Patient:

“Some of my teeth are mobile”
The mobility of teeth is a common complaint of patients with fairly advanced periodontal disease. It is caused by a loss of supporting bone. In the majority of cases, the lower incisors are the teeth showing the first signs of mobility.
Splints in Periodontal Therapy

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Recommended reading:
• Essentials of Clinical Periodontology and Periodontics; Ch.46
Definition

**Dental splinting** *(Glossary of Prosthodontic Terms 1999)*: The ligating, tying, or joining of two or more teeth into a rigid unit by means of fixed or removable restorations/devices.

**Periodontal Splint**: is a device used to maintain and stabilize mobile teeth in their functional position.
Schools of Thoughts

1. Critical Aspects:
Periodontal splinting creates good environment for plaque accumulation & it may lead to ankylosis because the functional movement of the tooth within its socket is not possible.

2. Beneficial Aspects:
Splinting to adjacent healthy teeth prevents tooth mobility during mastication and it enhances healing.
What Does The Literature Say About Splinting?

“Severely mobile teeth, if in health, can be retained almost indefinitely.”

*Pollack (1999)*

“Used correctly, periodontal splinting can greatly improve the comfort, prognosis & outcome for a patient with serious periodontal disease. But used incorrectly, splinting can cause further deterioration in periodontal health.”

*Mosedale (2007)*

“Splinting is not a substitute for periodontal treatment.”

*Rada (1999)*
Objectives of Splinting

**Main objectives:**
1. Increase patient’s comfort & function
2. Promote healing

**Other objectives:**
3. Redirection of the forces in a more axial direction over all splinted teeth
4. Redistribution of the forces in order to be within the adaptive capacity
5. Preservation of the arch integrity by restoring proximal contacts, reducing food impaction & consequent breakdown.
6. Restoration of functional stability
7. Psychologic well being
8. Stabilization of mobile teeth during surgical, especially regenerative therapy.
9. Preventing the eruption of unopposed teeth.
Classification of Splints

A. Period of stabilization:
   • Temporary: worn for < 6 months (Removable/fixed).
   • Provisional: worn for months or up to several years (acrylic splints/metal bands).
   • Permanent: used indefinitely (removable/fixed, extracoronal/intracoronal).

B. Type of splinting material:
   • Bonded composite resin splint
   • Braided wire splint
   • A-splint

C. Location on the tooth
   • Extra-coronal
   • Intra-coronal
Extra-Coronial Splint

- **Composite resin splint with/without fiber meshwork (Ribbond):**
  It is the simplest type of splinting. It is created intra- orally.

- **Resin-bonded retainers (Figures 1-4):**
  It can be fabricated in the dental laboratory & is made of metal or composite.

- **Others like:** Tooth-bonded plastic, night guard & welded bands.
Resin-Bonded Metal Retainer

- A non-noble metal is usually used because of the strength of its bonding to Metabond & its high strength in thin section.
- It is electrolytically or chemically etched, air abraded & cemented with Metabond.
- It has greater inherent strength than a composite-resin splint created intraorally.
- Grooves, pins & parallel preparations increase its retentive capacity.

Figure 1
Extra-coronal Splints

**DiamondCrown**: It is a laboratory-cured composite & it has good tensile strength & bonding capabilities.

**Figure 2.** preparation of cingulum rests

**Figure 3.** DiamondCrown material ready for cementation.

**Figure 4.** DiamondCrown splint cemented (bonded) under rubber dam isolation.
Intra-Coronary Splint

• **Composite-resin restorations:**
  It can be placed in adjoining teeth and cured to eliminate any interproximal separation. It can be further reinforced with metal wires, glass-reinforced fibres or pins.
  • **Inlays**
  • **Nylon wire**
Commonly Used Splints

• **Splints for anterior teeth:**
  1- Direct bonding using acid etch techniques & light cured resin.
  2- Intracoronal wire & acrylic wire resin splint:
     A slot is prepared on the lingual aspect of the tooth & a stainless steel wire is placed in the slot.

• **Splints for posterior teeth:**
  1- Intracoronal amalgam wire splints.
     A resin restoration with wire on the proximal amalgam restored areas
  2- Bite guard
  3- rigid occlusal splint
  4- composite splint
Principles of Splinting

1. Inclusion of sufficient number of healthy teeth
2. Splinting around the arch
3. Coronoplasty may be performed to relieve traumatic occlusion
4. Splint should facilitate proper plaque control
5. Splint should be esthetically acceptable
6. Splint should not interfere with occlusion
Indications of Splinting

Splinting is indicated to:

1. stabilize moderate to advanced tooth mobility that can’t be reduced by other means & which has not responded to occlusal adjustment & periodontal therapy.
2. facilitate scaling & surgical procedures
3. stabilize teeth after orthodontic movement or acute dental trauma
4. prevent tipping & drifting of the teeth & extrusion of unopposed teeth
5. If tooth mobility interferes with normal masticatory function
Contraindications of Splinting

1. Moderate to severe tooth mobility in the presence periodontal inflammation or primary trauma.
2. Insufficient number of firm teeth to stabilize mobile teeth.
3. If the occlusal adjustment has not been done
4. If the patient is not maintaining good oral hygiene
### Advantages

1. Establish stability & comfort for patients with occlusal trauma.
2. Help to accelerate healing following acute trauma & regenerative therapy.
3. Allow remodeling of alveolar bone & PDL for ortho. splinted teeth.
4. Distribute occlusal forces over a wider area.

### Disadvantages

1. Collect bacterial plaque.
2. Lead to caries development.
3. Can destroy other teeth if the forces are not distributed correctly.
Remember:

Dental splinting, used to treat loose teeth, involves joining teeth together. The splint stabilizes teeth so that they are less likely to move, which can weaken the teeth and cause them to fall out. It may be used for temporary stabilization of loose teeth, or to address ongoing issues; it is important to address the underlying cause of the looseness, as a splint cannot resolve the problem.
Remember:

• The underlying periodontal disease must first be treated
• Splinting is not a quick solution to simply stabilize loose teeth
• Splinting is always a part of a periodontal treatment plan
• The patient must be able to maintain the splint & gingiva & keep the area clean, & thus disease free.
• The necessity of regular follow-up visits to an oral hygienist cannot be stressed enough.