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A Rationale for Removable Retainers

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One commonly cited advantage of fixed retainers over removable retainers is their elimination of the need for patient compliance.1,2 In most cases, however, a fixed mandibular retainer is combined with a removable maxillary retainer. If bonded maxillary retainers are used, they generally extend only from lateral incisor to lateral incisor or canine to canine. These appliances can retain corrections of incisor irregularity, but are of little use after treatment such as maxillary expansion–an inherently unstable procedure.3

In my practice, at least, compliance with removable retainers is better than with headgear or elastics. Non-compliant patients can be identified and managed accordingly. Removable retainers also have the advantage of allowing patients to resume flossing in both arches.

Although removable retainers can be lost or broken, replacement is less time-consuming than with broken or debonded fixed retainers. Since the laboratory usually needs only a single impression, along with the end-of-treatment study cast of the opposing arch and a new wax bite, a patient who needs a new retainer can easily be fit into the schedule, and a new retainer can be delivered the same or the next day.

In my experience, most adolescent patients will lose a retainer only once, particularly if they are paying for the replacement. I generally bill for only the laboratory fee, but for a patient who has had a good attendance and compliance record during treatment, the replacement can be provided at no cost. Recently completed patients are excellent referrers, and a replacement retainer is certainly a worthwhile practice investment.

Removable thermoplastic retainers such as Essix appliances have the drawback of not allowing full seating of the occlusion.4,5 They can be trimmed into a wraparound form, but this reduces their strength. A recent study indicated that Essix retainers are not as long-lasting as acrylic Hawley retainers.6 There have been reports of anterior open bites appearing in some patients wearing Essix retainers, but these may have been caused by full-time rather than night-only wear, as is recommended.4,6

An Essix appliance also has the capability of correcting minor tooth discrepancies.7 Tooth positioners can serve the same function,9 but have the disadvantage of taking a permanent set after deformation, which reduces the force exerted on any malposed teeth. If correction is incomplete, a new positioner must be constructed, involving a relatively expensive laboratory procedure.

Recommended Retainers

The ideal removable retainers should be:

- Able to allow for functional occlusion.
- Sturdy enough to withstand long-term use.
- Convenient for the orthodontist to provide and maintain.
- Patient-friendly in both comfort and wear routine.

My maxillary retainer is circumferential, with a labial bow of .036" stainless steel wire, but has a

horseshoe-shaped palatal acrylic base rather than full palatal coverage (Fig. 1). This configuration reduces speech difficulties and the gagging sensation.8 The acrylic base can be trimmed as required to promote settling and minor tooth movements. No wires pass over the occlusion, eliminating the occlusal interferences sometimes seen with Hawley-type appliances in close-fitting occlusions. The loops are easily adjustable, and the retainer is sturdy and reasonably comfortable.

My mandibular appliance is a variation of the spring retainer, with the addition of lingual wire extensions; the wire framework is .028" stainless steel (Fig. 2). The extensions provide some support for the buccal teeth, as may be desirable when lingually displaced premolars have been uprighted, and more important, it makes the appliance large enough that it will not be inadvertently swallowed or inhaled.

These two removable retainers allow full intercuspation, even in close-fitting occlusions (Fig. 3).

They can be used to correct minor irregularities–for example, where a bond has failed between the final adjustment and debonding appointments and the tooth has drifted slightly out of alignment. Teeth requiring correction are simply reset on the working casts. The mandibular spring retainer is quite effective at correcting such minor problems, but the maxillary retainer can also reposition teeth that are labially displaced, with the labial bow reactivated as necessary. The rigidity of the palatal acrylic limits the ability to correct palatally malposed teeth.

Delivery and Patient Instructions

Retainers are delivered at the debonding appointment. We demonstrate insertion and removal, emphasizing that force should not be applied to the wires in any way that might cause fracture. The patient is given an oral hygiene kit and written retainer instructions explaining the importance of the wear routine.

Following a long period in fixed appliances, patients are excited about "getting their teeth back". I try to use a reasonably patient-friendly wear protocol. Patients are given a clear message that although the retainers must be worn, we are also committed to reducing their retainer requirements over time.

An advantage of removable retainers over fixed devices is that patients can easily be weaned from the appliances. The patient is able to recognize if the appliance is difficult to insert after three or four nights of not wearing it. If so, a more intensive routine can be followed for a longer period. Removal of fixed retainers, on the other hand, is an all-or-nothing scenario.

Although I usually prescribe that the mandibular retainer be worn only at night and the maxillary retainer nearly full-time (except for eating and athletic or social events), this procedure can be varied according to individual requirements. Adult patients with a record of good compliance can wear both retainers at night only from the start. In younger patients, the advantage of beginning with the spring retainer as the "limited-wear" appliance is that it is more forgiving and easier to reinsert if a few days pass without retainers being worn and some minor relapse occurs.

Patients are recalled at four weeks after debonding, and the occlusion is checked for any signs of relapse.10 Patients are asked how they are coping with the retainers. If everything is satisfactory, the next appointment is made for eight weeks later.

At three months after debonding, if there have been no undesirable occlusal changes, both retainers are reduced to night-time wear in all patients. At six months, the wear time is cut back to three nights

per week. At 12 to 15 months, retainer wear is reduced to two nights per week.

Permanent retention is desirable in certain cases, such as generalized spacing or treatment involving arch expansion. In today's mobile society, patients with fixed retainers are often dismissed from a practice with appliances still in place. Removable retainers, however, can be used indefinitely on a part-time basis without adversely affecting oral hygiene. □

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FIGURES

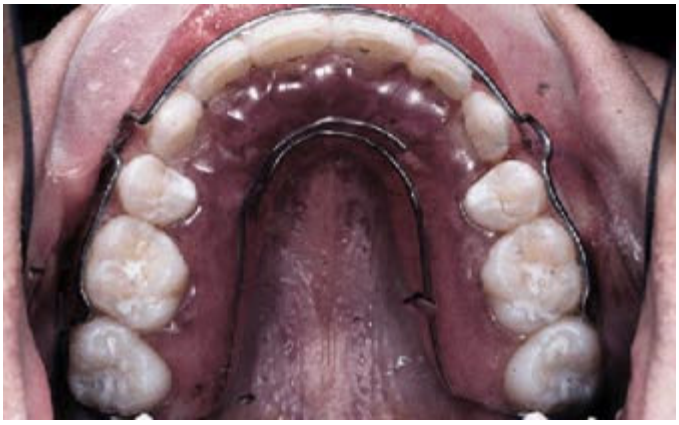

Fig. 1 Maxillary circumferential retainer.

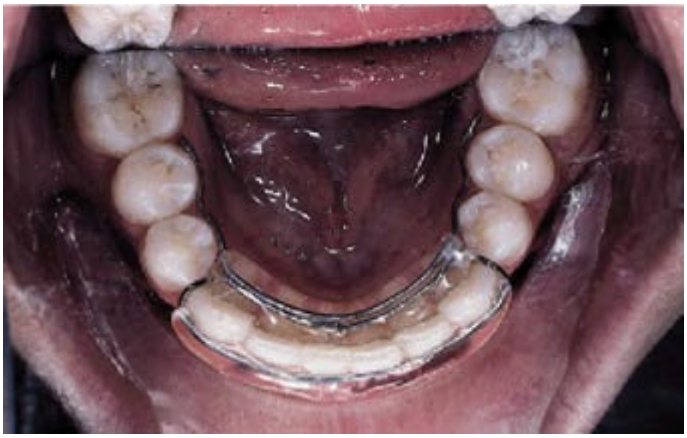

Fig. 2 Mandibular spring retainer.

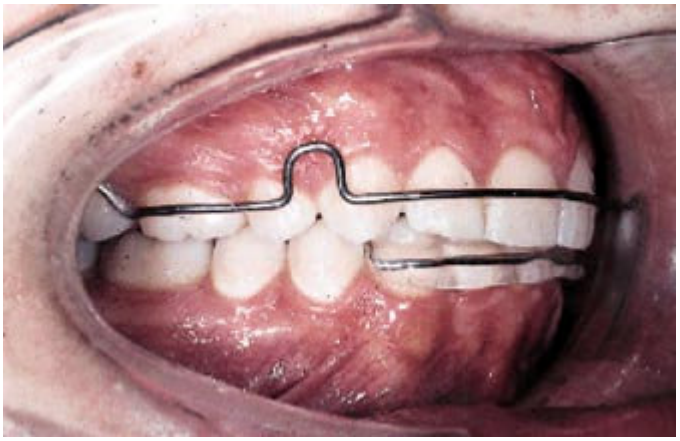

Fig. 3 Retainers in a close-fitting occlusion.

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FOOTNOTES

1 Trademark of Raintree Essix, Inc., 1069 S. Jeff Davis Parkway, New Orleans, LA 70125.