



## Crowns and Restorative Dentistry

A dental crown is a tooth-shaped cap or jacket that is designed to protect the tooth from further damage. In humans, crowns are often required after certain dental procedures, because of the way we use our teeth and because of the shape of our teeth. In veterinary medicine, crowns are only occasionally required, but there are circumstances in which a dental crown may be an important part of your pet's dental treatment.

A full crown, one that covers the entire surface of the crown of a tooth, is most commonly used in dogs who have broken a tooth and the tooth has had root canal therapy (see our handout on endodontic therapy for more information). During a root canal, often a small hole is drilled into the tooth to allow us to properly clean out the root, and this may partly weaken the tooth. A crown can be used after the root canal to protect it from further breakage and to restore a normal tooth margin to help other secondary inflammation (from periodontal disease) from developing. Crowns can also be used in dogs that have damaged the structure of their teeth through cage biting, or if they have development defects of the teeth called enamel hypoplasia.



This dog had a  $\frac{3}{4}$  crown (on the left) to treat severe wear from biting a cage, and a full crown (on the right) after a root canal when that tooth broke due to the wear.

There are several steps involved in making a full crown for your pet's tooth. This is a very precise procedure, and requires expert knowledge and handling of the tooth for the crown to fit properly! The first step after root canal therapy has been performed is to prepare the tooth. Preparation of the crown involves removing 1-2mm of the outer surface of the tooth (the enamel layer) in order for the crown to be able to fit on the tooth and not interfere with any of the other teeth in the mouth. Once the tooth surface has been prepared, a detailed impression of the tooth is made and sent off to a dental laboratory for them to be able to make a model of the tooth. Based on this model, they create the cast-metal crown specifically for the tooth, finish it, and send it back to us. We cement the crown in place during a second anesthesia using specific types of dental cement designed to keep the crown in place.



These impressions were taken in a dog to prepare for a crown that was made at a nearby dental laboratory.

During the period between when your dog's tooth has been prepared for a crown until the time the crown is placed it is extremely important that we protect the tooth! By removing a layer from the outside surface of the tooth, we are weakening the tooth structure, which needs to be exactly the same in order for the crown to fit perfectly. Typically, we can get a crown made in 10 to 14 days. During this period *strict* oral rest should be observed- no toys, treats or oral play should be allowed, and your pet should only go out on leash-restricted walks to keep them from further chipping the tooth! Once the crown is in place, they can resume their normal activity.

We recommend the placement of a prosthetic crown for dogs that are more at risk of breaking a tooth further. This includes working dogs, those who work with the police or other enforcement services, or who work at retrieving or other field trials. This also includes cases where the tooth has broken in a way to make crown therapy the best option for preventing the tooth from developing further disease.

Metal crowns are the best option for crown therapy in dogs for several reasons. The most important reason is that they are the most durable type of crown, being hard enough to prevent wear or breakage of the prosthetic crown and tooth. Also, metal crowns require less of the normal tooth structure to be removed, allowing the tooth to remain as naturally strong as possible. They withstand a pet's biting and chewing forces well, rarely chipping or breaking. They are also the least likely crown material to cause inflammation of the tissue sitting next to the crown, leading to very few complications. The only disadvantage of a metal crown is that it is metallic in color- either a light gold or silver color depending on the alloy (mixture of metals) used.

Most often we only recommend placement of dental crowns on the "strategic teeth" – the teeth with a large and important role in the mouth. These include the canine teeth (the fang teeth) as well as the upper fourth premolar teeth and lower first molar teeth. For special circumstances, we may also consider "crowning" one of the other teeth in the mouth.

