Removable solutions include acrylic overdentures on a NobelProcera Implant Bar Overdenture, attached by means of a variety of attachment systems.

NobelProcera Implant Bridge and Implant Bar Overdenture are milled from a biocompatible titanium monobloc using state-of-the-art CAD/CAM technology, resulting in consistent precision of fit, individualized design and optimal esthetics.

All-on-4 step by step



Insertion of implants



Securing of Multi-unit Abutments



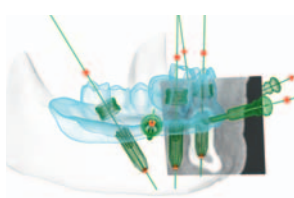
Securing of provisional prosthesis with prosthetic screws

* If one-stage surgery with immediate loading is not indicated, cover screws are used for submerged healing.

All-on-4™ – digital treatment planning and guided surgery with NobelGuide™.



Existing prosthesis can be modified directly into a radiographic guide



Digital prosthetic-driven planning in NobelGuide Software



Guided implant insertion with ready-to-use surgical template

NobelGuide is the ideal treatment concept for All-on-4, because it optimizes implant placement by means of 3D diagnostics, digital treatment planning and guided surgery with a surgical template.

Accurate diagnostics and prosthetic-driven planning

Based on 3D (CB) CT diagnostic imaging of the patient and a radiographic guide, virtual implant placement following prosthetic-driven planning can be performed within the NobelGuide Software, ensuring high diagnostic accuracy and safe and predictable implant placement.

With the combination of the 3D radiological dataset and 3D models of bone and radiographic guide, dental professionals can evaluate bone quantity and quality, mark vital anatomical structures such as the alveolar nerve and the maxillary sinus, and position the implants according to prosthetic needs. Through controlled and customizable angulation of the dental reslice planes in the split-screen view of the software, the tilted posterior implants are also ideally positioned.

Safe and predictable implant placement

After planning the case in NobelGuide Software, a ready-to-use surgical template, together with all necessary implants, abutments and surgical instruments, can be ordered online in a single order. The surgical template enables guided implant site preparation and precise and efficient implant insertion, which minimizes patient pain and swelling.

Prefabrication of provisional prosthesis before surgery

The surgical template can be used to create a stone model with implant replicas already in place before surgery. This enables the dental technician to produce the provisional prosthesis and the abutment placement jig in advance, so that the clinician can finalize the prosthesis and mount it on the implants right after surgery.

All-on-4™ – achieving predictable results with NobelGuide™.

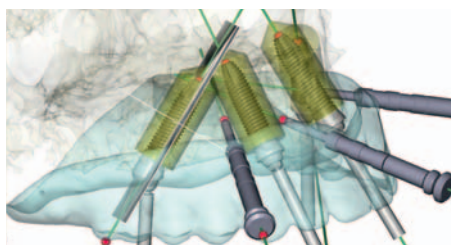
63-year old edentulous female patient requests a fixed restoration. All-on-4 using NobelGuide is chosen to avoid bone grafting.



Preparation

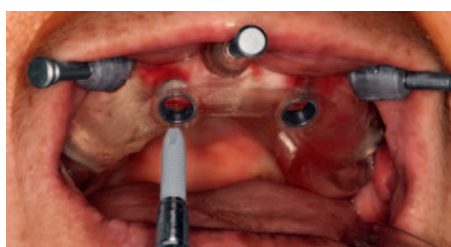
The existing removable denture represents the intended teeth setup and is transformed into a radiographic guide (gutta percha markers). A bite index is created to ensure correct anatomical positioning of the guide during CT scanning.

Case courtesy of Dr. Armando Lopes, DDS, MALO CLINIC Lisbon, Portugal



Treatment planning

Based on 3D CT diagnostic imaging of patient and radiographic guide, the four implants are placed virtually in the NobelGuide Software, optimizing position, angulation and distribution.



Implant insertion

The ready-to-use surgical template is used for site preparation and insertion of four NobelSpeedy Groovy implants. It is secured by guided anchor pins.



Minimally invasive surgery

If a flapless procedure is chosen, trauma to tissue is minimized. This image shows the maxillary arch immediately after implant insertion.



Provisional prosthesis

Immediate loading of the implants is achieved by using a prepared fixed prosthesis, which is finalized by the clinician on the day of surgery.

All-on-4™ – efficient treatment with NobelSpeedy™.

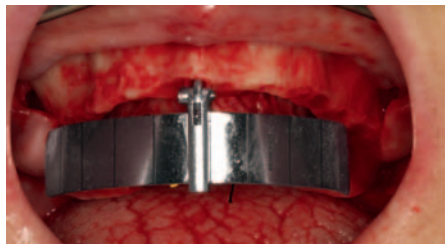
44-year old edentulous female patient requests a fixed restoration due to inadequate function, comfort and esthetics of the existing removable denture.

Case courtesy of Dr. Paulo Maló, DDS,
MALO CLINIC Lisbon, Portugal



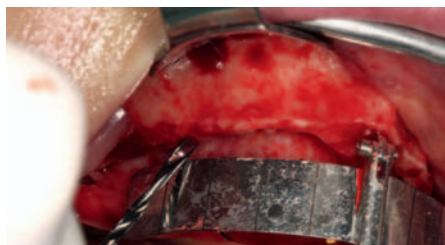
Diagnosis

Limited bone volume in the posterior and a need for bone crest level optimization.



Preparation

A conventional flap procedure is performed, the bone crest level optimized and the All-on-4 Guide anchored.



Implant site preparation

Implant site preparation according to the drilling protocol for straight implants using the All-on-4 Guide. The vertical lines on the guide are used as reference for drilling at an angle of 45°.



Implant insertion

Insertion of NobelSpeedy Groovy implants with external hex connection.



Provisional prosthesis

Immediate loading of the implants can be achieved by using a fixed provisional prosthesis based on an impression taken straight after surgery.

References.

- 1 Bellini CM, Romeo D, Galbusera F, Taschieri S, Raimondi MT, Zampelis A, Francetti L. Comparison of tilted versus non-tilted implant-supported prosthetic designs for the restoration of the edentulous mandible : a biomechanical study. *Int J Oral Maxillofac Implants* 2009 May-June; 24 (3):511-7.
- 2 Bellini CM, Romeo D, Galbusera F, Agliardi E, Pietrabissa R, Zampelis A, Francetti L. A finite element analysis of tilted versus non-tilted implant configurations in edentulous maxilla. *Int J Prosthodont* 2009 Mar-Apr; 22 (2):155-7.
- 3 Davo Rodriguez R, Malevez C, Rojas J. Immediate function in atrophic upper jaw using Zygoma implants: A preliminary study. *J Prosthet Dent* 2007; 97(suppl):44-51.
- 4 Tulasne J F. Osseointegrated fixtures in the pterygoid region. In: *Advanced osseointegration surgery. Applications in the maxillofacial region*. Worthington P; Brånemark PI. Chicago, USA: Quintessence Publ. Co, Inc. 1992: 182-8.
- 5 Graves SL. The pterygoid plate implant: a solution for restoring the posterior maxilla. *Int J Periodontics Restorative Dent* 1994; 4:512-23.
- 6 Parel SM, Brånemark PI, Ohnrell LO, Svensson B. Remote implant anchorage for the rehabilitation of maxillary defects. *J Prosthet Dent* 2001; 86 (4):377-81.
- 7 Vrielinck L, Politis C, Schepers S, Pauwels M, Naert I. Image-based planning and clinical validation of zygoma and pterygoid implant placement in patients with severe bone atrophy using customized drill guides. Preliminary results from a prospective clinical follow-up study. *Int J Oral Maxillofac Surg* 2003; 32 (1):7-14.
- 8 Hirsch JM, Ohnrell LO, Henry PJ, Andreasson L, Brånemark PI, Chiapasco M, Gynther G, Finne K, Higuchi KW, Isaksson S, Kahnberg KE, Malevez C, Neukam FW, Sevetz E, Urgell JP, Widmark G, Bolind P. A clinical evaluation of the zygoma fixture. One-year follow-up at 16 clinics. *J Oral Maxillofac Surg* 2004; 62 (9 Suppl 2):22-9.
- 9 Krekmanov L, Kahn M, Rangert B, Lindström H. Tilting of posterior mandibular and maxillary implants of improved prosthesis support. *Int J Oral Maxillofac Implants* 2000; 15:405-14.
- 10 Aparicio C, Perales P, Rangert B. Tilted implants as an alternative to maxillary sinus grafting: a clinical, radiologic, and periotest study. *Clin Implant Dent Relat Res* 2001; 3 (1):39-49.
- 11 Fortin Y, Sullivan R, Rangert BR. The Marius implant bridge: surgical and prosthetic rehabilitation for the completely edentulous upper jaw with moderate to severe resorption: a 5-year retrospective clinical study. *Clin Implant Dent Relat Res* 2002; 4 (2):69-77.
- 12 Aparicio C, Arevalo X, Ouzzani W, Granados C. A retrospective clinical and radiographic evaluation of tilted implants used in the treatment of severely resorbed edentulous maxilla. *Appl Osseointegrat Res* 2003; 1:17-21.
- 13 Calandriello R, Tomatis M, Rangert N, Gottlow J. Immediate function of tilted implants in the atrophic posterior maxilla. *Clin Oral Impl Res* 2004; 15: abstract 159.
- 14 Calandriello R, Tomatis M. Simplified treatment of the atrophic posterior maxilla via immediate/early function and tilted implants: a prospective 1-year clinical study. *Clin Implant Dent Relat Res* 2005;7 (Suppl 1):1-12.
- 15 Agliardi E, Francetti L, Romeo D, Taschieri S, Del Fabbro M. Immediate loading in the fully edentulous maxilla without bone grafting: the V-II-V technique. *Minerva Stomatol* 2008 May; 57(5):251-9.
- 16 Khatami AH, Smith CR. "All-on-Four" immediate function concept and clinical report of treatment of an edentulous mandible with a fixed complete denture and milled titanium framework. *J Prosthodontics* 2008;17(1):47-51.
- 17 Francetti L, Agliardi E, Testori T, Romeo D, Taschieri S, Fabbro MD. Immediate rehabilitation of the mandible with fixed full prosthesis supported by axial and tilted implants: interim results of a single cohort prospective study. *Clin Implant Dent Relat Res* 2008; 10(4):255-263.
- 18 Davo R, Malaveez C, Rojas J, Rodriguez J, Regolf J. Clinical outcome of 42 patients treated with 81 immediately loaded zygomatic implants: a 12 to 42 month retrospective study. *Eur J Oral Implantol* 2008;1 (2):141-150.
- 19 Maló P, de Araujo Nobre M, Rangert B. Implants placed in immediate function in periodontally compromised sites: a five-year and one-year prospective study. *J Prosthet Dent* 2007; 97:86-95.
- 20 Maló P, Rangert B, de Araujo Nobre M. "All-on-Four" immediate-function concept with Brånemark System implants for completely edentulous mandibles: A retrospective clinical study. *Clin Implant Dent Relat Res* 2003; 5 (Suppl 1):2-9.
- 21 Maló P, Rangert B, de Araujo Nobre M. All-on-4 immediate-function concept with Brånemark System implants for completely edentulous maxillae: A 1-year retrospective clinical study. *Clin Implant Dent Relat Res* 2005; 7 (Suppl 1):88-94.
- 22 Maló P, de Araujo Nobre M, Petersson U, Wigren S. A pilot study of complete edentulous rehabilitation with immediate function using a new implant design: case series. *Clin Implant Dent Relat Res* 2006; 8 (4):223-32.
- 23 Maló P, de Araujo Nobre M, Lopes A. The use of computer-guided flapless implant surgery and 4 implants placed in immediate function to support a fixed denture: preliminary results after a mean follow-up period of 13 months. *J Prosthet Dent* 2007; 97(Suppl):26-34.
- 24 Pomares C. A retrospective clinical study of edentulous patient rehabilitated according to the all-on-four or the all-on-six immediate function concept *Eur J Oral Implantol* 2009; 2 (1):55-60.
- 25 Agliardi E, Panigatti S, Clericò M, Villa C, Maló P. Immediate rehabilitation of the edentulous jaws with full fixed prostheses supported by four implants. Interim results of a 5-year single cohort prospective study. Accepted for publication in *Clin Oral Implants Res*.
- 26 Testori T, Del Fabbro M, Capelli M, Zuffetti F, Francetti L, Weinstein RL. Immediate occlusal loading of tilted implants for the rehabilitation of the atrophic edentulous maxilla: 1-year interim results of a multicenter prospective study. *Clin Oral Implants Res* 2008 Mar; 19 (3):227-32.

Sales, service and support.

Shop Online

The complete range of Nobel Biocare products needed for the All-on-4 treatment concept can be ordered 24 hours a day, 7 days a week, through the Nobel Biocare Shop Online website.

Once logged onto the site, you can find products using a simple search tool, input the necessary quantities, and then add the products to a convenient shopping cart. Once the order is complete, you simply check out. The products will be shipped directly to your dental practice within a few days.

Customer service

For a more personal ordering experience, or if you are unsure which Nobel Biocare products meet your specific needs, Nobel Biocare Customer Service Representatives can answer all questions regarding the complete product line, as well as take product orders. Representatives can also help you set up a Shop Online account, and demonstrate its use for all future orders. A Customer Service Representative can be contacted through your local Nobel Biocare office.

Training and education

Nobel Biocare offers a broad range of training courses (including All-on-4) and educational events that focus on teaching the skills necessary for successfully integrating any of the Nobel Biocare solutions into a dental practice or laboratory.

Courses and programs are available from introductory to highly advanced levels covering both prosthetic and surgical protocols. The blended course curriculum is indication-based to provide optimal practical relevance. Online courses are available 24 hours a day; those held at clinics and seminars afford attendees the opportunity to bring in their own cases for mentoring and guidance.

All Nobel Biocare training and educational programs offer a highly didactic approach, blending solutions with hands-on and live cases in order to provide optimal educational experience. Develop your skills and expand your practice or laboratory with Nobel Biocare, the full solution provider for dental professionals.

The complete offering is available at www.nobelbiocare.com/education.

All educational activities are led by international and local experts specially trained in the Nobel Biocare Train-the-Trainer program.

Additional support

Nobel Biocare products are supported by a broad assortment of Nobel Biocare literature. Material ranges from purely informative to instructional, and everything is available for download on www.nobelbiocare.com

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