



# TECHNICAL GUIDE



**The Schwartz and Transverse Appliances**

## **Description:**

The basic Schwartz appliance is a removable appliance comprised of an expansion screw, clamping for retention, a labial bow and acrylic. It is an arch development appliance that can be used to accomplish various treatment goals. Often it is used as the first appliance in an overall comprehensive plan of orthodontic treatment where arch development is considered the first phase of treatment. The basic Schwartz appliance design incorporates a lateral expansion screw that is placed deep in the palate, usually tangent to bicuspid/deciduous molars, and has a single midline slice. Clamping varies on a case by case basis but usually is comprised of Adams, Delta or Sage clasps on the 6-year molars, one pair of Ball, Arrowhead or Truitt clasps between the bicuspid/deciduous molars, and a cuspid to cuspid labial bow.

The Transverse appliance is a simple variation of the basic Schwartz. It has the same basic components as the Schwartz with the following exceptions. It has a posterior bite plane, it has two expansion screws instead of one, and the labial bow is omitted. An extra pair of clasps are added in lieu of the bow.

Both appliances have the same primary function which is to expand the arch laterally, however, the Transverse design would be superior to the regular Schwartz design if one of the following indications are present. First, in cases with a posterior crossbite where the depth of bite is severe enough to impede the lateral expansion of the teeth, a posterior bite plane opens the bite and allows the teeth to 'jump' the crossbite. Second, in cases with all permanent dentition (especially patients over the age of 14) where expansion without a posterior bite plane may cause torquing of the molars. Or third, in cases with an anterior open bite because the posterior bite plane intrudes the posterior teeth yet allows the anterior teeth to extrude, thus aiding in the closing of the bite.



Central diastemas, rotated or lingually displaced incisors, tongue thrusting and/or thumb sucking are examples of dental anomalies and myofacial habits that can be adequately handled with design components easily incorporated into the Schwartz and Transverse appliance designs.

**Indications:**

Can be used for Class I or II cases, mixed or permanent dentition.

Narrow palates and/or crowded arches.

Anterior open bite cases associated with myofacial habits.

**Contraindications:**

Lack of enough teeth or lack of enough clinical height of crowns to achieve adequate retention from claspings.



**Alternate Appliances:**

Upper RPE or Haas appliance (banded or bonded).

Lower Williams, Gordon Expander or FLEA.

**Advantages of this Appliance:**

It is removable so hygiene is excellent.

It is extremely versatile, depending on design can be used for a wide variety of cases, anomalies, and malocclusions.

**Clinical Procedures:**

1. Complete maxillary and mandibular impressions. Check for accuracy, especially that the upper palate is clear. Inaccurate impressions are the major cause of poorly fitting appliances which only result in frustrated, non-compliant patients and unhappy parents.
2. Obtain a wax bite at normal biting relationship. If doing a Transverse appliance then the bite should be approximately 3 mm thick in the posterior area.
3. Pour impressions in lab stone.
4. Send the case to the laboratory with a completed *Orthodontic Technologies* prescription form. Be sure to indicate how you want the appliance to function and whether or not a posterior bite plane is desired. Remember to offer your patients Wild Things®! They are beautiful and they encourage compliance. Also specify whether or not you want to add OT Appliance Insurance to the case.

**Delivery Suggestions:**

1. Trial fit the appliance. Make adjustments to the acrylic or wires if needed.
2. Give instructions to the patient on wearing and caring for their appliance. It is of paramount importance that the patient wears the appliance all the time, especially while eating! The appliance should only be removed for cleaning.
3. Also give instructions on the frequency and rate at which to turn the expansion screws. Demonstrate activating the screws and make sure the patient understands the procedure. Normally all screws are activated one turn of the key, 2 x per week. The patient should be advised *not* to turn the key twice if a turn was missed the previous time.

4. Reschedule patient for 1 week to check the appliance and for compliance.
5. Reschedule thereafter every 4 to 6 weeks.

### **Length of Treatment Time and Results Expected:**

Typically Schwartz treatment lasts anywhere from 2 to 4 months (not including the holding phase) depending on the amount of arch development needed and the rate at which the screws are activated. Schwartz screws (depending on the size of the arch) have an expansion range of 6 to 8 mm on the upper arch and 5 to 7 mm on the lower arch. If turned at a rate of 2 x per week (each turn being ¼ mm), a 5 mm screw would have reached its maximum expansion capability in 10 weeks, a 6 mm screw in 12 weeks, and likewise.

The results of Schwartz treatment should be measurable arch development within the expansion range of the screw(s). Before beginning arch development it is advisable to complete a model analysis to predetermine the amount of expansion needed (your expansion goal) and to notate the patient's initial arch dimensions (to use as your point of reference). Some cases of extreme crowding may require two appliances to accomplish your treatment goals.

### **Hard and Soft Tissue Responses to the Appliance and Expansion Forces:**

Hard tissue response will be excellent if the appliance is worn all of the time. If a situation arises where the appliance no longer 'fits' the patient's mouth, the most likely cause for this will be that the patient is not wearing the appliance while they eat and/or not all of the time. Another factor may be that the patient is not activating the screws properly, they may be turning the key more than once at a time.

Initially the appliance may cause some minor soft tissue irritation that will dissipate after a short time of continuous wear. Because the appliance is removed for cleaning, soft tissue irritation should not be an issue if the appliance is cleaned properly. The appliance should be cleaned with a toothbrush and paste and cold water only. An appliance cleaner such as Retainer Brite is recommended to keep the appliance free of tarter build up and to maintain the integrity of the wires. Do not use a denture cleaner as this will corrode the wires.

### **Holding Phase:**

After the expansion phase is complete, the screws should be locked and the appliance worn for an additional 2 to 3 months for holding. The next phase of treatment can begin after this holding phase is complete.

Exception, if a second expansion appliance is going to be made then the old appliance should only be worn until the new appliance arrives. In this case please note two things. First, the new impression must be taken *without* the appliance in the mouth. Second, notate on the lab slip that this is a second expansion appliance. The laboratory will open the screws on the new appliance to allow some room for back-turning should some relapse occur between the time the impressions are taken and the time the new appliance is delivered.