

## Fixed-removable overdenture supported by a customized Ti-bar on 4 implants: 3-year prospective study

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### Clinical Relevance

- Conventional fixed-removable implant bar overdentures (IBOs) require soft tissue support. By contrast, customized CAD/CAM IBOs are fully supported by individualized, anatomically shaped titanium bars and their contact with soft tissue is limited<sup>1</sup>.
- This study confirms that individualized IBOs deliver high functionality, excellent survival, and significant improvement in patient quality of life.

### Background & Aim

An IBO is a safe and cost-effective treatment option for edentulous patients offering better stability and retention compared to conventional dentures<sup>2</sup>. Individualized IBOs afford convenient cleaning typical of fixed-removable prostheses<sup>3</sup> together with the advantages of fixed prostheses<sup>4</sup> such as high masticatory comfort and natural-sounding phonetics.



To assess clinical and radiological performance of customized CAD/CAM implant-supported IBOs in edentulous patients after 3 years of function.

### Methods and Materials

#### STUDY DESIGN

Prospective, Multi-Center

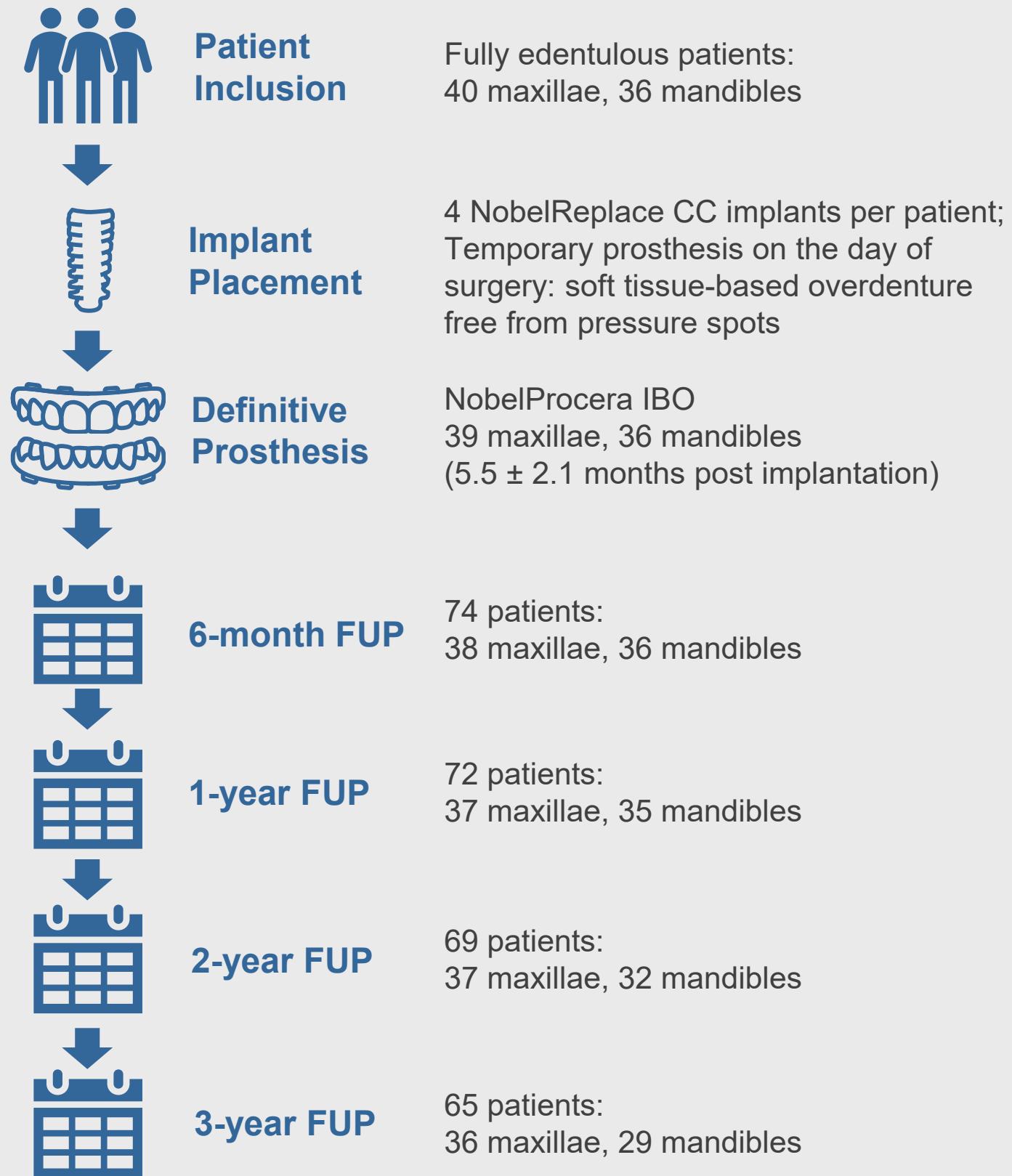


Figure 1. Study flow-chart.

### Results

- At 3 years, the cumulative implant and prosthesis survival rates were 99.3% and 100%, respectively.
- Marginal bone levels (MBL) decreased initially from  $-0.70 \pm 1.21$  mm at implant insertion to  $-2.10 \pm 1.35$  mm at 1 year, but remained stable thereafter, with  $-2.03 \pm 1.46$  mm at 2 years and  $-1.88 \pm 1.27$  mm at 3 years. The mean  $\Delta$ MBL from implant insertion to the 3-year follow-up was  $-1.35 \pm 1.54$  mm (n=157), with no significant difference between maxillary vs mandibular implants (p=0.2).

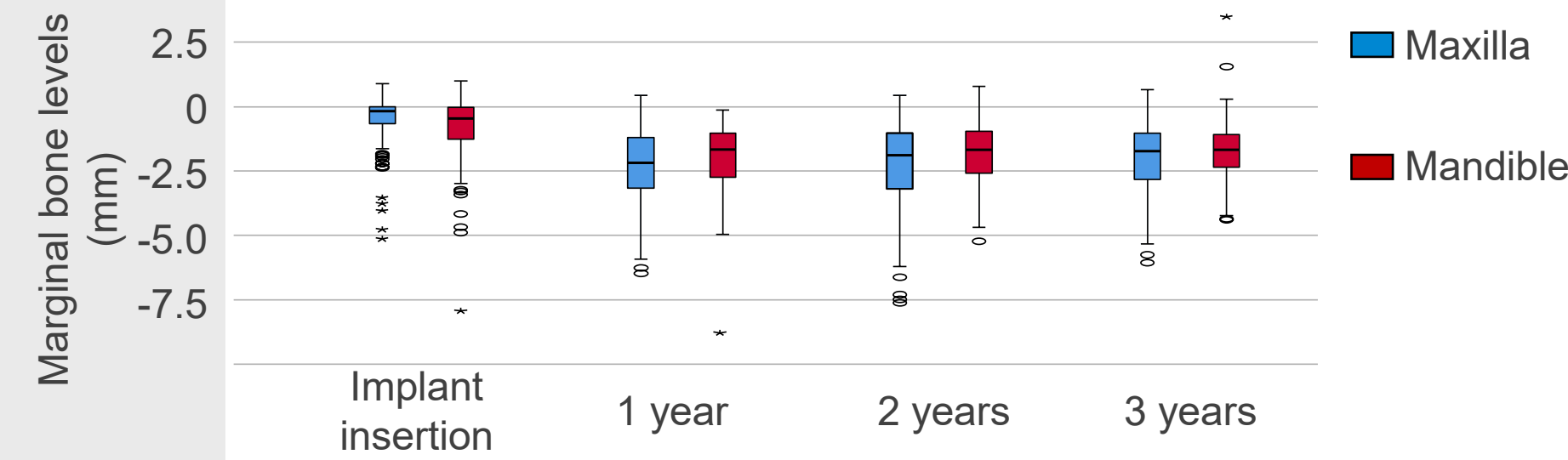


Figure 2. Marginal bone levels throughout the study. Note stabilization after the original remodeling after implant insertion.

- At 3 years, the prosthetic survival was 100%. Biologic and technical complications were observed in 25 and 31 patients, respectively.

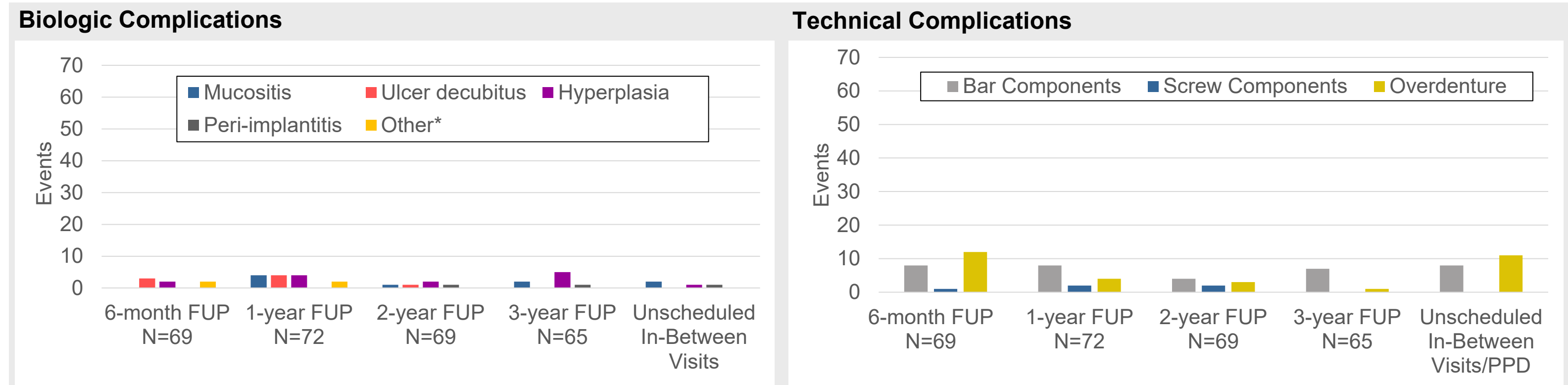


Figure 3. Biologic (left) and technical (right) complications throughout the study. \*Soreness, mucosal erythema, fissuration, gingival mutation, stomatitis.

- Oral health-related quality of life improved significantly from prosthetic delivery to all follow-up visits (all p<0.001), while clinician's functional and esthetic satisfaction scores were both high, with the mean score above 9.2 at the 3-year FUP.

### Conclusion

- Excellent prosthetic survival and stable marginal bone levels after initial remodeling is independent of the treated jaw.
- Fixed-removable individualized CAD/CAM implant bar overdenture in mandible or maxilla on 4 implants provide a successful treatment option for fully edentulous patients.

### References

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### Clinical Cases

**Case 1.** A 50-year-old female patient with missing teeth in the maxilla received four NobelReplace CC implants restored with a NobelProcera IBO final prosthesis delivered 2.8 months after the surgery.



Figure 4. Occlusal and frontal view at prosthetic delivery.



Figure 5. Frontal view at 3 years.

**Case 2.** A 47-year-old male with missing teeth in the mandible received four NobelReplace CC implants restored with a NobelProcera IBO final prosthesis delivered 4.1 months after the surgery.



Figure 6. Frontal view at prosthetic delivery.



Figure 7. Frontal view at 3 years.