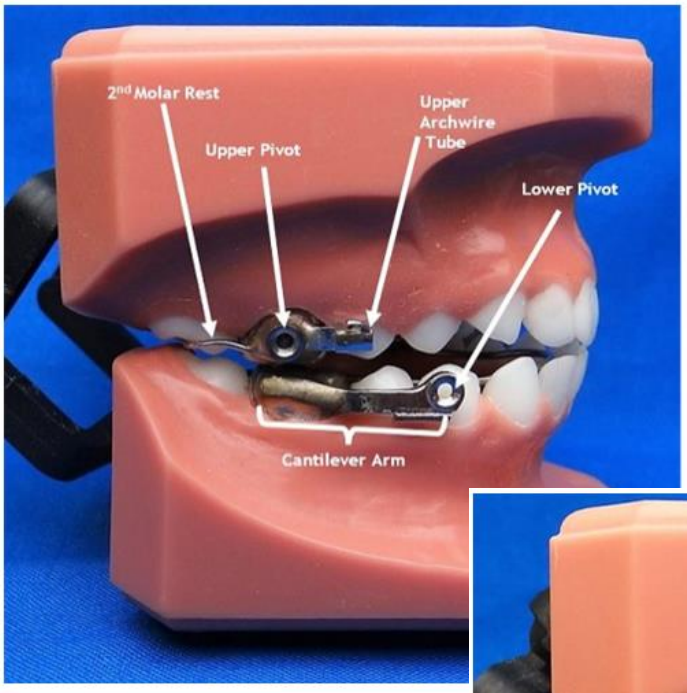
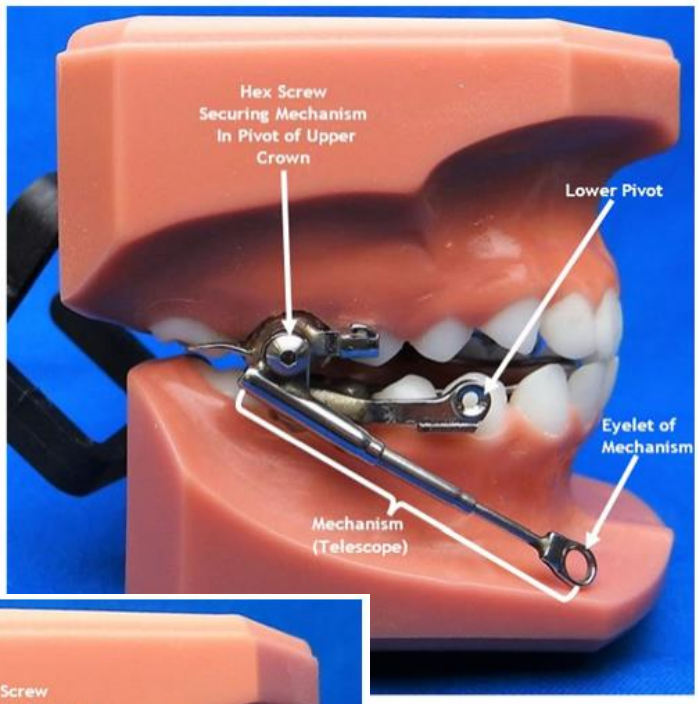
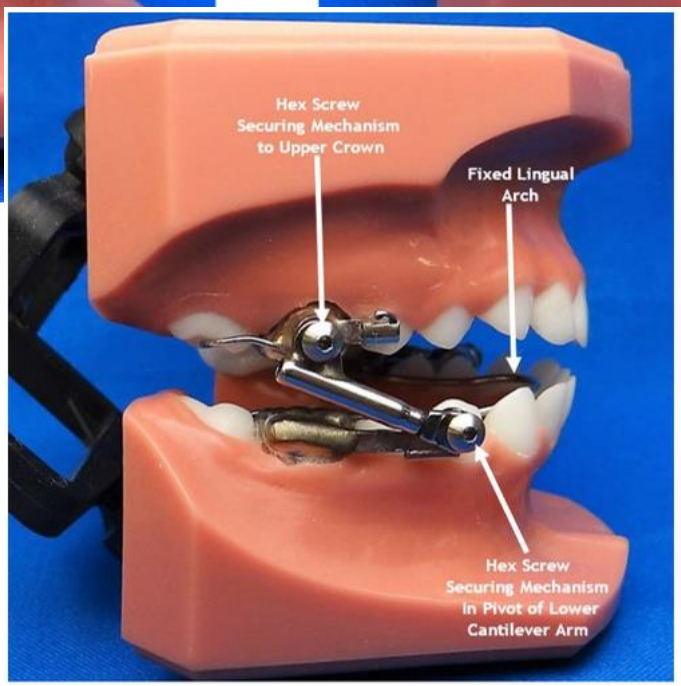
How to Use the Herbst® Appliance

Anatomy of the Herbst® Appliance







Installation of the Herbst® Appliance

Step 1: Trial Fitting & Screw Attachment

A) Trial Fitting: We recommend that on a routine basis, all Herbst® appliances be trial fit in the mouth prior to cementation. Clean the inside of all crowns/bands with alcohol after confirming fit and before cementation.

i. Crowns/Bands: Evaluate fit

ii. Cantilever Arms: Should lay approximately 0.5-1.0 mm from adjacent teeth

iii. Occlusal Rests: Should lay flush against dental surfaces

B) Screw Attachment: Remove the screw that connects the portion of the upper mechanism to the upper molar crown, dip it in Ceka Bond and re-insert it into the pivots on each upper crown.

-Material: Ceka Bond

Step 2: Molar & Appliance Preparation

A) Molar Preparation: Experience has shown that adequate bond strength for crowns is achieved by bonding the entire periphery of the tooth, without the occlusal surface included. To do this, simply use a cotton swab to place a small amount of petroleum jelly on the occlusal surface of each molar.

B) Appliance Preparation

i. Secure Mechanism: Hold the mechanism and use an elastic to wrap around the body. Then attach the elastic to the hook on the upper archwire tube; this will keep the mechanism in place while cementing the Herbst®.

ii. Covering Holes: Use toothpaste or petroleum jelly

iii. Bonding Adhesive: Band-Loc® or Crown-Loc ™ from Reliance Orthodontic Products, Inc.

-Note: If the patient has short-clinical crowns or tapered teeth, etch the buccal and lingual of the teeth for added retention.

-Material: GrenGloo™ (Ormco), Fuji Glass Ionomer (GC), Band-Loc®/Crown-Loc ™ (Reliance Orthodontics)

Step 3: Seating and Curing Appliance

-Seat each crown first using finger pressure, then by having patient bite on a band seating instrument.

-Excess adhesive material will be expressed from the edges of the crowns. Use cotton swabs and/or a cotton roll, and an air-water syringe to clean around the entire border of each crown. A scaling instrument can also be used in this cleanup.

-Clean adhesive away from any surrounding tissue.

Step 4: Bonding Occlusal Rests

-Using an explorer or scaler, the light-cure adhesive is adapted to the occlusal surface where it covers the bonded rest. Once the adhesive has been properly contoured the material is cured with the hand-held curing light.

-Note: Etching not required.

-Material: GC Fuiji ORTHO™ LC (GC America), Transbond™ (3M), Light Bond™ (Reliance)

Step 5: Check!

-Cement Clean-up: If additional cement clean-up is required an explorer can be used.

-Cantilever Position: Check that cantilever arms lay 0.5 - 1.0 mm from teeth.

-Occlusal Rests: Rests should be secure and smooth, fitting completely in the buccal occlusal groove of the second premolars.

-Note: Second Molar Rests— The wire on second permanent molars should not be bonded to the teeth. In fact, these rests may be left a little occlusal in cases where teeth are still erupting.

Step 6: Assembling Mechanism

-Rod & Tube: Insert lower rods into tubes on the respective sides. Instruct patient to protrude mandible. With the lower jaw protruded, the eyelets on the ends of the lower rods will line up with the Herbst® pivots in the lower first bicuspid area. Once the final fit of the appliance has been verified, the screws are set in the Herbst® pivots using Ceka Bond and an Allen wrench.

-Telescope: Remove elastic, if utilized, to secure mechanism. Dip lower screw threads in Ceka Bond and insert into the mechanism eyelet and attach to the lower Herbst® pivot. Make sure AppleCore® or hex screw is completely seated.

Clinical Maintenance of the Herbst® Appliance

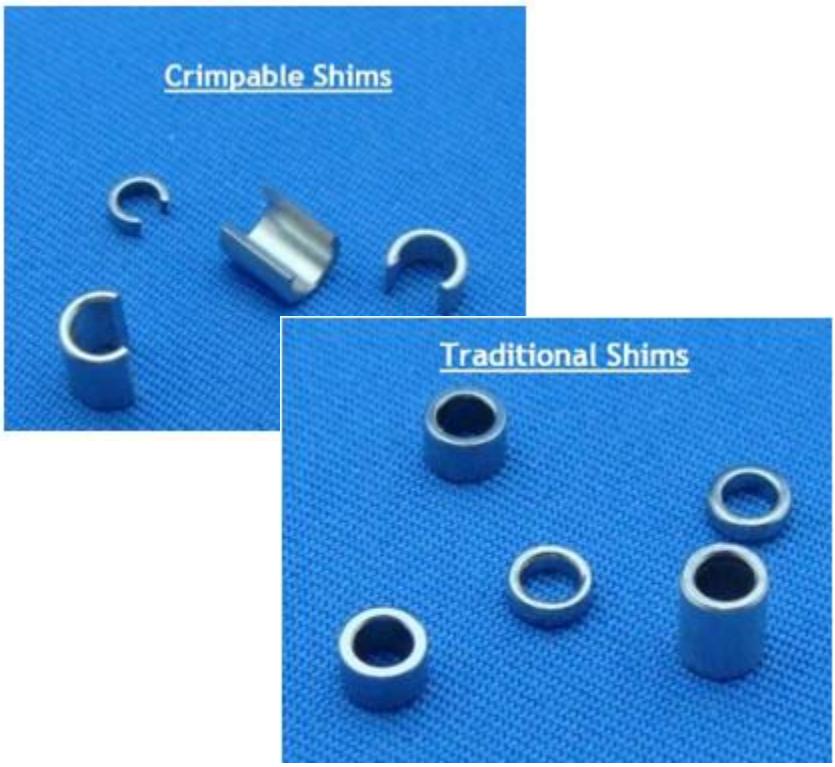
What is Reactivation of the Herbst® Appliance?

Due to the natural dento-aveolar and condylar changes that occur, the Herbst® will need to be reactivated.

Reactivation using Shims & Rods:

-Shims: The use of shims will decrease the distance that the tube is able to slide down the lower rod thus decreasing the distance that the patient is able to protrude the mandible.

-How: Remove the screw from the pivot on the lower cantilever arm. Slide rod out of the upper tube. Slide the desired number of shims to the bottom of the rod, place the rod's eyelet over the pivot on the lower cantilever arm and replace the screw after applying Ceka Bond. Instruct the patient to advance his/her mandible, slide the new rod into the upper tube.



-**Rods:** As the shims are added to the rods, the end of the rods will begin to rest closer to the opening of the tube which could eventually lead to the appliance being disassembled when the patient opens widely.

-How: Remove the screw from the pivot on the lower cantilever arm. Slide rod out of the upper tube. Place the new rod's eyelet over the pivot on the lower cantilever arm and replace the screw after applying Ceka Bond. Instruct the patient to advance his/her mandible, slide the new rod into the upper tube.

Reactivation of Telescoping Mechanism:

-The “C” type crimpable shims allow for easy activation. Determine the activation desires and select the proper shim size. Shims come in sizes 1-4 millimeters. Have the patient simply open his/her mouth slightly and crimp the shim into position. This is done near the lower eyelet.

Removal of the Herbst® Appliance

Step 1: Removal of Mechanism: Unscrew the four screws that hold the mechanism in place.

-Note: Instruct the patient to remain open as the upper tubes are still attached and could impinge on the lower tissue if patient closes forcefully.

Step 2: Crown Removal

Removal via Cutting Crowns:

-Using a high-speed handpiece with a #1171 cross-cut bur, cut each crown. Cut the crown along the buccal wall, extend over the occlusal surface and all the way forward to the opposite side of the crown.

-Once the crown has been cut to the gingival, a crown removal tool is used to gently pry the crown from the tooth. Advise the patient that he/she may feel brief pressure.

Removal via Anchorage Feet:

-Removed Occlusal Crowns: Also known as "ROCs," crowns with a "window" built into the occlusal surface offer a technique that provides an "anchorage foot" for the removing tool. The tool is placed against the occlusal surface and lever force is activated against the bottom of the crown in a lifting motion. An advantage of this technique is that more adhesive tends to remain on the inside of the crown. ROCs can be requested on the Specialty Appliances Herbst® prescription sheet.

> -Specialty has developed many parts for the Herbst® over the years. This includes the MiniScope® M-4™ mechanism, AppleCore® Screws, ROCs (Removed Occlusal Crowns), crimpable shims for traditional or telescoping Herbst®, and the Shim Guides.

-Vertical Slits: During fabrication, a small vertical slit can be cut into the gingival-most edge of the crowns which provide a routine and predictable place to access the pliers for crown removal. With this technique, the removal pliers are also used with a "lifting and prying" motion to unseat the crown. Vertical slits can be requested on the Specialty Appliances Herbst® prescription sheet.

Step 3: Adhesive Removal

-If glass ionomer cement is used, you can dry the adhesive which helps in removal. Crown-removing pliers is typically the most effective tool to remove adhesive that remain on the teeth. Small amounts of adhesive that remains after using the pliers can be removed using an acrylic bur and a low-speed handpiece.

Materials

-Mechanisms: Creating advancement force

SA Order Request: Mechanisms

-**Shims:** Increasing advancement

SA Order Request: Shims

Ceka Bond: Medical-grade adhesive used to secure the hex screws into connecting nuts or pivots

SA Order Request

Screws: Used to secure the mechanism to the upper and lower Herbst® components

SA Order Request

Fuji I Glass Ionomer Cement: Light cured adhesive

GC America Fuji I Glass Ionomer

GC Fuji ORTHO™ LC: Light-cured

GC America Fuji Ortho LC

Transbond™: Light-cured adhesive

3M Transbond™ XT Light Cure Adhesive

Light Bond™: Light-cured adhesive

Reliance Orthodontics Light Bond Kits

GrenGloo™: Light-cured color changing adhesive

ORMCO GrenGloo

Crown-Lok™: Self-curing stainless-steel crown & band adhesive

Reliance Orthodontics Crown-Lok™

Band-Lok®: Dual-cure stainless-steel crown & band adhesive

Reliance Orthodontics Band-Lok®