Retention in Orthodontics

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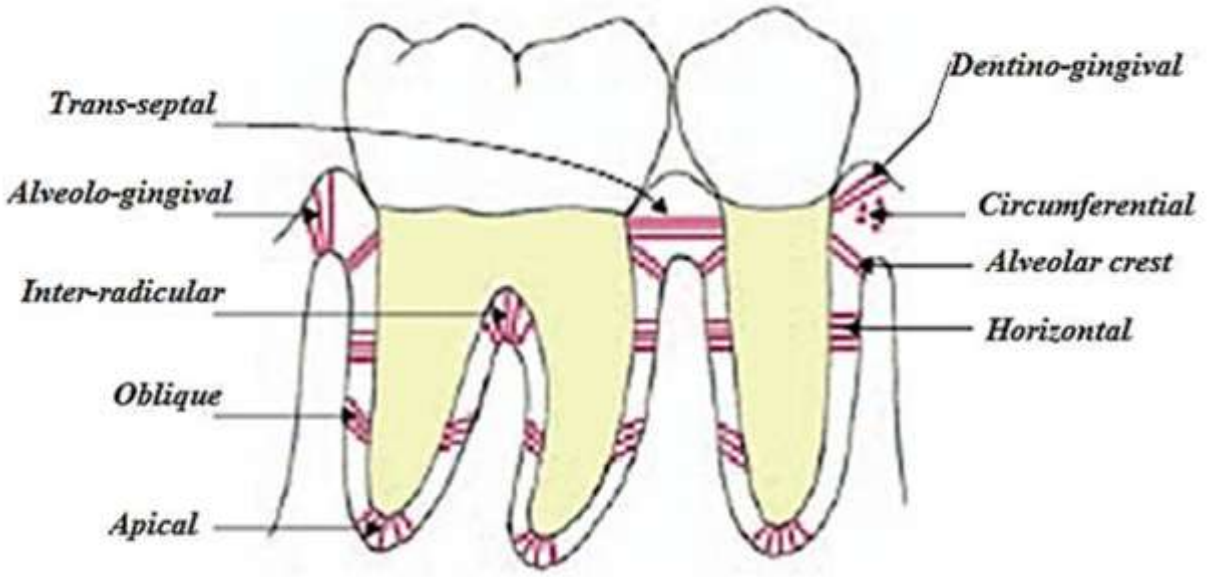
Relapse is defined as the return, following correction, of the features of the original malocclusion. However, for patients, relapse is perhaps better described as any change from the final tooth position at the end of treatment.

Why is Retention Necessary ?

three major reasons:

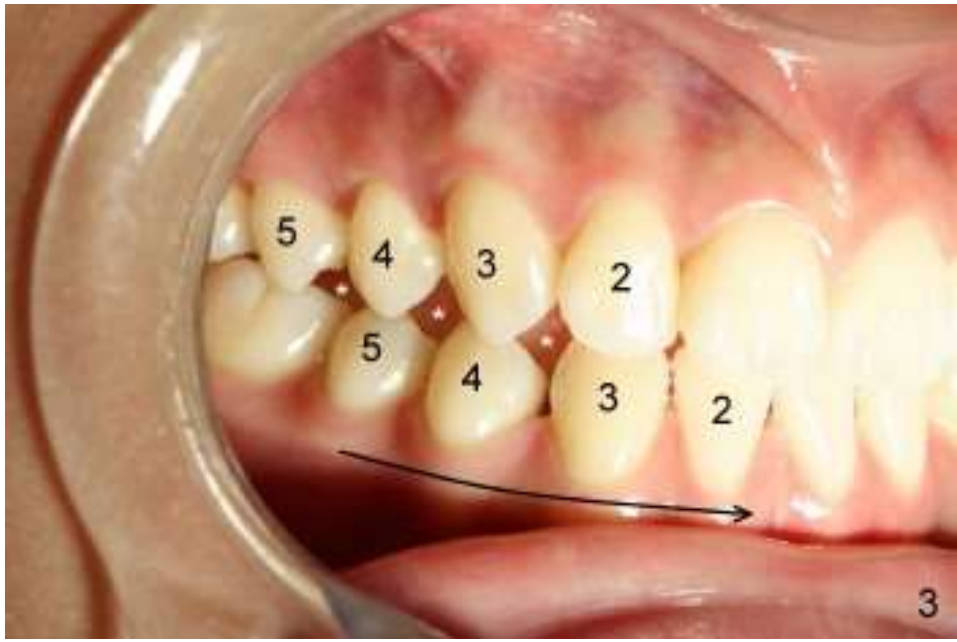
1. When teeth are moved the **periodontal ligament** and associated alveolar bone remodels. Until the periodontium adapts to the new position, there is a tendency for the stretched periodontal fibres to pull the tooth back to its original position.

The alveolar bone remodels within a month, the principal fibers **rearrange in 3–4 months** and the collagen fibers in the gingivae re-organize **after 4–6 months**. However, elastic fibers in the dento-gingival and interdental fibers can take more than **8 months** to remodel. Until the fibers have remodelled there is a tendency for the tooth to be pulled back to its original position. This is very clear when teeth are rotated.



2. Occlusal factors

The way the teeth occlude at the end of treatment may affect stability .It has been suggested that if the teeth interdigitate well at the end of treatment then the result is likely to be more stable.



3. Soft tissues

The teeth lie in an area of balance between the tongue on the lingual aspect and the cheeks and lips on the buccal and labial aspect. This area of balance is sometimes referred to as the neutral zone. Although the forces from the tongue are stronger, the activity of a healthy periodontium will resist proclination of the teeth. The further teeth are moved out of this zone of stability, the more unstable they are likely to be.

4. Growth

Although the majority (some) of a patient’s growth is complete by the end of puberty, it is now known that small age changes may be occurring throughout life.

Retainers

Retainers are used to help reduce relapse. The clinician is faced with a multitude of different options when choosing which retainer to use and for how many hours per day the patient should wear it. When choosing the retention regimen the following factors should be considered:

1. Likely stability of the result
2. Initial malocclusion
3. Type of appliances used
4. Oral hygiene
5. Quality of the result
6. Compliance of patient
7. Patient expectations
8. Patient preference

Retention of Class II Corrections

1. Overcorrection of occlusal relationship as a finishing procedure.

2. It is better not to move the lower incisors too far forward. If more than 2 mm forward repositioning of the lower incisors occurred during treatment, permanent retention will be required.

Retention of Class III Corrections

1. In mild Class III problems a functional appliance or a positioner may be enough to maintain the occlusal relationships during post treatment growth.

2. For moderate to severe Class Ill cases surgical correction after the growth is complete is the only stable treatment. **Chin cap** or Class Ill functional appliance as a retainer rotate the mandible downward causing the growth to be expressed more vertically and less horizontally

Retention of Lower Incisor Alignment

It seems likely that late mandibular growth is the major contributor to this crowding tendency. It has been suggested that prolonged retention of the lower incisor alignment until growth has declined to adult levels (i.e., until the late mandibular teens in girls and into the early 20s in boys).

Timing of Retention

It should be:

1. Full time for the first 3 to 4 months, except during eating.

2. Continued on a part-time for at least 12 months, to allow time for remodeling of gingival tissues.

3. If significant growth remains, continued part-time until completion of growth.

Removable or Fixed Retainers ?

There are potential advantages to both fixed and removable retainers. The benefits of removable retainers are that they are:

1. Easier for oral hygiene (they can be removed by the patient for cleaning)

2. Capable of being worn part-time if required

3. The responsibility of the patient, not the orthodontist

The cases when fixed retainer is recommended.

Examples include :

1. Closure of spaced dentition (including median diastema)

2. Following correction of severely rotated teeth

3. Where there has been substantial movement of the lower labial segment.

4. Combined periodontal and orthodontic cases, where reduced periodontal support makes relapse more likely.

Hawley Retainer

1.Simple to construct

2. Reasonably robust.

3. Rigid enough to maintain transverse corrections.

4. It is easy to add a prosthetic tooth.

Vacuum-Formed Retainer

Vacuum-formed retainer offer a number of potential advantages over Hawley retainer.

Superior aesthetics

2. Less interference with speech.

3. More economical to make.

4. Ease of fabrication.

5. Superior retention of the lower incisors

Fixed Retainers

Fixed or bonded retainers are usually attached to the palatal aspect of the upper or lower labial segment. using normal acid-etch composite bonding. There are different types of bonded retainers:

1. Multistrand retainers bonded to each tooth.
2. Rigid canine and canine retainers, which are only bonded to the canine teeth.
3. Reinforced fibres.

Rigid canine and canine retainers

Multistrand retainers

Procedure


Thank You