# Splinting : A Review

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**ABSTRACT:**

Splinting teeth to each other allows weakened teeth to be supported by neighbouring teeth. Several methods for splinting teeth, both extracoronal and intracoronal, as well as the materials commonly used for splinting, are described and illustrated. A case reports is used to demonstrate the situations in which splinting might be appropriate.

**Key words**: Splinting, dental bonding; periodontal splints; tooth mobility/therapy.

## INTRODUCTION

Dawson defines splinting as the joining together of two or more teeth for the purpose of stabilization. Others defined it as a Rigid or flexible device that maintains in position a displaced or movable part also used to keep in place and protect an injured part. A secondary definition of splint used in the same glossary is a rigid flexible material used to protect, immobilize, or restrict motion in a part. The active term of splinting in dentistry is defined as the joining of two or more teeth into a rigid unit by means of fixed or removable restorations or devices[1].

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## CLINICAL RATIONALE FOR SPLINTING

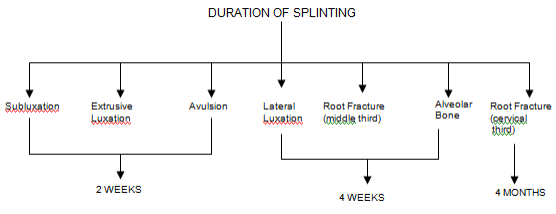
Dawson's rationale for splinting are the redirection of stresses, redistribution of and stabilization and strengthening of abutments[2].

Lemmerman advocates splinting only if the gingiva can be made perfectly healthy and when normal occlusal forces result in mobility, thus making function difficult or impossible[2].

The benefits of splinting teeth are based on clinical impression rather than on scientific studies. Although well-controlled clinical studies are lacking, clinicians have used both fixed and removable splints to restore occlusal stability effectively. Indications and possible approaches for splint therapy include the following[3].

1. Control of forces of parafunction or bruxing-removable by acrylic biteguard or Hawley appliance with anterior biteplane.
2. Stabilization of mobile teeth for masticatory comfort-temporary, provisional; or permanent splints.
3. Stabilization of mobile teeth during surgical, especially regenerative, therapy-temporary of provisional splints that may be removable or fixed. A combination of a braided wire and composite resin or reinforced ribbon and resin splint and a biteguard may be effective and economical.
4. Cross-arch stabilization of an intact or virtually intact natural dentition or preservation of arch integrity-a permanent fixed splint is the most likely approach in this situation.
5. Stabilization of a severely periodontally compromised tooth when more definitive treatment is not possible-a reinforced ribbon and resin or intracanal wire and resin splint is indicated. In this situation, with stable abutments, the root of the compromised tooth may be removed, and the splint may function as a bridge with the natural crown as the pontic.
6. Restoration of the vertical dimension of occlusion in a case of posterior bite collapse- provisional splint or prosthesis to reestablish the correct vertical, dimension of occlusion followed by a permanent splint.
7. Prevention of the eruption of an unopposed tooth - A splint, biteguard, or restoration of the missing opposing tooth.
8. Post orthodontic retention – a fixed or removable retainer is indicated. The fixed retainer may be a cemented lingual wire or more complex.
9. Redistribution of forces along the long axes of teeth – this may be done by reshaping the occlusal tables with the appliance.
10. Stabilization of loose teeth to restore the patients psychological and physical well being – a patient may be afraid to eat properly because of a severely loose tooth or teeth. Splinting may restore occlusal stability, restore a sense of a solid occlusion.

**Splinting Guidelines of Luxated/ Avulsed Teeth**



**Types of Splints**

Splints may be classified as temporary, provisional, or permanent and may be either fixed or removable. Temporary splints may be worn for less than 6 months and may not be followed by additional splint therapy. Provisional splints may be used for months up to several years with a definitive end to splint therapy. Permanent splints maintain long-term stability of the dentition.

Following are the splints available for various uses

1. A-Splint
2. Orthodontic band-arch wire splint
3. Cap Splint
4. Proximal Bonding with Composite
5. Bonded orthodontic wire
6. Bonding with a fiberglass splint
7. TTS

**A-Splints**

A-splints have long been used to stabilize adjacent teeth. These splints are constructed by creating a channel in the occlusal or lingual surfaces of adjacent teeth. A wire is cemented into the channel with composite resin or acrylic. Pins may be used to retain the wire.

**Orthodontic band-arch wire splint**

Many teeth can be splinted with adapted and cemented orthodontic bands connected with an arch wire[6].

**Cap splint**

Cap splint is fabricated in either gold or acrylic; and usually inserted after 6–8 h, maximum 24 h.[6]

**Proximal bonding with composite**

The proximal surfaces of the traumatised and adjacent teeth were etched and united by placing composite[6]

**Bonded orthodontic wire**

Splints may be constructed of many materials. They may be as simple as a bonded composite resin button from one tooth to another. This stabilization is transient in nature because inability of the composite to accommodate shear forces. The resin either fractures internally or debonds from one of the teeth. Resin-reinforced ribbons offer significant increases in bond strength and durability[6].

**Bonding with a fiberglass splint**

The labial surfaces of the traumatized and adjacent teeth are etched. Flowable composite is applied to etched surfaces. Over that fiberglass strip is kept and light cured. This is again stabilized by composite resin[6]

**TITANIUM TRAUMA SPLINT (TTS)**

The TTS is made of pure titanium and is only 0.2 mm thick . Therefore, it can be easily adapted to the contour of the dental arch. The TTS can be bent with the fingers. The TTS is available in two lengths, 52 mm and 100 mm. The unique design of the TTS with its rhomboid mesh structure makes it flexible in all dimensions, thus allowing physiologic tooth mobility without transferring orthodontic forces to the splinted teeth. A thin layer of a (fluid) composite can be simply applied to fill the rhomboid openings with subsequent light-curing[4,9].

## CONCLUSION

This article described the importance of tooth stabilization in the treatment of mobile teeth using an innovative technique employing a bondable, ribbon splinting material for reinforcing dental resins. By combining the chemical adhesive and easthetic characteristics of composite resin with the strength enhancement of a high modulus, reinforcing ribbon, dentists can provide patients with restorations and splints that resist the load bearing forces of occlusion and mastication. The fracture-resistant restorations are more durable than most adhesive – composite resin alternative splinting materials of past[7].

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