RETENTION AND RELAPSE

Retention is the phase of orthodontic treatment which maintains the teeth in their corrected positions following the cessation of active orthodontic tooth movement, orthodontic retainer resists the tendency of teeth to return to their original position under the influence of periodontal, occlusal and soft tissue forces and continuing dentofacial growth.

Retention is necessary for the following reasons:

1. To allow for periodontal and gingival reorganization.

2. To minimize changes from growth.

3. To maintain unstable tooth position, if such positioning is required for reasons of compromise or esthetics.

Relapse is officially defined by the British Standards Institute as the return, following correction, of the features of the original malocclusion.

Aetiology of relapse

The exact causes of relapse are difficult to identify, but the following factors are the most possible reasons for relapse.

•**Gingival and periodontal factors**: 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.

•**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.

•**Soft tissues factors:** 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, so the further teeth are moved out of this zone of stability, the more unstable they are likely to be.

• **Growth factors**: Although the majority 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. If the pressures on the teeth are always changing, then it is perhaps not surprising that there is a risk of relapse of the teeth as the patient gets older.

Retainers can either be removable or fixed.

Advantages of removable retainers:

- Easier for oral hygiene (they can be removed by the patient for cleaning)
- Capable of being worn part-time if required
- The responsibility is of the patient, not the orthodontist

Types of removable retainers:

1. **Hawley retainer**

The Hawley retainer is the original removable retainer. It is a simple and robust appliance made from an acrylic base plate with a metal labial bow. It was originally designed as an active removable appliance, but it became clear that it could be used as a retainer to maintain the teeth in the correct position after treatment.

Various adaptations are possible, depending on the case:

- Acrylic facing can be added to the labial bow to help control rotations.
- A reverse U-loop can be used to control the canine position.
- A passive bite-plane can be added to maintain corrections of deep overbites.
- The labial bow can be soldered, so there are fewer wires to cross the occlusal surfaces and interfere with the occlusion.

2. **Vacuum-formed retainers**

Vacuum-formed retainers are clear thermoplastic retainers, offer a number of potential advantages over Hawley retainers:

- Superior aesthetics.
- Less interference with speech.
- More economical and quicker to make.

• Less likely to break.
• Ease of fabrication.
• Superior retention of the lower incisors.

Advantages of fixed retainers:

•Patients do not need to remember to wear them.
•They are useful when the result is very unstable.

Fixed or bonded retainers are usually attached to the palatal aspect of the upper or lower labial segment, using normal acid-etch, composite bonding. Bonding retainers is a very technique-sensitive process. The tooth surface should be thoroughly cleaned before bonding. If the bonded retainer is not passive when it is bonded it can cause minor unwanted tooth movement. One of the potential problems of bonded retainers is localized relapse if there is partial debond of the retainer. (How to overcome this problem??)

- Due to the unpredictable nature of relapse, long-term wear is advisable. However, the patients should wear removable retainers for full time for 3-6 months to allow the reorganization of PDL, and then they can wear them at night only. This of course excludes cases with a high risk of relapse, when full-time wear is advisable using a bonded retainer is indicated

Have Only Positive Expectations

GOOD LUCK