

Tissue expansion prior to augmentation of resorbed edentulous ridges

osmed hydrogel expander Dental



Why tissue expansion?

| Practical experience

The use of osmed expanders prior to vertical augmentation of resorbed edentulous ridges

- ↳ **reduces** the mean incidence of post-operative **graft exposition** from **25% to 4%**
- ↳ increases mean **vertical bone gain** from **approx. 4.0 mm to 7.5 mm**

compared to augmentations without prior tissue expansion.*

* Results of a clinical study conducted by PD Dr Anton Friedmann and Dr Dogan Kaner at the Charité – Universitätsmedizin Berlin.

| Tissue expansion prior to augmentation of resorbed edentulous ridges

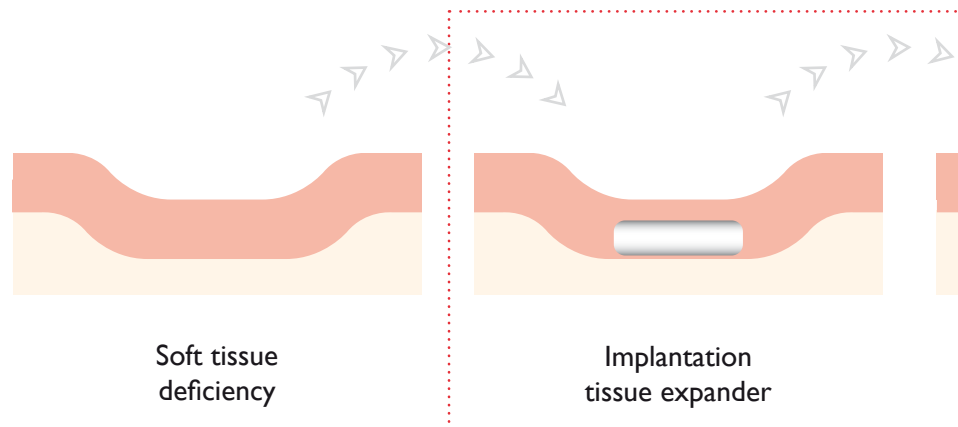
Primary wound closure is essential for successful regeneration of bone. Soft tissue dehiscence and subsequent exposure of bone grafts to the oral cavity are complications of ridge augmentation and are a main cause for insufficient outcomes of reconstructive surgery. Main reason for graft exposure are poor quality and quantity of soft tissue and difficulties in achieving primary closure of the flap.

Tissue expansion improves quality and quantity of soft tissue and facilitates primary wound closure, with the result of reduced incidence of wound dehiscence and post-operative exposure of bone grafts.

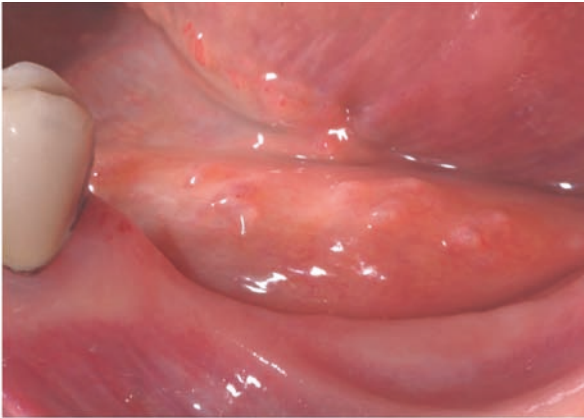
| Hydrogel tissue expander

osmed hydrogel allows self-inflating tissue expansion

- = Soft tissue
- = Bone
- = Tissue Expander



| Before tissue expansion



Resorbed edentulous ridge. Vertical and lateral augmentation is necessary prior to implant placement.

| After tissue expansion

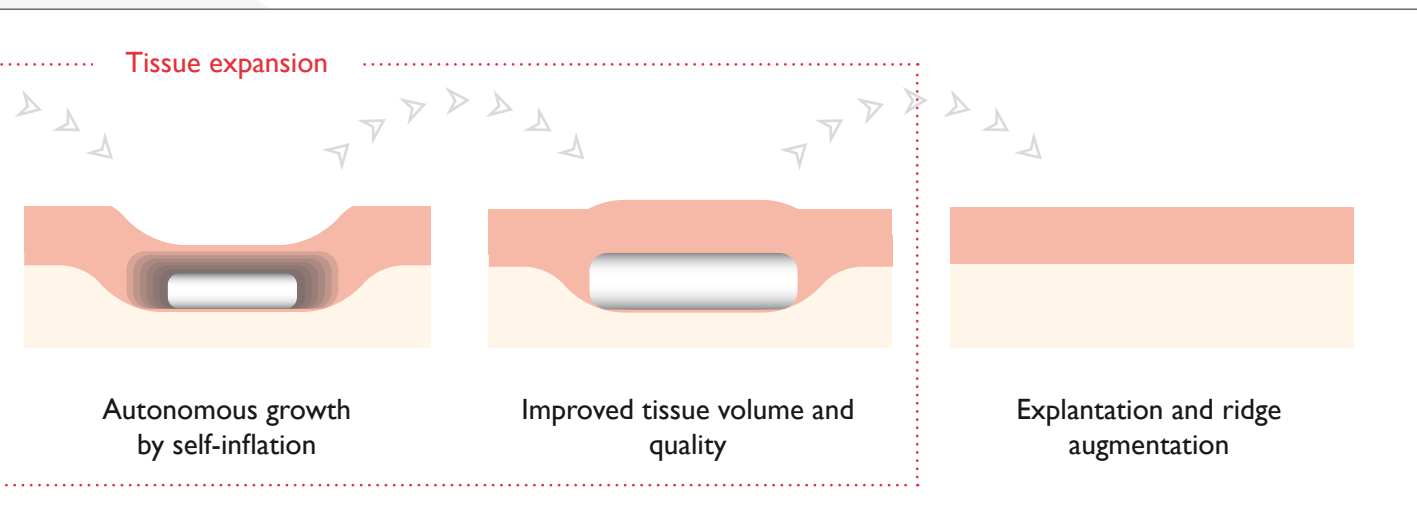


Tissue expansion and maturation are completed after 6-8 weeks.

| Indications

Tissue expansion is indicated prior to extensive bone augmentation surgery, e.g.:

- ⤿ On-lay grafting with bone block grafts
- ⤿ Other bone regeneration procedures



How does self-inflation work?

| Self-inflation by osmotic principle

osmed self-inflating tissue expanders are made of a specially developed hydrogel that uses the osmotic principle to gain volume.

Before expansion, osmed hydrogel expanders are small and hard and are easy to handle. After implantation, osmed hydrogel expanders absorb body fluid and grow consistently to their predefined form and size. The expanders are sheathed with a perforated silicone shell for controlled slow influx of body fluid and slow continuous swelling. The increasing volume of the expander stimulates growth of soft tissue.

General advantages of osmed tissue expanders are: safe material, low complication rate, low risk of infection, small incision, minimal trauma and short

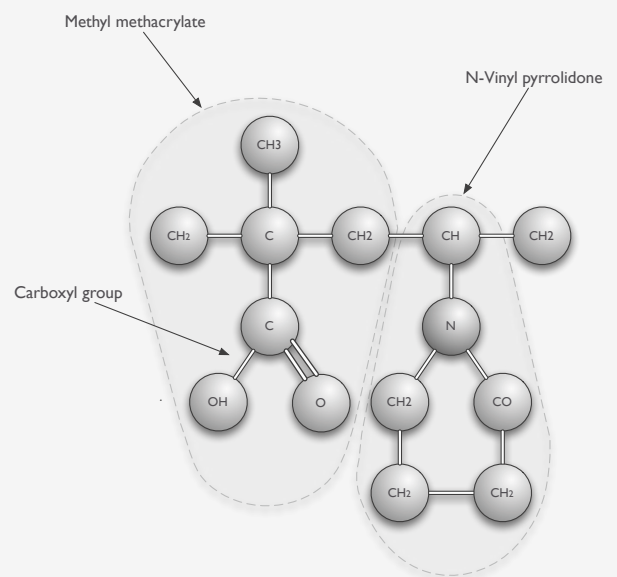


Tissue expander Cupola Dental and Cylinder Dental before swelling.

surgical time; controlled swelling without pressure peaks. A short surgical time reduces post-operative pain and saves costs.

| Safe material

- Stable, dry devices, made of cross-linked hydrogel: co-polymers based on methyl methacrylate and N-vinyl pyrrolidone.
- High biocompatibility: non-toxic, non-genotoxic, non-immunoreactive - basically the same hydrogel material that is used for soft contact lenses.
- The outer silicone shell is well known from breast implants.
- Controlled production: clean room manufacturing under GMP conditions
- Material pureness and safety: high degree of vertical integration of manufacturing from polymerisation to the final product ensures reliable quality



Surgical technique

| Implantation



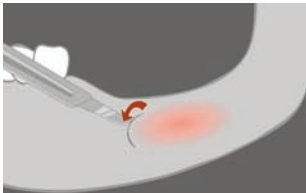
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Resorbed edentulous ridge. Vertical and lateral augmentation is necessary prior to implant placement.



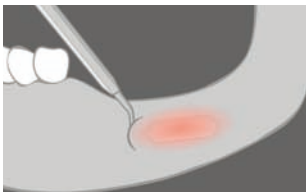
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The template is used for selection of the appropriate expander type. The expander's final volume has to fit to the designated surgical area.



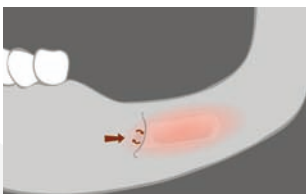
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Incision and preparation of a tunnel flap.



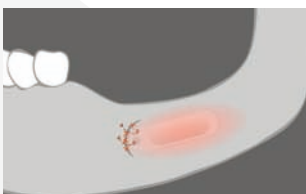
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The preparation is controlled with the surgical template.



5

Insertion of the expander and fixation with a bone fixation screw at the flap of the expander.



6

Two-layered wound closure

| Explantation and bone augmentation

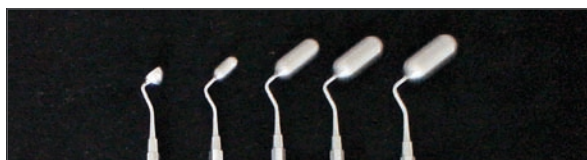


Usually, tissue expansion and maturation are completed after 6-8 weeks. The expander is removed in the course of augmentation surgery. Incision and flap design are chosen as required for the intended method of bone augmentation. It is possible to cut directly into the expander.

Basics for the way to success

| Template

Templates showing initial and final expander volumes are used for selection of the appropriate tissue expander type and size. During surgery, the templates facilitate correct preparation of the recipient site. The template's cylindrical part corresponds to the hydrogel core. The distance from the cylinder tip to the bend corresponds to the full length of the expander in its silicone shell including the strap for fixation.



Order-No.	Item
001-0001	Set of templates Cylinder Dental and Cupola Dental
001-2035	Template for Cupola Dental 0.35 ml
001-1024	Template for Cylinder Dental 0.24 ml
001-1070	Template for Cylinder Dental 0.7 ml
001-1130	Template for Cylinder Dental 1.3 ml
001-1210	Template for Cylinder Dental 2.1 ml



| Education with osmed

osmed offers workshops for application of tissue expanders.

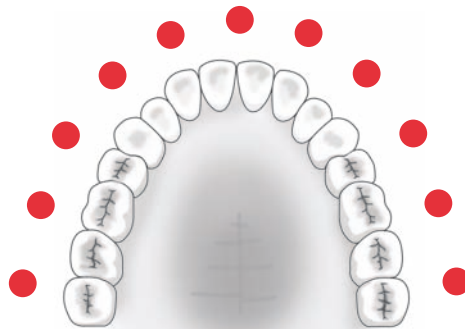
More information at www.osmed.biz

Look for further surgical instructions („Tips for success“) in the download area.

Product overview Dental

Cupola Dental

Indication: small gaps
(1-2 missing teeth)
or curved edentulous
areas (maxillary and
mandibular frontal area)



		Before Swelling*			After Swelling**			
Order-No.	Item	Volume	Projection	Diameter	Volume	Projection	Diameter	Swelling time**
400-2035	Cupola Dental 0.35 ml	0.05 ml	3 mm	6 mm	0.35 ml	5,6 mm	9 mm	40 Days

* without silicone shell

** in vitro in 0.9% NaCl-Sol.

Cylinder Dental

Indication: straight edentulous areas
(lateral mandible and maxilla)



		Before Swelling*			After Swelling**			
Order-No.	Item	Volume	Length	Diameter	Volume	Length	Diameter	Swelling time**
400-1024	Cylinder Dental 0.24 ml	0.045 ml	7.5 mm	3 mm	0.24 ml	12 mm	6 mm	20 Days
400-1070	Cylinder Dental 0.7 ml	0.15 ml	12 mm	4 mm	0.7 ml	20 mm	7 mm	40 Days
400-1130	Cylinder Dental 1.3 ml	0.25 ml	13 mm	5 mm	1.3 ml	22 mm	9 mm	50 Days
400-1210	Cylinder Dental 2.1 ml	0.42 ml	15 mm	6 mm	2.1 ml	24 mm	10.5 mm	90 Days

* without silicone shell

** in vitro in 0.9% NaCl-Sol.

| Contact

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