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THE 5 UNIVERSAL LAWS OF ORTHODONTIC RETENTION



1

Post-orthodontic retention is critical to the overall success of treatment. Without it, there is a propensity for teeth to relapse to their initial tooth position because of periodontal, occlusal and muscular factors.

Though the need for retention is well understood, there is disagreement among orthodontists about the most appropriate and effective retention protocols. As a result, I will review the five laws of retention that can be applied to every patient, and share my personal retention protocol and perspective.

Effort equals results

Dr. Wick Alexander's mantra, "Effort equals results," perfectly applies to orthodontic retention because shortcuts taken during treatment will affect the stability of final tooth position. Uncompleted steps during the detailing phase—buccal-lingual crown inclination, root torque and parallelism, and marginal ridge discrepancies, among others—will become contributing factors to relapse. Often, the untreated second molars are the biggest culprits.

The first law of retention is about making the difficult decisions at each appointment to do things the *right* way rather than the *easy* way. Everything counts; either everything helps, or everything hurts. Did you trace the cephalogram, band the lower second molars, flip the upper lateral incisor bracket for added torque, reposition for root parallelism, or make the difficult decision to extract? "Effort equals results" means that better treatment will lead to better retention, so always sweat the small stuff.

THE SECOND LAW OF RETENTION IS ABOUT PLACING THE PRINCIPLES OF SCIENCE ABOVE THOSE OF SALESMANSHIP.

2

Extract for the space

Self-ligating enthusiasts like to proclaim that they only “extract for the face, and not for the space,” but this is a fallacy. Refusal to extract premolars when necessary will result in dental protrusion, second-molar impaction, bite opening (with potential condylar resorption), lip incompetency and greater relapse. In actuality, you might have to extract for the space and accept the face—for example, when you’re presented with a maxillary-deficient patient with impacted canines or a hyperdivergent retrognathic patient with mandibular crowding.

The second law of retention is about placing the principles of science above those of salesmanship. There is no magic bracket that can grow bone. Expansion studies have shown that approximately 5 millimeters of arch perimeter can be gained with stability from treatment. Therefore, according to Dr. James A. McNamara, 3–6mm of mandibular crowding is a borderline extraction case, and 6mm or more is clear-cut. An orthodontist who refuses to extract premolars places a lot of faith in the durability of bonded retainers.

3

Belts and suspenders

Multistranded bonded retainers have a relatively high failure rate. Approximately 20% of mandibular- and 50% of maxillary-bonded retainers fail within five years. Furthermore, a longer-span retainer has a higher incidence of failure. This is particularly true for maxillary retainers that extend to the canines and mandibular retainers that extend to the premolars. If you choose to place bonded retainers, they should be accompanied by removable overlays—the orthodontic equivalent of wearing both a belt and suspenders.

The third law of retention is about understanding the limitations of bonded retainers. Even if the retainer does not fail, relapse can still occur in the absence of a removable overlay. For example, spacing can appear if the bonded retainer stretches, unwanted torque can be expressed on the teeth that are bonded to the wire, and anterior teeth can extrude en masse, causing the overbite to return. Always remember that bonded retainers serve as backup to removable retainers rather than as their replacement.

4

Establish good habits

Consistent, long-term wear of removable retainers is required for lasting results. The challenge for orthodontists is that many children are reluctant to wear their retainers at school, and parents who fear the cost of lost retainers choose to condone this behavior. As a result, the children never develop good retainer habits, and their nighttime-only wear soon turns into full noncompliance. This problem is exacerbated as offices get busier and start reducing the number of retainer check appointments.

The fourth law of retention is about parental and patient obligation. Parents may be in shock at the notion that retention is a lifetime commitment for their children. This reaction often causes orthodontists to acquiesce to a nighttime-only protocol from the get-go, but this is doomed to fail. Parents and patients alike need to understand the importance of good retainer habits. These habits need to be instilled with full-time wear in the beginning, then reinforced with more than one retainer check appointment.

5

Retention is practice management

In the controversial book *Straighter: The Rules of Orthodontics* by Drs. Ben Burris and Marc Ackerman, Ackerman writes, “Orthodontic retention is imperfect and how you deal with relapse is a critical practice management decision.” In other words, physiological rebound is inevitable, and your retention protocol will have a profound impact on patient satisfaction. According to Ackerman, showing unhappy patients with relapse their signed consent form and then charging them for re-treatment is practice reputation hara-kiri.

The fifth law of retention is about the orthodontist’s obligation. Relapse will certainly happen if retainers are lost, broken or worn inadequately, but sometimes it occurs even with great compliance. At this moment, will you heed Ackerman’s advice, or charge for the proverbial Phase III? Personally, I never charge for re-treatment or replacement retainers, no matter the reason. And I often see areas where my diagnosis and technique could have been improved the first time around.

Dr. Kravitz's personal retention protocol

I place upper and lower multistranded bonded lingual retainers with removable overlay Hawleys. The upper arch receives a Bond-a-Braid wire (Reliance Orthodontics Products) lateral to lateral, and an overlay circumferential Hawley. The lower arch receives a stainless steel Ortho-FlexTech wire (Reliance) canine to canine, and an overlay standard Hawley (Figs. 1a and 1b). Plastic retainers are used alternatively for adult extraction cases to hold consolidation, or for patients with bruxism (Fig. 2). The bonded retainers are secured with Transbond LR paste (3M Oral Care).

For the first six months after debanding, patients are instructed to wear their removable overlay retainers all the time, with the exception of eating, brushing and sports. After six months, if good compliance is shown, the retainers can be worn only at night. Patients are recalled for retention-check appointments three months after debanding, and again six to nine months later, for a second set of final records after tooth settling is completed and continued good retainer compliance is confirmed.

Conclusion

The five universal laws of retention can be applied to every patient.

1. The quality of the finish will influence stability.
2. Extractions are still needed.
3. Bonded retainers should be accompanied by removable overlay retainers.
4. Good habits must be established with removable retainers.
5. The retention phase is ultimately a practice management decision. ■

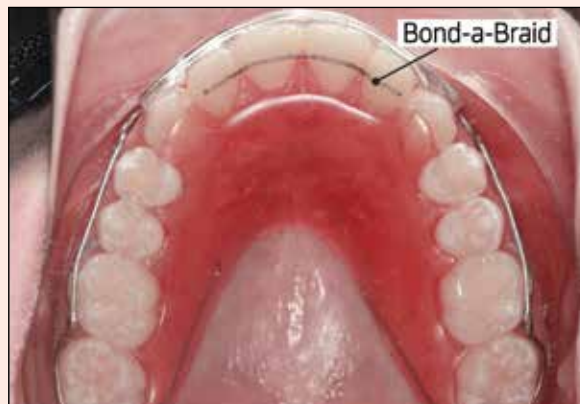


Fig. 1a. Upper Bond-a-Braid retainer with an overlay circumferential Hawley or plastic retainer. Ortho-FlexTech is not recommended on the upper anterior teeth because it can stretch and result in relapsed spacing, particularly if the patient has a thick-tissue biotype.



Fig 1b. Lower stainless steel Ortho-FlexTech retainer, canine to canine, with an overlay standard Hawley or plastic retainer. A lower circumferential Hawley is not preferred because of the loose fit of the long-span labial bow.

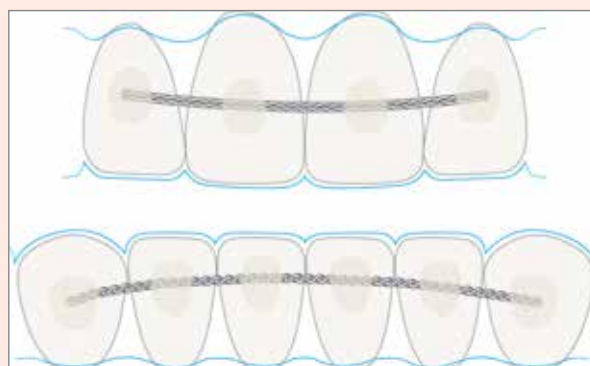


Fig 2. An illustration of Dr. Neal Kravitz's retention protocol.