

## Vitality Testing: How to tell if a tooth is dead or not?

The dentist touches the tooth with a metal probe, applying an ever-increasing electrical voltage to it; the patient holds an electrical terminal in her hand at the same time. If the tooth is alive, the nerves in the tooth will conduct the electrical current and she feels some pain, so she signals the dentist. If the tooth is dead, then the nerves in it are dead and she/ he feels no pain.

If a tooth test as dead, it is probably infected and becoming more and more toxic inside and around the tooth. An abscessed tooth is one that has decaying tissue down in the bone below/ above it. The dentist has to act fast to deal with the problem of a dead tooth so that the disease process doesn't spread. The two choices are 1) remove the tooth, thoroughly cleaning out the diseased, abscessed areas, scraping down to healthy bone or 2) perform a root canal treatment. The choice is subject to debate; see our critical article on root canal treatments for teeth.

One the tooth is extracted (see our article on proper tooth extraction), the extraction needs a few months for the site to heal and for the bone to fill in solidly. Then, unless the tooth was the third molar (wisdom tooth, the last one in the back) it is usually replaced with some kind of a false tooth, in order to allow better chewing and to keep opposing teeth and adjoining teeth from shifting out of place.

## What to Replace a Missing Tooth With? The Options are Bridges, Implants and Partial Dentures

The choices are: 1) a tooth **implant**, 2) a **bridge**, and 3) a **removable partial denture**; if no upper or lower teeth remain, a full set of teeth can be provided - a **full denture**.

A **bridge** ("permanent bridge" or "fixed bridge") is a dental device that holds one or more false tooth that is suspended on a bridge that is supported, on each end, by the adjoining teeth. Therefore, a bridge can only be used to replace one or two missing tooth that have good remaining teeth on each side of the gap. The bridge-holding teeth must be crowned and the crowns have the bridge end built onto the top of them in order to hold the false tooth.

Traditionally, bridges have been out of metal (e.g. stainless steel or titanium) in order to have the necessary strength to carry the load. Nowadays, holistic dentists are using bridges made composite or ceramic materials reinforced with Kevlar fibers. To avoid the damage done by crowning the abutment teeth, more conservative inlay preparations are done on the abutment teeth. Such a bridge can be more "bio-compatible" and can avoid the damage to the abutment teeth that would be done by crowning them.

A tooth **implant** is more expensive and complicated option, taking longer than bridge or a partial. While we do not encourage implants, we will describe here what they involve. After the tooth is extracted, the site needs to heal up for a couple of months, so that the bone is strong and healthy. Then, in the first surgical stage, a hole going down into the jawbone, where a metal implant "fixture" is planted, to play the role of a tooth root that will serve as a base for the artificial tooth to be attached later. Most often, the fixture is made of titanium or titanium-aluminum-vanadium alloy. The metal implant fixture is left alone for four to six months, allowing it to heal and become "osseointegrated" – bound tightly to the bone around it. Following the

lengthy healing period, a second surgery is done in which the implant is uncovered and exposed to the mouth through a healing cap that is placed to ensure proper healing of soft mucosal tissue through which a collar or “abutment” will be placed. In a final surgical step, the healing cap is removed and replaced by a metal collar (abutment) that is screwed into the fixture. The top of the abutment sticks out into the mouth space and the actual false tooth (the “prosthesis”) will be screwed or cemented onto it.

A tooth implantation process takes almost a year, is expensive, and requires great expertise on the part of the dentist. Are the possible benefits worth the risks? One selling point is that implants can be done at any site in the mouth, even sites where bridges are not feasible because of a lack of suitable abutment teeth. With an implant, there is no need to damage or destroy good enamel on two adjoining teeth the way a bridge usually does. In theory, an implants can be mechanically strong and last for many years if the fixture is solidly rooted in the jawbone the way a health natural tooth root would be.

**Implant Risks:** 1) the bite can be too hard; the fixture – collar – tooth system lacks the periodontal ligament shock absorbing cushion that a natural tooth has. 2) the gums do not snug up to an implant the way they do with a natural tooth, leaving an opening for bacteria to travel down into the jawbone. 3) patients who have lost teeth may not have properly healthy jawbones for holding the implant. Smokers, diabetics, people with osteoarthritis, periodontal disease or jawbone disease are poor risks for implants. 4) there is the concern over the implantation of the titanium or titanium-aluminum-vandadium alloy into a jawbone. There are allergy and toxicity concerns. The titanium alloy is used instead of pure titanium in order decrease susceptibility to corrosion and to improve the material’s strength. But vanadium and (especially) aluminum, need to be avoided because of toxicity concerns. Even titanium can cause allergic reaction in a significant fraction of the population, warns immunology professor Vera Stejskal. Hal Huggins, DDS, MS, adds “I have personally seen multiple sclerosis stimulated within one week of placing titanium implants. The compatibility test showed titanium to be compatible, yet it caused MS.” Frank Jerome, DDS, writes that implants are not really a life long solution. Ten years may be a typical implant life. Once they fail, Dr. Jerome argues, the implant option cannot be used again at the same site.

Some dentists are using **zirconia**, a ceramic material, as a safer, more bio-compatible alternative to the titanium alloy metal base. Biological dentists are now strongly tending to use zirconia ceramic materials for implants when they do implants at all.

**Anchors for dentures.** Anchors for full dentures are basically implants extending down from the denture teeth into the jawbone, to keep the dentures from sliding around. But the arguments against tooth implants apply to these anchors.

A **partial denture** (“partial”) consists of the replacement tooth attached to adjoining clasps and a plastic base that holds onto the adjoining teeth and gums. The partial can be removed for part of the day and is always removed when the patient is sleeping. Holistic dentists now are able to avoid the use of stainless steel (with its toxic metals chromium, nickel and cobalt) for the clasp. The clasp can be made of plastic or nylon and the use of cadmium pink coloring is avoided.

Every partial is custom made to fit the patient's mouth and existing teeth and there are many configurations possible depending on which teeth are missing and which remain. Holistic dentists often ask the lab to use Vitalon 1060, cadmium free, tissue tone 99 as a very safe materials of partials dentures. The Cook Dental Lab in Wisconsin prefers to use this material for partial or full dentures. Other choices are: a flexible nylon material Lucitone FRS and an acrylic or nylon Flexite MP to make the partial. Such a non-metal partial may not last quite as long as one with metal clasps, but they are safer, more biocompatible choices and generally work well.

**Full dentures** replace a full set of teeth. The denture base (that fits down over the gums) should be made out of acrylic that is cadmium free. Vitalon 1060, cadmium free/ Tissue tone 99, made by Fricke International, 800-537-4253, is a denture popular with some holistic dentists who use EDS (electro-dermal screening).

**A Dental Lab Choice** Cook Dental Lab of Suring, Wisconsin, caters to dentists who serve chemically sensitive patients and those with the greatest health concerns such as cancer or other chronic illness. Cook Lab can be reached at 920-842-2083 - ask for the lab. This lab provides dentures, crowns and other lab work to dentists all over the US and Canada.