

### *There are many opinions and options in Dentistry-that's a good thing!*

The profession of dentistry encompasses a wide range of individuals with a wide range of core skills, advanced skills, preferences, techniques, and opinions. It is exactly this diversity that drives the profession to grow and evolve. That having been said, differences in skills and preferences also lead to differences in the level of care that dentists can now make available to their patients. In the past you may have been accustomed to a fairly brief examination followed by a correspondingly simple repair such as white or silver fillings, or a root canal.

Now, the advances in dentistry allow you to choose from a wide range of treatment plans and restoration options:

- inlays (a slot sized restoration in your tooth)
- onlays (putting the “roof” back on your tooth and preserving the sides of the tooth)
- gold foil: amazing restoration that can be perfect for small cavities
- crowns (putting the “roof and sides” back on your tooth)
- bridges (replacing a missing tooth by attaching crowns to the adjacent teeth on either side of a missing space)
- dental implants (artificial tooth roots/crowns).

While differences in technique and opinion drive the profession forward, they may also sometimes result in differences in the quality of care provided to the patient.

These differences can also be quite profound in the style of dentistry that one practices. Again, sometimes quality has nothing to do with a dentist who chooses to practice good basic dentistry every day versus one who also offers choices of restorative options as discussed below. Some dentists may simply treat cavities while others may evaluate your entire mouth to envision a plan that will result in the strongest/trouble free teeth at the end of a restorative program.

#### *Advanced training*

I believe that throughout their professional career, some dentists gain perspective and experience from additional advanced training and through mentorship programs. This regimen of training and programs show them the value of enhanced restorative treatment. We are fortunate to now have access to a wide range of restorative options to help elevate the level of structural strength in teeth suffering from years of old, large, failing fillings, cracks or many other conditions that may sound familiar to you. In order to provide the best possible care to my patients I engage in continuous learning through advanced training and mentorship programs.

One of the techniques which I continue to employ was developed by Dr Richard V Tucker. Dr. Tucker's techniques are now being used by dentists all over the world for patients who have chosen gold castings (a gold casting is generic for an inlay/onlay or full crown) for their restoration. His methodology is based on reshaping the tooth during the preparation so that the tooth itself holds the casting in place. This is quite a departure from more conventional processes where the dental surgeon relies on cement to bond the restoration to the tooth. Dr. Tucker's techniques require extra effort and a very high level of precision, but the success rate

and longevity of restorations following the Tucker method have set the 'gold standard' for this type of work.

### *Patient consultation process*

In my practice patients requiring restorative dentistry are invited to participate in a comprehensive evaluation and consultation program that takes into consideration:

- Existing bite pattern
- The distribution of forces on your teeth as a result of your bite;
- The state and quality of existing fillings;
- The existence of cracks, chips, corrosion and fractures;
- The condition of gums and surrounding tissue;
- The order of priority for the restorations; and
- The patient's schedule, preferences and budget.

The objective of the evaluation and planning process is to develop and agree on a personalized step-by-step plan to find the least invasive process delivering strong trouble free teeth. Many patients welcome the opportunity to become engaged in the design of their treatment program.

### *Patient involvement*

It is always your choice on how aware you want to become and how you would like us to practice dentistry with you. We are flexible. We realize that we have to make your treatment fit financially and be compatible with your busy life.

We recommend you consider the whole picture. This may include making a coordinated effort to rebuild and restore teeth in optimal positions so that all the wear/drift/tipping/breaking that you may have experienced can be leveled out to spread forces evenly so that teeth don't hurt and the new dentistry will last and not become damaged. This has to be done in coordination with good jaw function. We may recommend getting study models of your jaws and checking your bite. If dentistry is done in an uncoordinated way and consideration is not given to your jaw joints, you may continue to break your teeth and possibly have further muscle pain and other breakdowns.

*Your choice of dental materials (provided they can be used in a given situation) may involve:*

- ***white composite fillings:*** These are the most common type of filling placed in many practices today. These are essentially a type of hard resin/plastic. Their lifespan, while getting better, is generally accepted as the shortest we have available. They are acceptable where we have smaller cavities or where we can keep teeth dry when placing them. In my opinion, they are not a good in a heavy bite patient, as the nighttime bite forces may over stress the composite. Once they begin to wear out, which sometimes occurs after only a year, they can also suffer from “microleakage”. As they are hardened with a special light, they may shrink, pull away from the tooth/filling interface, and open a gap for bacteria to penetrate.
- ***silver mercury amalgam fillings:*** Silver mercury fillings are another viable restorative material for teeth without cracks. These restorations, while having provided excellent historical service at minor cost, can discolor and stain teeth black over time. They may fail due to corrosion/breakage under load. The National Canadian Dental Association/Health Canada’s position is that these amalgam fillings with mercury are safe. Because they are not white, they are falling behind in the fee guide and are now compensated at about 60% of the fee guide for white fillings. I find they take as long as a white filling to place well and thus my fees reflect this. Some dentists no longer perform silver fillings.
- ***porcelain inlays/onlays/crowns:*** These include a variety of materials which are white and offer maximum esthetics. They usually stand up better and longer than white composite restorations and do not suffer from micro-leakage (which can cause composite white fillings to fail). We use special resin cements to “bond” them in place. They are stronger than fillings and can protect weakened tooth material. However, one has to make them thick enough to be strong. Thickness is generally about double the thickness of a comparable gold restoration. They can still chip/break (especially in a person who may grind their teeth a lot at night). They are bonded in place and work best when used in situations where we have an enamel interface all around the tooth. In particularly deep cavities, this may not be possible and bleeding from the gums can make their placement/choice a poor one shortening their lifespan
- ***gold inlays/onlays/crowns:*** (benefits discussed throughout this paper). We know for a fact that gold is entirely biocompatible and inert in the hostile environment within your mouth. How many products do you know that will survive extreme thermal changes, extreme pressures, chemicals/salts and other corrosive materials and still last far longer than a car?
- ***porcelain fused to metal crowns:*** strong, reliable, rely on shaping the tooth properly to retain them (not chemical bonding as porcelain fillings do). These are usually recommended where maximum tooth destruction has already occurred and more conservative options (inlays/onlays) can no longer be employed.

Excellent esthetics can still be achieved with really good lab technicians. Crowns are much easier to do than gold inlays/onlays and are far more common in the dental market. The difference between a crown and an onlay (for example) is the difference between a house that needs a new roof/siding and one that only needs a new roof, respectively. Onlays will allow the side of the tooth to change color over time in unison with adjacent teeth. Regular crowns, with porcelain on the sides, eventually may appear bright white as teeth naturally darken. Thus the crown may stand out over time.

“BECAUSE WE BELIEVE SO MUCH IN THIS QUALITY DENTISTRY, WE LET THE RESULTS AND PATIENTS SPEAK FOR THEMSELVES. ARE GOLD CASTINGS A MUCH BIGGER INVESTMENT THAN YOU ARE USED TO? THE ANSWER IS YES, BUT PLEASE READ BELOW WHY MANY BEFORE YOU HAVE FOUND VALUE FOR THEIR HARD EARNED MONEY”

***In my opinion gold castings are special because they are uncommon in the regular dental world. Why hasn't my previous dentist ever talked about these options before? Please read below to discover how I have gained confidence in the work/philosophy we do at our practice:***

While many dentists are taught how to perform gold inlays/onlays in dental school, the majority do not practice gold inlays/onlays on a regular basis. This is not meant to be critical, as there are many quality dentists that only do basic dentistry. We take pleasure in doing both here at our practice.

Some dentists feel certain restorative options may be unnecessary when you have young healthy teeth with small cavities (surrounded by healthy tooth structure without cracks). I challenge this thinking because if a small conservative gold inlay was done in a young healthy tooth, one may not get the crack that leads to a buildup that leads to a crown, and on it goes..... Thus I do not equate waiting for serious structural problems with providing quality dentistry. We only have one set of teeth. Replacing one tooth with a dental implant because of unnecessary tooth loss can cost thousands of dollars.

I would estimate that less than 2 percent of dentists in Nova Scotia follow the R.V.Tucker technique for gold castings. Several dentists may believe that patients may not want gold restorations because they are not white. They are also very time consuming and technically difficult to do well. We know how to hide the gold and keep teeth looking great, while giving the patient the best chance at being conservative and putting the best material in their teeth. If there is a cosmetically visible area, we can still do very nice porcelain restorations that will also give weakened teeth strength and a better bite.

***It's your choice on materials/options but gold is one of the best! Why gold? Why might cracks be of concern to you?***

It is very common to find cracks associated with older silver fillings. This is not usually the case with gold castings. There are different reasons for cracks. One is a difference in modulus of thermal expansion between amalgam and tooth structure. In other words, there is a difference in the amount of expansion/contraction between tooth structure (enamel/dentine) and the silver filling. This causes internal stress/subsequent cracks.

Another cause of cracks and fractures is nighttime parafunction/bruxism. This occurs when people grind/clench their teeth with great force when they are asleep (especially during times of stress). Most people are totally unaware of the problem until their dentist shows them wear patterns on front teeth or they start to break cusps off teeth. Even with advanced dental care, grinding of teeth may still occur at night. That having been said, gold will wear the best in unison with the adjacent teeth. Problems associated with parafunction/bruxism are why it is sometimes important to study your bite. If your bite is properly designed, the front teeth with all of their nerves and sensations act like a buffer (or electric fence) to protect the back teeth. Sensations are transmitted to the brain and the signals are in constant communication with your jaw muscles. If your front teeth do not touch then your back teeth can exacerbate the forces of

clenching/grinding which in turn hurts your teeth. It is also quite common to find people with jaw joint problems and muscle pain/headaches associated with the problems mentioned above.

Cracks are even more serious than decay and should be treated as such. They can spread like those on a car windshield. Sometimes without treatment, the crack will move deeper underneath the filling. Once this happens, the patient may feel a sharp pain when they chew. If this is allowed to progress, it usually results in damage to the tooth's pulp eventually resulting in the requirement for a root canal. The root canal procedure is then followed by a restoration to improve the structural integrity of the tooth. A gold onlay, for example, is a very common restoration that provides a "roof" over the tooth. While this has worked many times in my clinical experience, even with our best efforts, cracks, can cause failure of the tooth because we simply cannot see how deep it travels. Usually in situations such as these, the patient must take full responsibility for any failed outcomes with cracked teeth.

In summary, simply replacing old fillings with new fillings on teeth with cracks may allow them to propagate (get bigger). Regular fillings do not allow for corrections (if necessary) in the bite so that forces can be properly directed in teeth (to help prevent cracks). Gold inlays/onlays usually have much more precise bite shapes made for function/flossing. They have beautiful functional contours that allow food to deflect away from the gum tissue and allow the gum tissue to be the healthiest it can be. This is due to its excellent contours and extremely smooth polish. Our hygienist has seen cases where we have restored half of a patient's mouth in gold and left the older fillings in the other half (treatment was phased due to cost). The half with the older fillings was bleeding and puffy compared to the half with gold.

## ADVANTAGES OF USING GOLD TO RESTORE POSTERIOR TEETH (DR. R.V.TUCKER)

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1. Gold will not oxidize and discolor the teeth.
2. Fragile areas of tooth structure remaining can be protected by covering them with a thin layer of gold. Gold will not fracture even when it is thin.
3. The cast gold restoration will not fracture in the isthmus or other areas.
4. The margins at the junction of the tooth and gold are nearly imperceptible if handled properly, and will not be so likely to harbor plaque, and consistently should contribute to better tissue health.
5. Contact areas can be placed and polished for ease in the use of dental floss, thus promoting better tissue health.
6. Gold can be polished and finished to a higher degree than other materials.
7. Gold castings such as 7/8 modified full crowns or conventional full crowns can be used to "bind the tooth together" and prevent tooth fracture, or relieve sensitivity from incipient tooth fractures.
8. The normal tooth anatomy can be more nearly reproduced with a casting.
9. Cast gold wears more nearly the same as tooth structure and does not produce sub-marginal surface. Precise fitting castings will support the marginal enamel rods which prevents chipping and fracturing at the cavo-surface margins and minimizes the possibility of marginal leakage and bacterial invasion.
10. Gold castings have a favorable coefficient of expansion with tooth structure.
11. Well placed gold casting will last much longer than other filling materials used today.
12. The sensory acceptance of gold by the tongue and the feel during mastication is enhanced by the smoothness and anatomical replication of the missing tooth structure.

### *Longevity of gold:*

Gold can last for the rest of your life although we cannot warrant that. I've seen many instances of gold restorations that have been in place for over 50 years. That having been said, the techniques used to insert these long serving restorations have been improved. Gold is not

perfect and sometimes we still encounter premature failures; but these are rare, and the majority of gold restorations provide long service. Tooth structure is not unlimited and each time we make an intervention or replace a filling, it always gets bigger/deeper. Damage to the health of the nerve is additive with each procedure and therefore the risk of needing a root canal increases. Thus the goal is to go in and do the best/longest lasting intervention the first time.

Hopefully, you can feel the passion we have for this quality restoration. It's exactly what has been done in my own mouth and my parents' teeth. I have many patients that would be glad to speak about how gold has worked well in their lives. Prior to treatment many were uncomfortable with their bite or had sore jaw muscles or had experienced cracked/broken teeth. If this sounds familiar you may wish to consult my brochure on "bite evaluation".

To read more please look up Dr. Tucker's academy of gold study clubs:

<http://www.rvtucker.org/>

We are more than happy to provide references for patients that have had this type of dental care provided.

### *Professional fees and why does dental insurance only cover a small portion?*

Opinion: because of the few dentists who perform gold inlays/onlays (and some specialists I know), the fee guide codes for inlays/onlays that gets reviewed by a committee of dentists may not get a lot of attention. The committee openly admits that they can increase the fee guide in areas that is important to the average general public (i.e. white fillings). I think the fee guide for a big molar white filling is almost as much as the fee guide for a gold inlay/onlay. So the fee guide is very much out of date with respect to gold castings and definitely does not allow for the extra time spent using the Tucker technique. The fee guide is used by insurance companies when they calculate benefits under dental plans. It is also my opinion, based on my experiences travelling around as an associate and locum to many offices, that the fee guide is low (for inlays/onlays) due to the average practice which does more fillings than crowns (even fewer would do inlays/onlays). Thus, the majority of their income is derived from conventional fillings. I will contrast this to a practice that emphasizes enhanced restorative treatments and would explain that fees for these treatments would have to keep pace, at a minimum, with dentists who do mostly fillings. Fee guide committees have even admitted that major restorative “type” practices have to raise their fees above fee guide to compensate with their formulas for the average practice. Fee guides also do not take into account a practice in the city (with higher overhead costs) versus a rural practice.

This trend is common across the country because the fee guide caters to the average practice and the average situation (those who do lots of fillings and some basic crowns).

I set my fees based on the basic income level achievable doing simple fillings. The average simple filling may take about 30-40 minutes to complete. The average Tucker style gold casting takes almost 2 hours to prepare/shape the tooth and about 1 hour to insert (so about 3 hours). In my opinion, they are the hardest preps to execute. While the traditional way of doing gold fillings is still of excellent value, I believe that the Tucker method provides the best results for the patient at the expense of taking about double the time of the traditional method. We spend a lot of extra time using special hand instruments placing acute bevels/boxes/shaping the inside to increase the retention/longevity/ ultimately the success for the restoration. Where possible, we spend an hour finishing the gold in the mouth with special disks/powders to polish and burnish the gold to almost an infinitely smooth margin. As previously discussed, this allows the gold-tooth interface to remain extremely clean with less chance for cement to wash out. This means less chance for marginal leakage/ decay which would result in failure of the restoration. With a smoother restoration, bacteria that would otherwise be clinging to rough old fillings is reduced, making gum disease less of an issue for those susceptible. It is my belief that a healthy mouth helps maintain a healthy body. If the entire mouth has fewer bacteria in it and the gums are healthier, I believe you will have less bacteria floating around your blood vessels and ultimately your heart.