

ORAL APPLIANCES FOR THE TREATMENT OF OBSTRUCTIVE SLEEP APNEA BY MECHANISM OF ACTION

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Mechanism

Features

Considerations

Anterior Point

(Ex: TAP, Silencer, MDSA)



- Has a single adjustable anterior midline connection between the upper and lower trays.
- Some designs allow several mm of lateral movement, others none.
- Maintains a closed mouth position at all times.

- Teeth must have sufficient undercuts to provide good retention since the trays are connected.
- Some patients may feel forces concentrated at the maxillary anterior teeth—This may be a consideration for patients with anterior fixed prostheses and/or periodontal bone loss.
- Some patients report that the connecting hardware obstructs or irritates the tongue.
- In deep overbite cases the necessary vertical space to allow the mechanism may result in difficulty maintaining lip seal.
- Some designs have a way to increase vertical using different anterior mechanism components.

Push

(Ex: All Herbst styles)



- Adjustable rod connectors extend from the maxillary molar areas to the mandibular canine/premolar areas.
- Most designs allow significant lateral, anterior and downward movement of the mandible.
- Ball clasps for elastics can be added to the anterior aspects to help keep the mouth closed during sleep.

- Some patients may feel forces concentrated at maxillary molar and mandibular anterior teeth areas.
- Some patients report that the metal hinges irritate the buccal mucosa.
- Most patients will require use of the anterior elastics in order to keep their mouth from opening and losing protrusion.
- Vertical can be easily adjusted up or down.

Interlocking

(Ex: SomnoMed, Dorsal)



- Upper and lower trays interlock via acrylic "fins," or some other mechanism.
- Most designs allow only minimal to no lateral movement.
- Most interlocking designs allow anterior and downward movement.
- Ball clasps and elastics can be added to the anterior aspects of the interlocking trays to help keep the mouth closed during sleep, if needed.

- The interlocking design relies less on dental retention than other mechanisms.
- Patients may feel that forces are concentrated at the premolar/molar areas in the maxilla and mandible.
- The interlocking tray mechanisms may pinch the buccal mucosa in some patients.
- Vertical can be added, but may affect how the interlocking mechanism works. Reducing vertical is difficult with most designs.

Mechanism Features

Considerations

Pull

(Ex: EMA, Narval, Silent Night)



- Semi-rigid or flexible straps/bands connect the maxillary canine/premolar areas to the mandibular molar or ramus areas.
- Different length straps/bands result in different mandibular advancements.
- Most designs allow good lateral movement and some allow good anterior movement.
- Most designs limit downward movement of the mandible.
- Some designs allow for elastics to be used to help keep the mouth closed during sleep.

- Most designs require a minimum number of mandibular posterior teeth for sufficient retention.
- Some patients may feel that forces are concentrated at the maxillary canine and premolar areas.
- The trays tend to be made thinner and more flexible than in other designs.
- Most designs are metal free.
- Some patients find the connectors irritating to the buccal mucosal.
- Vertical can be easily adjusted up or down.

Adjustable Monoblock

(Ex: Moses, PM Positioner, Klearway)



- There are many variations of this design, each with unique properties, but the main design aspect is that the upper and lower trays are permanently or semi-permanently connected, with some type of mechanism to alter the mandibular position.
- Most designs do not allow lateral, anterior or downward movement.
- Depending on the design, dental retention may be more or less critical.
- Some designs allow for excellent tongue space, others intrude on the tongue space.

- Alteration of vertical usually requires a remake.
- As the appliance is adjusted forward the fit on the teeth may change since the vertical is fixed.

Temporary

(Ex: MyTAP, Easy Airway, Apnea Rx)



- There are many different styles of temporary appliances, using many of the mechanisms described above (anterior point, pull, push and monoblock).
- What makes the appliance “temporary” are the materials that it is made out of and the fact that they are usually fit chairside instead of being lab fabricated.
- Some temporary appliances are “boil and bite,” and others are fit with a dental impression material or have thermal plastic trays.

- Some uses for temporary appliances include; for use while waiting for a custom appliance to be fabricated; for use while a custom appliance is being repaired or altered; for patients who are unable to currently afford a custom appliance; for patients who need extensive dental work prior to custom appliance fabrication.
- Some designs may be used over Invisalign style trays or with patients in braces.
- ALL POTENTIAL SIDE EFFECTS OF ORAL APPLIANCE THERAPY MAY OCCUR WITH A TEMPORARY APPLIANCE. INFORMED CONSENT AND TAKING INITIAL RECORDS ARE CRITICAL.