Mini-Implants in the Anterior Palate: How to improve Stability in the Long-term

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Stability of Mini-implants

Primary stability

Secondary stability

Phase of low stability

Weeks

Stability
Stability of Mini-implants

How to measure primary stability:

- Insertion Torque (in vivo / in vitro)

- Resonance Frequency Analysis (RFA) (in vivo / in vitro)

- Periotest (in vivo / in vitro)

- Lateral loading / Pull Out Test (in vitro)
Stability of Mini-implants

Insertion site?

→ No difference between median and paramedian insertion

Nienkemper M, Pauls A, Wilmes B, Drescher D. Effect of implant length on mini-implant stability during the initial healing period: A prospective clinical study, Head and Face Med 2013
1. Low failure rate
2. No root damage
3. Tad’s not in the path

Stability of Mini-implants
Stability of Mini-implants

Optimal site

- Thick Bone
- Thin Mucosa

Restricted site

Coupling with the appliance
Mini-Implants with Abutments

Screwed

Beneﬁt PSM

Orthoeasy Forestadent

Dual Top Jeil
Mini-Implants with Abutments


Orthodontist could insert Mini-Implants with Abutments through a Handpiece.
Stability of Mini-implants

→ Consider angle of insertion!
Mechanics with palatal TAD´s

<table>
<thead>
<tr>
<th>Molar distalization</th>
<th>Molar mesialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneslider</td>
<td>T-Bow</td>
</tr>
<tr>
<td>Pendulum B</td>
<td>Mesialslider</td>
</tr>
<tr>
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<td>Molar anchorage</td>
</tr>
<tr>
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</tr>
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<td>Molar Intrusion</td>
<td></td>
</tr>
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Wilmes B, Drescher D. Application and effectiveness of the Beneslider molar distalization device. World J Orthod. 11:331-34
Combination of distalization mechanics and...

... conventional braces

... lingual braces

... Aligners
Beneslider
Beneslider
Esthetic Class II Treatment with the Beneslider andAligners

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J Clin Orthod 2012:390-8
Beneslider & Aligner
Beneslider & Aligner
Beneslider & Aligner
Beneslider & Aligner
Beneslider & Aligner
Beneslider & Aligner
Study: N=51

- Moderate implant tipping in 2 cases
- Distalization effect: 3.6 mm (+/- 1.9 mm)
- Distalization speed: 0.6 mm/month

Nienkemper M, Wilmes B, Yamaguchi S, Pauls A, Drescher D. Treatment efficiency of Mini-implant borne distalization depending on age and eruption of the second molars. J Orofac Orthop 2014
Pendulum B
Upper molar mesialization

T-Bow

Mesialslider

Indirect Anchorage

Direct Anchorage
Upper molar mesialization

**Palatally Anchored Maxillary Molar Mesialization Using the Mesialslider**

If missing 3, 4, 5 or 6: no brackets needed
Mesialslider
Non-Compliance Space Closure in Patients with Missing Maxillary Lateral Incisors

Hybrid-Hyrax

→ Force near the CR of the maxilla

Hybrid-Hyrax

Goal 1:
No load on the bicuspid deciduous molars
→ No/less tipping of the teeth

Maxillary advancement using a Facemask

Mesial migration of the dentition

Goal 2:
→ Avoid mesial migration of the teeth
→ Just skeletal maxillary advancement

Transfer of the force to the bone

Hybrid-Hyrax

Mini-Implants with abutments

Hyrax Expander
Hybrid-Hyrax / Facemask
Maxillary protraction using a hybrid hyrax-facemask combination

Manuel Nienkemper, Benedict Wilmes, Alexander Pauls and Dieter Drescher

Hybrid-Hyrax / Facemask
Wilmes B, Ngan P, Liou E, Franchi L, Drescher B,
Early Class III Facemask Treatment with the Hybrid Hyrax and Alt-RAMEC Protocol
J Clin Orthod 2014
Clinical Studies needed....
Hybrid-Hyrax / Facemask

Hybridhyrax and Mentoplate
Hybridhyrax and Mentoplate

Peter Ngan, Hong He, and Benedict Wilmes.
Early Treatment of Class III Malocclusion.
Hybridhyrax and Mentoplate

Before

8 months

After

WITS: -8.3 mm

WITS: -2.8 mm
Hybridhyrax and Mentoplate
Overview early class III treatment

Conv.RPE + Facemask

Hybrid Hyrax + Facemask

Hybrid Hyrax + Mentoplate

4 Bollard Plates

Surgery? No

2 mini-implants

2 mini-implants 1 miniplate

4 miniplates

Skeletal Efficiency? 😞 😊 😊 😊
Molar anchorage
Molar intrusion

Upper-Molar Intrusion Using Anterior Palatal Anchorage and the Mousetrap Appliance

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J Clin Orthod 2013
Molar intrusion
Forced eruption of retained teeth

Extrusion of Impacted Teeth Using Mini-Implant Mechanics

Dr. Nienkemper
Dr. Wilmes
Dr. Lübberink
Dr. Ludwig
Dr. Drescher
Forced eruption of impacted teeth
Conclusions: 1. Anterior palate is the best insertion site
Conclusions: 2. Tad’s with abutments for the palate

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Conclusions: 3. No difference between median and lateral
Conclusions: 4. **Just do it!**

Insertion of mini-implants in the palate is very easy!!!
→ Orthodontists can do it
Palatal Mini-implants

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Thank you very much for your attention!