

# *the* Nugget



## Collateral Damage

Navigating the  
Orthodontic  
Minefield



# Orthodontic Relapse and Stability

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Aligning the dentition is important, but will the final occlusion remain stable and stand the test of time? A retainer is added at the end of treatment to maintain treatment results and prevent un-wanted future changes. Unfortunately, lasting success is often reliant on retainers and patient cooperation.

Ideal treatment is designed so that stability is built into the final result. It is important to remember the mouth is not a static environment. There are forces at play via parafunction that effect the dentition, periodontium, jaw-joint complex, and soft tissues. These dynamic forces will influence the long-term stability of the orthodontic result. Retention isn't simply corralling the teeth via some sort of appliance to prevent movement. We must consider the dynamic nature of the retention phase and consider all the forces that teeth will be subjected to and then place the teeth in a position where they can best handle these forces. While occlusion may be static, the functional articulation of the dentition will determine whether the teeth stay where you put them, or be predisposed to relapse.

Occlusal goals to increase the likelihood of treatment stability incorporate a bilaterally interdigitating occlusion with a normal overbite and overjet that is mutually protected in excursive movements. Centric occlusion that is coincident with centric relation can reduce unwanted tooth movement. No matter how excellent the articulation and occlusion are, the dentition has a natural tendency to migrate mesially over time. In addition, there are facial changes throughout adulthood that lead to increased incisor crowding. This is why retention is sometimes called the step child of orthodontics. There is no such thing as stability, just more or less tendency to move.

There are numerous treatment goals that can increase stability during retention. Placing teeth directly over the base of the underlying bone, increasing the size of contact points, and closing spaces all increase stability. Proper root angulation prevents spaces

from reopening and allows the forces of the bite to be distributed down the long axis. Intrusion or extrusion requires six months of holding to allow time for the periodontal fibers to reorganize and prevent the tooth from reverting back to its original position. A frenectomy post space closure can assist in preventing diastemas from returning if a low frenum attachment is identified.

Planning for retention often involves multiple specialties. The periodontist may recommend splinting of certain teeth and/

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or supercrestal fiber resection to prevent rotations from returning. The restorative dentist may recommend a nightguard to combat the forces of parafunction and protect post-orthodontic restorations. Full-time retainer wear for six months following treatment allows mature bone to form around the teeth. Night-time wear is sufficient thereafter.

While there is no such thing as a stable result due to the dynamics of the stomatognathic system, if all the aforementioned factors are taken into consideration from the beginning of treatment it is possible to attain a relatively stable result. The type of retention appliance and retentive regimen is less important. A better bite will simply have fewer problems over time. ■