Why Gold Castings Are An Excellent Tooth Restoration

Disadvantages

1. It is not tooth coloured.
   The gold inlay or onlay is obviously not tooth coloured, however, the filling is usually not objectionable because it is in the posterior part of the mouth where it is not seen. It would seldom, if ever, be recommended for the front teeth. The teeth are prepared in such a manner that the filling would not display gold when speaking or smiling.

2. It is more expensive that some other types of fillings.
   The gold casting is more expensive than amalgam or composite filling. It requires two appointments to prepare the cavity, accomplish the laboratory work while the patient is away and place it in the mouth. The dentist must make a special type of cavity preparation that allows the casting to withdraw from the cavity, with no undercuts and fulfills all the other requirements of a good preparation. There are many types of cavity preparations depending on the extent and position of the lesion on the tooth. An accurate impression is made of the teeth and the cavity. There are many things that make this type of dentistry much easier to accomplish than in past years including improved impression materials. The actual gold casting which is gold alloy that gives the most advantageous properties to the metal, is fabricated in the dental laboratory. It is done with precise control that allows a very accurate fit of the casting to the tooth. The cost of the gold is still a minor expense in the whole procedure and although it requires special effort for the dentist, it is not more expensive than many other types of dental procedures.

3. It requires reasonable care and technique from the operator.
   As with any dental procedure, the dentist must be trained to accomplish it with a knowledge and understanding so the final restoration is accurate and fulfills all the requirements of a good permanent filling. It is a demanding procedure for the dentist, definitely not for one who would not care to make the effort.

Advantages

1. It will not break or fracture.
   The gold casting, being the metal that it is, would never break as compared to silver amalgam which is comprised of silver particles “cemented” by mercury so it tends to make it somewhat brittle. This is not to infer that silver amalgam is not a permanent type of filling, however occasionally they do fracture in the teeth. Fracture does not seem to be a problem with tooth coloured materials.

2. It will not become sub marginal from erosion of the filling material.
   The gold casting maintains marginal integrity even after many years of function. The composite filling though tooth coloured, gradually erodes away which may leave the enamel margins unsupported so they could chip or break down.

3. It has a co-efficient of expansion similar to that of tooth structure.
   The favourable co-efficient of expansion of the gold alloy as compared to that of the tooth is important. The tooth, as other materials, shrinks with cold temperature and expands with heat. Since the temperature in the mouth varies from cold ice cream to hot coffee, it is important that the filling material expands and contracts similar to that of tooth structure.

4. It will support the enamel margins of the tooth.
   The gold casting can be placed so accurately in the tooth that the enamel at the edge or margin of the cavity is supported and as the patient functions on the tooth, the enamel is not broken down. It is like gold braces the enamel rods to prevent them from breaking down.

5. It provides good dental anatomy and tooth form.
   Restoring a tooth to its normal form and shape is elementary to any tooth restoration or filling. This is important because it allows proper function with opposing teeth and it allows food to pass over the teeth in a normal chewing and grinding motion. The gold restoration is made in the laboratory from an accurate die, a replica of the tooth. Since it is created outside the mouth, it is possible to make the shape and form ideal.

6. It allows a good finish and smooth surface.
   There is advantage to having the filling smooth and highly polished. It is obviously easier to accomplish this in the laboratory than in the mouth where we are dealing with access and mouth fluids. The highly-polished surface is less likely to accumulate plaque, and is more pleasing to the feel of the tongue.

7. It does not flow or change shape.
   It is true that gold is not likely to flow or change shape. This is not much of a factor now as the current silver amalgam fillings are an improvement over the type used more than about twenty-five years ago.

8. It does not absorb mouth fluids.
   Gold is of such structure that saliva does not penetrate the surface. Sometimes the white composites have absorbed enough mouth fluid that there is a putrid smell as they are removed.

9. It does not oxidize in the mouth.
   Gold fillings are of such noble metal that they do not oxidize or turn black on the surface as amalgam fillings. Though tooth coloured composite fillings do discolour over time, they would still be considered more esthetic for the anterior or front teeth.

10. It does not discolour the tooth.
    The gold filling does not discolour a tooth, whereas silver fillings, due to oxidation of the filling markedly cause the tooth to turn dark. Sometimes if the tooth is very thin, the gold may reflect through the enamel. It is not usually a factor.

11. It allows a very good contact point.
    It is possible to have a very good contact with the adjacent tooth using of a gold casting. As the anatomy of the tooth is carved into the wax pattern in the laboratory, it is possible to stimulate the natural tooth, with a broad contact area. The is important to keep food from impacting between the teeth. Also, the marginal ridge is rounded with a full contour toward the outside surface of the tooth. This allows food to sluice off the palatal area. This is referred to, as the occlusal spillway of the tooth. In short, good dental anatomy can be achieved.

12. It is esthetic.
    Before tooth coloured materials were available, gold was often placed for esthetic reasons, particularly because it does not discolour a tooth and had a very clean look. Now the dentist is careful to display as little gold as possible by being careful that the cavity preparation does not extend out to the visible areas of the tooth. New cavity preparations are designed especially to avoid a display of gold. An example of this is the invisible onlay. The dentist also is concerned that tooth much tooth is not destroyed.

13. It can be cemented without bonding.
    It is the opinion of some that the time-tested zinc phosphate cement is the luting agent of choice and it is often used for cementation of castings. This can be used without bonding as is necessary with some other types of restorations. Rentention is derived from the inlay type of preparation with relatively parallel walls.

14. It allows good tissue health.
    A gold restoration, in contrast to other materials, is an aid to tissue health primarily for three reasons. The restoration can be imperceptible at the margin even with a sharp instrument and smooth so there is not a rough edge to harbour plaque. The gold alloy is non-reactive and does not usually contribute to allergic or other condition of the tissue. The very smooth margin under the tissue does not irritate the gum tissue; and keep the tissue inflamed.

15. It does not abrade or wear opposing teeth.
    The gold restoration does not wear or abrade teeth in the opposing arch when the patient grinds as porcelain is likely to do over time. Also, it does not cause hollowing of the same tooth as particle of a white filling are liberated, which apparently causes tooth to wear. This is most noticed on an occlusal of a lower molar.

16. There is no mercury in the restoration.
    Many studies have attested to the fact that mercury, as used in amalgam filings is harmless to the health of patients. However, for those who still have a concern for mercury, obviously a gold restoration would have none.

17. It allows very smooth margins, especially at the gingival.
    The smooth, accurate, gold margins are a factor in patient comfort as there would be long lasting margins of the filling that are so adapted that the patient is seldom aware of the edges of the filling.

18. Wear of the filling is similar to that of tooth structure.
    The gold alloy used in fillings and crowns is of hardness that is compatible with natural tooth structure. It is soft enough that it will wear slightly as natural teeth wear, so it is similar to natural equilibration over a period of time. This can be observed as the teeth flatten; the gold does the same as the patient ages.

19. It does not liberate toxins.
    The have been studies that indicate there to be a release of toxins from the white composite fillings perhaps of an estrogenic nature. This is not even of a controversial nature at this time, and is discounted by the profession, but is does not occur with the use of gold.

20. It has quite high tensile strength.
    Occasionally the bonded composite which changes dimensionally or shrinks on curing causes cusp fracture. The enamel, though fractured often stays in place because it is bonded to the filling. Amalgam, though is has not been reported in the literature, apparently causes some fractures that are very common under amalgam fillings. These fractured cusps usually remain and are sensitive to cold and sometimes pressure. It was rare years ago, but now a large percentage of teeth with big amalgam fillings demonstrate fractures as the fillings are removed. This is not a factor with gold fillings. Because of the high tensile strength of the gold it can be placed in a very thin layer in some areas of the tooth to protect the cusps of the teeth from fracture.

21. It is a very permanent tooth restoration if properly placed.
    Gold restorations are usually very permanent. We often see gold restorations that have been in place forty or fifty years. The permanence of gold fillings is the most obvious reason for their use. If there were a lifetime restoration, the gold casting would be it. Silver amalgam is quite permanent, but lack many qualities of a gold inlay and the composite fillings in the posterior of the mouth have been reported to last on average six to eight years; of course, some longer and some less.

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