

# CROWNS, BRIDGES & IMPLANTS

Heavily restored, fractured, or missing teeth present a detrimental effect to long-term comfort and overall oral health. Basic filling materials such as amalgam and tooth-colored resins are remarkably effective at rebuilding decayed teeth. Metallic filling materials depend on remaining tooth structure for retention of the material, and will weaken a tooth significantly if the filling is large, thereby increasing the potential for tooth fracture. The adhesive properties of bonded, tooth-colored resin filling materials depend less on solid tooth structure for retention, and add some strength to the tooth. However, resins are not as resistant to recurring decay as metallic filling materials, and in general will need to be replaced more frequently. Both types of filling materials present additional difficulty in establishing proper occlusion (“bite”) when restorations are large, resulting in less than ideal results. Multiply the limitations of extensive restorations over many teeth, and clearly the scene is set for high fracture incidence potentially causing tooth loss, and a constantly changing bite. Appropriate therapy to avoid these problems, as well as to reconstruct areas of damage and tooth loss, will insure long term oral health and comfort

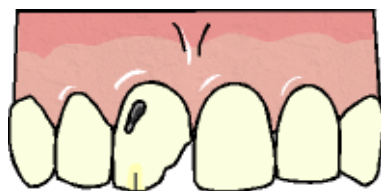
## CROWNS

Crowns, and variations of crowns such as onlays, are designed to strengthen or reconstruct teeth that have extensive fillings or fractures. They may also be used to enhance the appearance of teeth. There are many materials used to construct crowns, from metals such as gold to resins and ceramics. Each material has its unique advantages and disadvantages. As a result, there is no “perfect” material. Most crowns today are constructed of a ceramic material fused to a metal substructure. These crowns have reasonable esthetics and great strength. Crowns for front teeth may be constructed of ceramic only, as the esthetics is frequently superior to ceramic fused to metal. However, it is not always possible, or necessary, to use ceramic only crowns due to certain technical limitations in strength and design.

## CONSTRUCTION OF CROWNS

The process of restoring a tooth with any type of crown takes a fairly similar course.

- 1) Diagnosis: the tooth is evaluated to determine extent of decay, periodontal health, and type of crown restoration.

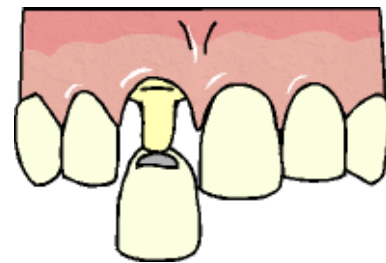


*Before treatment*

- 2) Preparation: local anesthesia is administered and the tooth is prepared for the crown restoration
- 3) Impression: an impression (mould) is made of

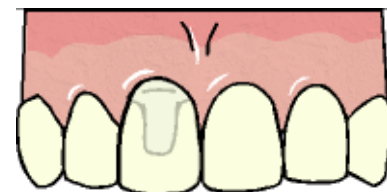
the tooth, as well as the adjacent teeth and the teeth of the other jaw. These impressions are used to construct models of the prepared tooth, and are used in the laboratory during fabrication of the crown

- 4) Temporization: a temporary crown is fabricated and placed on the prepared tooth for the duration of the laboratory phase. This may vary from a few days to a few weeks in time.



*Prepared tooth and crown*

- 5) Cementation: the final crown is evaluated for many factors including fit, color, and bite. Corrections and adjustments are made when necessary. The crown is then cemented in place.



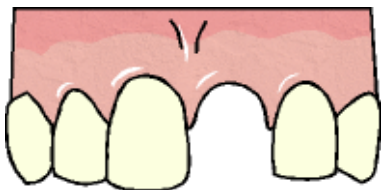
*Crown in place*

## **FIXED BRIDGES**

Fixed bridges, or non-removable bridges, are designed to replace missing teeth in a fashion that most closely resembles the natural state. Technically they are similar to individual crowns attached together in a series. Similarly, the procedures to fabricate fixed bridges are virtually identical to individual crowns, although somewhat more extensive. The final result will closely mimic the look and feel of natural teeth.

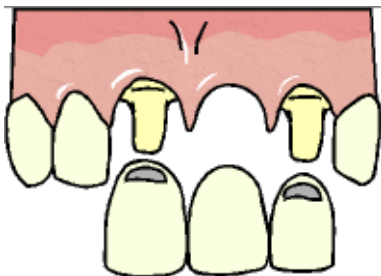
### **CONSTRUCTION OF FIXED BRIDGES**

1) **Diagnosis:** determination of number and health of support teeth, including periodontal status, mobility (looseness), cosmetic implications, occlusion (“bite”), and other factors. The number of support teeth will vary depending on the diagnosis. Teeth with supporting bone loss due to periodontal disease are less able to accept the added load that fixed bridges create. As a result, more support teeth may be needed if periodontal disease has been a problem.



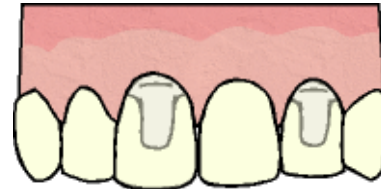
***Before treatment***

- 2) **Preparation and impressions:** similar to individual crowns.
- 3) **Temporization:** temporary fixed bridgework is usually fabricated to stabilize support teeth, provide for effective function and esthetics.



***Prepared teeth and finished bridge***

- 4) **Evaluation:** it is common to evaluate bridgework in its various stages of fabrication. This enables detailed verification of correct fit prior to finalizing the esthetic ceramic layer. Additionally, the ceramic layer may be evaluated for correct occlusion (bite) prior to the application of final color and shading.
- 5) **Cementation:** final evaluation and placement of the non-removable bridge.



***Finished bridge in place***

## THE ROLE OF DENTAL IMPLANTS

Dental implants have significantly expanded our capabilities to replace missing teeth, and now allow us to avoid removable tooth replacements in many circumstances. Additionally, dental implants can provide us with the capability of replacing missing teeth without preparing adjacent sound, natural teeth.

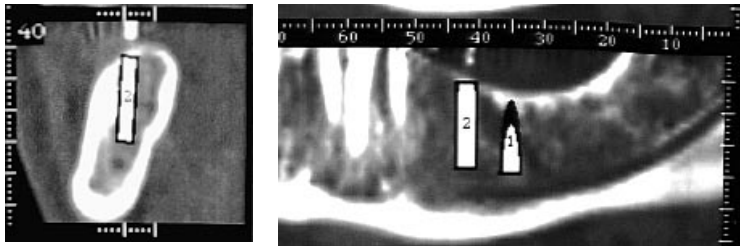
You can think of a dental implant as an artificial root. With “roots” now replacing missing teeth, we can build on these implants to construct crowns and fixed bridges. Unlike fixed bridges, individual missing teeth can be replaced with a single implant while leaving adjacent healthy teeth alone.

Implants can also be used as primary or additional support for non-removable bridges when traditional therapy required a removable partial denture. There are too many possible treatment approaches to list, and each reconstruction needs to be individually planned.

## RECONSTRUCTIONS WITH DENTAL IMPLANTS

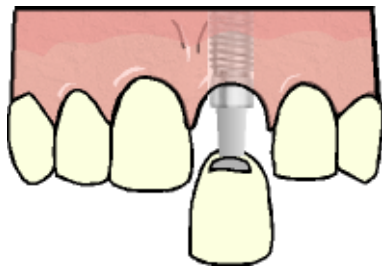
Planning reconstructive care with dental implants requires careful coordination between the surgical phase and reconstructive phase. The intent is to pre-plan the entire treatment and prosthesis prior to implant placement surgery. This reduces unexpected surgical and anatomical complications and insures the best possible outcome.

1) Diagnosis: dental x-rays, panoramic x-rays, diagnostic models, and computer tomographic x-rays are commonly performed. This enables full planning of both the surgical and reconstructive phases of treatment.

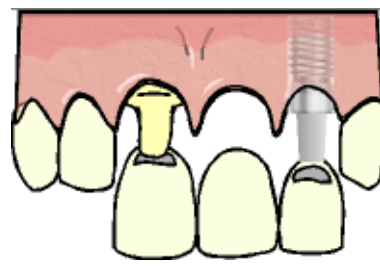


*Computer tomograph showing jaw bone and projected implant placement*

- 2) Implant placement: the surgical procedure to place the implants in the jaw is generally performed with a conventional local anesthetic. Most types of implants remain completely covered by gum tissue during the healing phase, ranging from three to six months.
- 3) Implant evaluation: after the appropriate healing time, the implants are uncovered and evaluated for stability.
- 4) Reconstruction: the tooth replacement is fabricated utilizing the dental implants and, if appropriate, supported by natural teeth as well.



*single tooth implant and crown*



*Bridge supported by implant and natural tooth*