Like many orthodontic practices, we continue to find the lives of our patients' becoming busier and more complicated. They need excellent results in the most time efficient and cost effective manner. Their parents also want treatment to be as convenient as possible for their children. Our solution to these challenges has been to incorporate the Forsus™ Appliance into our initial treatment plan for many of our patients.

There was a time in my practice when fixed Class II correction appliances were incorporated into treatment only after more compliance-dependent methods failed. Now, as a part of the initial treatment plan, the Forsus appliance provides the compliance-free benefits of a fixed device in a design that is easy to install and reliable in a variety of applications. Treatment protocol for cases that require Class II correction, maxillary distalization to increase maxillary arch length, and extraction with maxillary anchorage needs now include the Forsus appliance.

Every orthodontist realizes that their most valuable asset is chair time. Extended treatment time means increased use of chair time. So there is a productivity aspect to this approach as well: the most efficient and cost effective method of using Forsus is to use it as a part of your initial treatment plan. If you wait until a patient has demonstrated a lack of compliance prior to initiating the use of Forsus, you have already wasted valuable chair and treatment time.

Forsus Correctors in Class II Correction with Patient Comfort in Mind

We have found patient acceptance of the Forsus appliance at initial consultation excellent. Often the parents are relieved to know that the appliance works automatically, independent of patient cooperation. They also appreciate that, although the appliance is not indestructible, it is extremely durable. As their orthodontist, I appreciate the predictability of the appliance which allows me to accurately gauge their treatment time.

In our office we have experienced an ease in patient acceptance due to an increase in patient comfort. This increase in comfort can be attributed to what can be referred to as a “first bicuspid hook up.” With this attachment technique, the bulge or cheek irritation seen near the commissure of the lips is no longer an issue. To install it this way we attach the push rods distal to the mandibular first bicuspid. Clinically, this technique does not appear to have any significant effect on the horizontal and vertical components of force. The comparison below shows the push rods distal to the mandibular first bicuspid and mandibular cuspid with the first bicuspid providing a favorable direction for Class II correction. (Fig. 1-2)

As part of our installation we have incorporated the use of an Elastomeric Ligature with a Guard (3M Unitek# 406-429) turned on its side. It is placed facing distal on the first bicuspid bracket and under the archwire to act as a bumper. A mandibular .019 x .025 stainless steel archwire is then placed and cinched down distal to the molars. The bicuspid is tied with a steel ligature after the mandibular...
archwire wire is in place. The guard acts as a stress breaker protecting the bicuspid from the sliding rod and decreases the risk of bond failure of the bicuspid bracket. (Fig. 3-4)

When attaching the push rod distal to the first bicuspid, some modification of the rod may be necessary to achieve the correct amount of activation. This occurs most often in patients with small mandibles or in patients who are significantly mandibular retrognathic. Rod modification requires removing the stop on the push rod using an abrasive wheel. This allows the Forsus spring to move completely down to the recurve in the rod. One must then trim the push rod to size, so that it does not extend beyond the end of the Forsus spring, when the spring is compressed and activated. (Fig. 5-6)

Aside from patient comfort, a clinical bonus of the “first bicuspid hook up” appears to be an increase in the ability to control mandibular incisor position. Flaring of the incisors may be reduced by the addition of the first bicuspsids into the anterior anchorage unit. This is particularly helpful in mandibular retrognathic patients where you want to minimize mandibular incisor movement and maximize mandibular repositioning. In the following case the incisor angulation is maintained during Class II correction. The patient wore Forsus springs bilaterally placed distal to the first bicuspids for 5 months out of a 24 month treatment to correct her malocclusion. (Fig. 7-12)
Forsus Correctors in Maxillary Molar Distalization to Increase Arch Length

We have found the Forsus appliance to be an effective way to achieve molar distalization when an increase in arch length is needed. Before, we may have considered extraction of the maxillary first bicuspids to create space for the erupting cuspids. Or we may have needed to extract the maxillary second molars in order to distalize the maxillary buccal segment. Now we can predictably distalize and create space even when the second molars are fully erupted. Also, by leaving the Forsus appliance attached, we can easily hold the space and distalized molar position.

Following distalization, our Forsus springs become our anchorage when a reciprocal force is applied. During retraction of the buccal segments we no longer have to struggle with relapse of the maxillary molar position and space loss. We have eliminated the need to place transpalatal or nance holding arches to maintain molar position.

Our technique for distalizing molars uses the standard mandibular “first bicuspid” hook up but utilizes a smaller dimension maxillary archwire than typically used. Usually a .016 x .022 stainless steel or .016 stainless steel in a .022 slot is placed as the archwire. We want the archwire to be passive in the maxillary molars to allow as much distal movement, as quickly as possible. The maxillary molars are tied independent of the remaining dentition, allowing them to move distally from the rest of the maxillary buccal segment. The maxillary archwire needs to be replaced at every other appointment to avoid backing off the end of the archwire. Once a slight over correction is achieved, the remaining buccal segment is retracted using NiTi coil springs attached at the molar to the bicuspid. The buccal segment can also be retracted by simply chaining the bicuspids back to the molars. The Forsus appliance remains in place until the first bicuspid is retracted to a Class I position. (Fig. 13-18)
A common clinical concern is extracting bicuspids in Class II mandibular retrognathic patients. Often arch length deficiencies or incisor protrusion indicate the need for extractions. One challenge is protracting the mandibular posterior segments into the extraction site without retracting the mandibular incisors. Another is holding maxillary molar position and not losing anchorage during space closure. Both of these events can significantly increase overjet and work against correction of the malocclusion.

We have found the Forsus appliance an effective way to hold or distalize the maxillary molars while maintaining mandibular incisor position during space closure. Our treatment protocol requires a standard maxillary set up. In the mandibular arch, the push rods are placed distal to the cuspids instead of the first bicuspids as in our “first bicuspid hook up.” The mandibular cusp and 1st bicuspid are ligated together with a steel ligature under a .019 x .022 stainless steel archwire. A NiTi closed coil spring with eyelets connects the molar to the bicuspid to slide the molars forward. (Fig. 19)

This patient was significantly mandibular retrognathic. The mandibular arch length deficiency combined with the incisor protrusion indicated that extractions would be necessary. After initial leveling and aligning, Forsus appliances were placed as described above. Four months after Forsus placement the mandibular extraction space was closed and the buccal occlusion overcorrected due to maxillary molar distalization. (Fig. 20-25)
After mandibular space closure, the Forsus appliance is removed and treatment continues by placing the NiTi closed coil springs in the maxillary arch to finish maxillary space closure and establish molar occlusion. If additional maxillary anchorage is needed the Forsus appliance can remain in place during maxillary space closure. (Fig. 26)

In our office, as we treat more and more cases using the Forsus appliance we are continually impressed by the amount of correction we can achieve with limited effort on our part and on the part of our patients. If you are not currently using Forsus correctors in your practice, it is well worth the commitment to try this appliance. If you currently are using Forsus correctors, I challenge you to try new ways of using it.

My point is this: to effectively evaluate and appreciate the Forsus appliance, one must use it systematically. Decide what your criteria for use will be and then use it consistently on each patient who meets those criteria. Only then will you be able to appreciate the effectiveness and efficiency of the Forsus appliance. It is a powerful appliance that can simplify your life and the lives of your patients.