

What Are Inlays & Onlays?

This document has been produced for the international dental profession.
The English (US) dictionary has been used as the basis for the text.



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When a filling is very wide, or very deep, certain problems arise that may make it almost impossible to get a good quality result without taking an impression (a mould) and constructing a restoration outside your mouth, on a replica model of your teeth and then cementing it into your tooth. These are called inlays and onlays. However, these restorations always require more equipment, skill and time compared to amalgam or normal plastic fillings. If you can afford it, it is definitely worthwhile to get an injection molded or computer cut porcelain restoration because of it's much increased strength over normal porcelain and its wide range of advantages over plastic (composite) fillings.

Inlays and onlays are porcelain fillings. An 'inlay' fits inside the tooth and looks like a normal filling, but an 'onlay' covers part of the top of the tooth, the 'cusp', as well as filling the hole in the middle of the tooth. The reason we do these restorations is to avoid the problems associated with tooth coloured composite fillings that are done directly in the mouth. These problems are:

SHRINKAGE CRACKS

When the composite filling is cured (hardened with the blue light) it shrinks quite a lot. As it shrinks, it often pulls in on the tooth and cracks the remaining thin enamel, which is brittle, like glass. The crack can often be seen in the smile, half way up the side of the tooth. Porcelain is injection moulded or computer cut to fit your tooth. There is virtually no shrinkage stress with this method and therefore no cracking of your tooth due to shrinkage.

FOOD TRAPS

Because white fillings don't compact down into the cavity like amalgam, it is quite possible that a fine gap will be left between the teeth that catches food, *especially fibrous foods like meat and celery. Food traps range in severity from mildly annoying, to ones causing considerable pain, by compressing food onto the gum. Unless you thoroughly and constantly clean them out, they can cause decay by fuelling the acid producing bacteria and can also cause redness and bleeding in the gum. Permanent bone loss can result. The decay caused by food traps is in the worst possible place, usually very deep, where it is hard to fix properly and close to the nerve. This sort of decay often causes nerve death requiring root canal therapy. If you have an existing food

trap, do not put up with it, get it fixed! Porcelain inlays and onlays are made in a way so that they are slightly wider against the adjacent teeth and therefore fit tighter, with no gap, stopping food getting caught, (you can still floss through the contact area). We simply can't make large white fillings in the mouth as tight as inlays or onlays with any sort of predictability.

*A survey done in the USA showed that 50% of plastic white fillings in back teeth caused food traps.

GUM DISEASE

Fillings need to be sealed perfectly to the edge of the cavity and should blend in without ledges or gaps. Fillings deep below the gum are often impossible to get a collar around and even if this is possible, the "wedging" process distorts the correct, smooth shape of the filling causing a plaque trap. Ledges and defects harbour food particles and plaque, which can and often do, cause gingivitis and the permanent loss of bone around the tooth. After 10-20 years this problem can insidiously and painlessly lead to severe infection around the tooth (periodontal disease), abscess formation and/or loss of the tooth. Inlays are made on a replica stone model where the "gum" can be cut away to give perfect access for precision butt joint edges and smooth, natural, disease free contours.

WEAKER RESTORATION WITH HIGHER WEAR RATE

Chipping and cracking of direct white fillings has been a small problem, but wear of white fillings has been a significant long term problem and on larger stress bearing fillings this is a problem. Porcelain fillings do not wear appreciably.

WHY DO AN INLAY WHEN I COULD HAVE A CROWN?

It depends on the individual tooth and the judgement of your dentist. If there is enough strong tooth structure left worth preserving, an inlay is indicated. If there is a weak cusp (a cusp is one of the small 'mountain peaks' on top of your back teeth), it may need covering to avoid it splitting off later. There's no point in doing an inlay today and have the cusp crack off the next month. If the tooth is very heavily filled or badly broken, a crown is indicated. There are different types of crowns – some are more prone to crack than others, some look more natural than others and some require less tooth to be drilled away. If this is what you require then your dentist will discuss these options with you.

