CUSTOM-MADE STRAIGHT WIRE

Twin Force Therapy
Class II treatment

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Class II malocclusion should be considered not only as a sagittal plane abnormality, but also as transverse and vertical plane abnormalities, too.

In sagittal plane, McNamara studies indicated that the majority of Class II malocclusions were characterized by mandibular retrusion and not maxillary protrusion, and therefore the most of the Class II malocclusion patients treated without extractions improve their profiles.

Apart from the sagittal plane, in majority of the cases a transverse plane is also affected by maxillary contraction. In cases treated with mandibular advancement the casts must be placed in Class I in order to evaluate the transverse molar occlusion in advanced position of the mandible. If posterior cross bite is observed, an upper expansion must be carried out.

In many Class II malocclusion cases, the vertical plane is also affected, and patients present a vertical pattern with mandibular clock-wise rotation that which worsens skeletal Class II malocclusion and profile.

In short, many patients with skeletal Class II beneficiate from a treatment including mandibular advancement, maxillary expansion and vertical control.

Class II Treatment Scheme using SCW Technique

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Twin Force Bite Corrector Double-Lock is an intraoral and intermaxillary appliance and it is used in Class II malocclusion treatment. It requires a minimal cooperation from the patient.

The insertion and removal of the appliance is easy and rapid and there is no necessity for laboratory fabrication. It is fixed to SS .017” x .025” arch for .018” slot and to SS .018” x .025” arch for the .022” slot, adjusting the screw with a Twin Force wrench. Its NiTi components offer a very safe adjustment system in the arch.

Ball and socket joint fasteners situated at its ends (next to the wire clamps) allow a wide range of jaw motion including the lateral jaw movements, which increase the comfort of the patient.

The plunger/tube telescopic assemblies on each side contain NiTi coil springs that deliver constant and light forces to position the mandible.

**Description of the appliance:**

**Twin Force Bite Corrector (TFBC) Double-Lock**

If the distance is less than 7 mm – the Twin Force Small is used.

If the distance is equal or greater than 7 mm - the Twin Force Standard is used.

**Determination of the appropriate size of the Twin Force**

A Twin Force Bite Corrector Double-Check is used and it is fixed directly to the arch using its wire clamps.

After aligning and levelling, and with a patient in habitual maximal occlusion, take measures from the mesial edge of the upper molar tube to the distal edge of the lower

| If the distance is less than 27 mm – the Twin Force Small is used. |
| If the distance is equal or greater than 27 mm - the Twin Force Standard is used. |

**Advantages:**

- Improves the profile of the patient.
- A minimal cooperation of the patient is required.
- It produces continuous and light forces due to its NiTi coil springs.
- It allows lateral jaw movement, due to which is more comfortable for the patient.
- Resistant.
- No laboratory work is required (time and costs reduction). It is inserted directly at the clinic using a simple procedure.
- It is easy to remove it at the clinic in order to check the position of the mandible and insert it again, if necessary.
- The patient can remove it in case of emergency.
- It can be used both in extraction and non-extraction cases.
7 mechanisms of Twin Force action:

Growing patient or with finished growth:

1. Complete maxillary distalization from 1 mm to 1,5 mm – Overjet and molar class correction.

2. Complete mandible protrusion from 1 mm to 1,5 mm – Overjet and molar class correction.

3. Remodelling of the glenoid cavity and condyle (approx. 1 mm) – Overjet and molar class correction.

4. Molar distal rotation – Molar class correction.

5. Intrusion of the upper molars and counter clockwise rotation of the mandible – Overjet, molar class and profile correction (in anterior open bite cases).

6. Lower molars extrusion to fix the jaw position – Overjet and molar class correction (anterior deep bite cases)

*** In adult patients a 3 mm to 5 mm profile reduction can be expected due to orthodontic effects.

Growing patient:

7. Condyle and glenoid cavity growth.
Indications:

1. Skeletal Class II malocclusion with mandibular retrognathia.
2. Facial type:
   a. Braquifacial,
   b. Mesofacial,
   c. Moderate dolicho facial.
3. Permanent dentition.

Limitations:

1. Skeletal Class II malocclusion with maxillary protrusion.
2. Severe or medium dolicho facial patient.

Class II div. 2 malocclusion patients should become in Class II div. 1 malocclusion patients in order to be able to carry out mandibular advancement.

Prevention of side effects:

1. To prevent solely the upper molars distalization – upper distal closure using ligated hook and ligated omega.
2. To prevent proinclination of lower incisors – lower distal closure using ligated hook and omega, plus lingual splinting from lower canine to lower canine.
3. To avoid excessive distal rotation of upper molars – transpalatal bar.

Insertion and removal of the appliance

Place archwire clamp of the Twin Force at 1 mm mesial to the upper first molar tube and tighten the Allen screw using a Twin Force wrench. Repeat the procedure on the opposite side.

When the left and right Twin Force Bite Correctors are fixed to upper arch, place the other archwire clamp 1 mm distal to the canine bracket on the lower arch and tighten Allen screw with the Twin Force wrench.

Check if the appliance is well fixed on both ends, and ask the patient to make mandibular movements in all directions.

Instructions for the patient:

1. Brush the Twin Force Bite Corrector at the same time when brushing teeth.
2. In case of de-bonding of a bracket or a band, or if Twin Force moves from its position, try to place it back using the wrench, or remove also the opposite end, place Class II elastics and contact the orthodontist as soon as possible.
3. Try to limit the excessive mouth opening movements, such as yawning.
4. If manipulating the Twin Force, do not remove completely the screws from wire clamps.
**Biomechanical sequence**

Before inserting the Twin Force appliance, dental occlusion should be brought into the position of mandibular advancement:

1. Diagnosis. Correct diagnosis and Twin Force use checking (Indications; Limitations page 5)
2. ELITE Opti-MiM Mini Twin brackets bonding with Roth prescription. In CSW technique a .018” slot is used, but .022” slot can also be used. In case you use the .022” slot, arch size should be adapted to it. Carriere L brackets can be used, too.
3. Align, level and correct rotations – ALR - .016” NiTi (Super elastic NITANIUM). Depending on the crowding level, a thermal .016” NiTi arch (BIO-KINETIX) or .016” Black Ti or .014” NiTi (Superelastict NITANIUM) can be used.

4. Torque correction - .016” x .022” NiTi (Superelastic NITANIUM) or thermal .016” x .022” NiTi (BIO KINETIX) or 016” x .022” Black Ti.

5. Level the curve of Spee - 016” x .022” NiTi (Superelastic NITANIUM RCS) or thermal NiTi (BioKinnetix RCS) arch with reverse curve

6. Transverse correction with plaster casts in Class I. Check it with the model casts positioned in Class I, expansion indication.

Transpalatal Bar  Nitiium Palatal Expander  Quad Helix
7. Correct rotations in upper molars.

8. .017” x .025” Stainless Steel arches with hooks and omegas ligated to molar band.

9. Indicate the use of Class II elastics 3/6” – 2,5 oz (TOUCAN) or 3/6” – 4,5 oz (ZEBRA) a month before insertion of Twin Force, so the patient get used to advanced mandible position.

10. Twin Force

Check list of the Twin Force use in cases of deep bite (see page 8).
Check list of the Twin Force use in cases of open bite (see page 9).

**How long must I wear Twin Force?**

It is recommended to use Twin Force during 1 month per each millimetre of the planned correction of overjet. As far as only orthodontics is concerned, it is used during 3 to 4 months.

**Checking the effect of Twin Force**

Remove the Twin Force and try to retract the mandible. If the mandible moves back, put the Twin Force back. If the mandible does not move, take the Twin force out and put the Class II elastics 3/6” – 2,5 oz (TOUCAN) or 3/6” – 4,5 oz (ZEBRA).

**Case Finishing**

Finish intercuspation and midline correction using intermaxillary elastics.
Twin Force in Class II malocclusion cases with anterior deep bite. Checklist.

1. ELITE Opti-MIM Mii Twain or Carriere LX Roth .018” x .022” brackets

2. Stainless Steel arches: with .018” slot and .017” x .025” arch with .022” slot and .018” x .025” arch

3. Convertible molar tube

4. Crimpable hook or tube with hook

5. Lingual sheaths

6. Transpalatal bar (Palatal Bar) adapted to palatine vault

7. Twin Force

8. Lower lingual splinting

9. Opti-MIM Bite Guide

10. Vertical elastics

Extrusion of posterior teeth in order to give stability to mandibular position.
Twin Force in Class II malocclusion cases with anterior open bite. Checklist.

1. ELITE Opti-MIM Mii Twain or Carriere LX Roth .018” x .022” brackets
2. Stainless Steel arches: with .018” slot and .017” x .025” arch with .022” slot and .018” x .025” arch
3. Convertible molar tube
4. Crimpable hook or tube with hook
5. Lingual sheaths
6. Transpalatal bar (Palatal Bar) separated from palatine vault
7. Twin Force
8. Lower lingual splinting
9. Opti-MIM Direct Bonding Button for tongue reeducation

Intrusion of upper molars to provoke counter clockwise rotation of mandible.
Biomechanical sequence using .018” x .022” slots

<table>
<thead>
<tr>
<th>Brackets</th>
<th>.018”</th>
<th>.022”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aligning and levelling</td>
<td>.016” NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
<td>.016” x .018” NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
</tr>
<tr>
<td>Torque stability</td>
<td>.016” x .022” NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
<td>.017” x .025” NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
</tr>
<tr>
<td>Curve of Spee leveling</td>
<td>.016” x .022” RCS NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
<td>.017” x .025” RCS NiTi Super elastic NITANIUM Thermal NiTi (BIO-KINETIX) Black Ti</td>
</tr>
<tr>
<td>Transverse correction</td>
<td>Transpalatal bar NiTiNium Palatal Expander 2 Quad Helix</td>
<td></td>
</tr>
<tr>
<td>Normal rotation</td>
<td>Transpalatal bar NiTiNium Palatal Rotator</td>
<td></td>
</tr>
<tr>
<td>Twin Force arches and finishing</td>
<td>.017” x .025” de acero</td>
<td>.018” x .025” de acero</td>
</tr>
</tbody>
</table>

Other uses:

Distalization of upper molars

Inverse use in Class III malocclusion treatment

Anchorage reinforcement in extraction cases
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