

Problem Solvers 18 Bridges for missing teeth

Synonyms: PFM Bridge, Maryland bridge, Virginia bridge, temporary bridge

Bridges can provide long- term replacements for missing teeth.

When a tooth must be removed, a permanent replacement is needed. Bridges represent a cosmetic option that will last many years if cared for properly. This article will explain some of the types of bridges and how to care for them.

Bridges are devices that allow patients to have missing teeth replaced. A bridge in the mouth is similar to a bridge on the street. A bridge is a structure with supports on each side of a space; where both sides are connected so that it can withstand great forces. A bridge in the mouth connects a tooth on one side of a space to the tooth on the other side of the space with a false tooth or teeth in the middle. The teeth on each side are called retainers or abutments and the tooth in the middle is called a pontic. Placement of a bridge is important to stop the adjacent teeth from tipping into the missing tooth space as well as preventing the opposing tooth from super-erupting into the space left by the missing tooth.

Are there different types of bridges?

Bridges can be classified in to the following types:

- PFM or porcelain fused to metal bridges
- Full gold bridges
- All porcelain bridges
- Captek bridges
- Zirconia bridges
- Virginia/Maryland Bridges
- Encore bridge
- Implant bridges.

The porcelain fused to gold bridge is where a metal substructure is covered by a porcelain substrate. It is very strong and can be designed so that no metal is visible or some metal may be visible on the top of the bridge.

This is done as metal is kinder to the opposing tooth and won't accelerate wear of the natural tooth as much.

Full gold bridges are just as they sound. They have no metal and are full gold restorations that are virtually unbreakable. Porcelain is abrasive but gold is very biocompatible and is the kindest of all materials to the opposing teeth.

All porcelain bridges: There are bridges without metal and they can be broken

down into sub categories. The all porcelain bridge can be made out of pressed porcelain or feldspathic porcelain, which is build up and fired in stages.

Captek bridges have a 24K gold substructure and have porcelain baked on to the metal framework.

Zirconia bridges are made of a monolithic zirconia (a very strong ceramic material) and have almost the same strength as porcelain fused to gold bridge but without the metal substructure.

Virginia or Maryland bridges utilize a metal frame on the back of the two teeth on either side of a space, with a porcelain tooth baked on to the middle wing. This is then glued on to the teeth's lingual or back so that only the porcelain tooth is visible. This technique avoids substantial shaving down of the two remaining teeth but has the disadvantage that chewing and flexing of the remaining teeth can lead to the bridge debonding or coming off.

Encore bridges are used when no restorations are in the teeth adjacent to the missing space. In that case small box type preparations are made and the bride has a small wing or inlay that is cemented into each tooth. These are very conservative but have the ability to debond on one or both wings.

Implant bridges are bridges made out of the same materials previously listed but they sit on implants instead of natural teeth.

What is a Zirconia crown or bridge?

Zirconia is a ceramic material that is formed from pressure placed on zirconium oxide powder and Ytria plus additional additives. It is exceptionally strong and can be milled out of blocks in a CAD CAM milling machine to fabricate crowns and bridges for dentistry. This material is sintered for 6.5 hours R 1530 Degrees Celsius and is extremely strong when finished. It is monolithic so it is made of one material and delamination or chipping of a porcelain superstructure won't occur.

Which will last longer a porcelain crown or a Zirconia bridge?

Porcelain can chip or crack or break and is very brittle until cemented onto the host tooth. Zirconia bridges are virtually unbreakable.

Due to the outstanding strength of these materials, they can be made in thinner sections so less tooth reduction is required.

Which is prettier for a bridge, porcelain or Zirconia?

All porcelain bridges are much prettier as they are built up in layers and can have depth of color baked into them. The zirconia bridges tend to be rather opaque looking and monochromatic so they may be a better choice where high esthetic demands don't exist. The most esthetic all porcelain bridge are pressed ceramic or layered ceramic bridges and these are used to replace front teeth where chewing forces are lower than in the back of the mouth.

What are some of the all porcelain bridges available today?

Some Zirconia based crown brands in the United States are as follows: Cercon (Dentsply, Milford, Conn.), Everest (KaVo, Lake Zurich, Ill.), IPS e.max (Ivoclar Vivadent, Amherst, N.Y.) and Lava (3M ESPE, St. Paul, Minn.).

If my gums recede will they type of bridge matter?

Yes the PFM or porcelain fused to metal bridge may have a slightly darker hue after gum recession at the root area unless the laboratory places an all-ceramic margin so there is no metal at the gumline. In general the zirconia crown may look nicer in areas of recession as there is no metal or opaque to be visible as the root is exposed.

Should Zirconia bridges be used for bridges that replace more than one tooth?

Long- term studies are ongoing so there is not conclusive evidence that these bridges will last as long as porcelain fused to metal bridges. That being said, current research looks very favorable for using this material for longer span bridges.

Are cantilever bridges where a fake tooth sticks off the back of two crowned teeth? Is this a good idea?

When a fake tooth or pontic hangs off the back of two splinted teeth the forces on the back teeth are magnified. So cantilever bridges increase the risk of fracture of the teeth, the porcelain, the bridge, and should be avoided at all costs. A cantilever means that pushing down on a fake tooth will cause rotational forces on the front tooth of the bridge and lead to the bridge becoming uncemented.

How long can bridges be?

There are rules, in dentistry, which are based upon physics principles regarding the length of a bridge. These principles say that the surface area of the missing roots (for the teeth that are gone) should be matched by the surface area of the teeth supporting the bridge. So if you are missing one tooth then the 2 teeth that support the bridge will have roots with a bigger surface area than that of the missing tooth. The longer the bridge, the more it flexes under load so longer bridges may not last as long as shorter bridges.

My dentist wants to put a bridge in for a missing eye -tooth, is this a smart idea?

There should not be a bridge to replace a canine as it is located in the corner of the mouth and the forces taken on by hooking a bridge on to a bicuspid and lateral incisor are not biomechanically favorable. The surface area of the canine root is larger than the surface area of the lateral and bicuspid, so it may fail.

What should I do to clean my bridge?

Bridges should be cleaned every day. Since bridges connect teeth, care must be taken to thread dental floss under the bridge so the remaining teeth can be thoroughly flossed. Failure to use a floss threader under a bridge will result in periodontal disease and decay around the bridge retainers. The biggest reason bridges fail is secondary cavities from poor cleaning.

Fluoride to protect the enamel and root surfaces is also highly recommended to further prevent recurrent decay.

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