A book, Root Canal Cover-up Exposed , was published by a dentist named George Meinig centering on the research done about the turn of the century by another remarkable dentist named Weston Price. Dr Price did a lot of very interesting research relating to root canal infection and treatment spanning a period of about twenty-five years with some amazing results.

The basic notion behind his work was the idea of focal infections which was a very big deal in medical thinking at that time. It is the idea that an infection someplace in the body - tonsil, gums, toenail, ear, or root canal - might be able to spread to another perhaps far remote part of the body. There was the feeling that was largely accepted that a gum infection, for example, might be able to end up somehow in the heart or other part of the body, and result in a dangerous or even life-threatening infection there.

What happened was that with the advent of penicillin and other wonder-drugs to combat infection, concern for where the infection was coming from was suddenly less important than just which particular germ the infection was. The identity of the germ bacteria dictated which particular wonder-drug antibiotic was needed and that, in a nutshell, was that! "...Next patient!" We got away from treating the cause to treating the symptom.

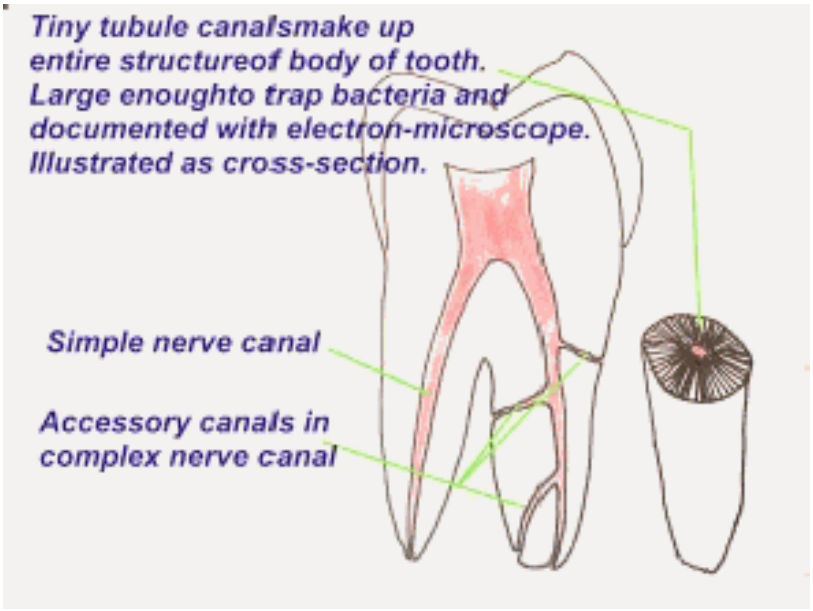
Dr. Weston Price took infected teeth or extracts of them from patients suffering from a wide range of serious "medical" problems. He implanted these under the skin of laboratory animals....Guess what happened? The laboratory animal quickly came down with the very same disease! I might have expected that an infection from a tooth might go somewhere. If ten animals had parts of an infected tooth implanted, that one might get an infection in the brain, another in the heart, and another somewhere else and so on...that seems reasonable. But that's not what he (and others) found at all! What was seen was that if the patient had infected kidneys and his infected tooth was implanted in several lab animals, essentially all the animals quickly developed infected kidneys! I don't think contemporary medical wisdom can explain that.

Moreover, Dr. Price claimed to have found that 95% of focal infections started in the teeth and tonsils! Part and parcel in with this is the idea that harmless bacteria normally found in the mouth get trapped in infected teeth (and tonsils) and somehow mutate into a dangerous form. The new mutated bacteria and /or the toxic poisons they create travel through the blood stream and lymphatic system to remote body parts and cause damage.

As if that were not bad enough, Dr. Price goes on to show that even when root canal treatment is done according to accepted modern principles and even when the followup x-rays show good healing of the bone around the root (which has been thought to prove that the infection is gone) - that even then, the mutant bacteria and their toxins are often still there spreading their poison!

The anatomy of a tooth is like this. There is a hollow space running down the center of each root. That is the nerve canal. It can have curves and small offshoots or branches to make it more complex than a straight "tube", but in all, that total space is the nerve- or root-canal space. In a healthy tooth the nerve and small blood vessels mainly occupy that space. When root-canal treatment is done, that canal is cleaned out to render it empty. Medications

are usually used to "sterilize" that space...to kill any bacteria that might be remaining after physically cleaning it out. Then it is filled up with various techniques and materials to obliterate the space.



What Dr. Price and Dr. Meinig showed is that it is more complex than that. Not only is there this large central nerve-canal space to worry about, but, rather, that there are millions of little tunnels coming off the central nerve-canal space radiating through the body of the tooth root to the exterior surface of the tooth root. The tooth root surface is in contact with the blood stream and then bone. The "little tunnels" or dentinal tubules, as they are correctly called comprise literally miles of tunnels into which bacteria from the nerve-canal space can go and hide, well away from the physical and chemical efforts of the dentist. This has been shown more recently and confirmed by the electron-microscope!

Therefore, it seems ever more important to do the root-canal treatment as early as possible. In addition to making the treatment easier for you, it minimizes the opportunity for infection to develop inside the tooth which might be able to subsequently hide in the tubules and from there spread havoc around your body.

Currently, little effort is placed in completely sterilizing a tooth, probably again because of the "modern" thinking that if an infection is still there, we'll just knock it out with one or another antibiotic later.

So with all that having been said, why do I recommend doing root canal treatment? It really hinges on the question of what are you going to do if you already have root canal treated teeth or if you have a tooth in need of root canal treatment?

If you just take out a tooth or teeth how are you going to replace it? Well, you may just say "I won't replace it." That's ok, how about if it's a front tooth? You could choose to not replace it, but realistically most people would want to replace it.

Back teeth that "don't show"? If you leave missing teeth missing, you may develop problems with your gums, problems with your bite (TMJ), and / or sacro-cranial problems, not to mention lowered chewing ability. I should add that in some situations, teeth can be left not replaced and everything may be fine. But that's the exception to the rule. The fact is that most of us will want the teeth replaced for a variety of reasons.

Teeth can be replaced with removable, "clip-in" partial dentures - bridges you take in and out. Most people find them unesthetic and unhygienic. These dentures increase the risk of cavities by 6 times and gum disease by 11 times. Inevitably, greater problems are created rather than solved.

That means the teeth must be replaced with an implant or a fixed bridge with caps. Implants are metallic posts implanted into the jawbone to mimic lost tooth roots. They are highly predictable and function like natural teeth. From a regular western dental point of view they seem ok, but from a more subtle holistic point of view, questions persist! Implants remain a great option for tooth replacement. Are the preferable to a properly root canal treated tooth? Maybe after years of observation we'll have some idea, but I don't think anybody really knows for sure at this time. I wonder if the metal of the implant interferes with acupuncture meridians which flow through the bone where the implant has been placed. We know each tooth is normally related to meridians.

The other possibility of a bridge, to cap the teeth on either side of the space and have a "dummy cap" attached to those caps. That's good old dentistry as it's been done for years. But, what if you don't have teeth on either side of the space to hold a "fixed bridge", or if the teeth are not suitable for use? What if capping these other teeth causes so much trauma to those teeth that the nerve breaks down in them ...and then they need root canals? That probably won't happen, but be aware that it can and does happen! And not necessarily through any fault of the dentist, either.

So then what do you do? That's the problem. If there were a perfect solution, I'd be first in line for it...but, unfortunately, there is not a perfect solution.

Dr. Price was skeptical that anything would be able to sterilize the tiny tubules especially as they go further and further away from the main large nerve canal space outward toward the outside surface of the root. He said that "It is practically, if not entirely, a physical impossibility to sterilize infected cementum (the outside surface of the root) by treating through the dentin (that is, by placing a disinfectant inside the main nerve canal space in the center of the root structure). It is like trying to sterilize infection in the label on the bottle by putting disinfectants in the bottle."

There has been some very interesting research in the use of calcium oxide, endocal. We have learned that when calcium oxide is placed inside the tooth, the cementum can be monitored to see the change in pH. The pH measures acidity or alkalinity, where 0=strongly acidic, 7=neutral, and 14=strongly alkaline. Endocal is a strong alkaline and within 3 days of filling the root canal space with it, the pH measured out at the outside root cementum surface goes from about pH=7 (neutral) to pH=9. After about 18 days the pH is 10 and that pH will be maintained up to at least 120 days, which is as long as the research continued to

measure it. It was found that this change in pH was observed everywhere on the root outside surface which would suggest that all the tooth structure was affected by the calcium hydroxide.

Does this guarantee that every single tubule in the tooth was affected and that every single bacteria cell in the tooth was definitely killed stone dead? No, it doesn't, but it suggests very strongly that it probably is so.

There are other significant benefits to endocal. It will dissolve tissue remaining in the root canal space. That's important because the mechanical technique used by dentists to clean out the nerve canal space leaves lots of bits of tissue behind, especially in the little offshutes and accessory canals which usually cannot be reached with dental instruments. So the calcium oxide dissolves it out chemically. Additionally, the endocal stimulates bone repair which is usually damaged if the root canal problem has been going on for more than a short time. In the mouth the calcium oxide disperses not only out from the nerve canal space to the surface of the root, as in the research experiment mentioned above, it continues out and goes into the ligament that holds the tooth to the bone socket, and further out into the bone itself, helping to decrease inflammation, ease pain, counteract the altered chemistry from infection, stimulate the bone repair processes and kill bacteria along the way.

It should be noted that previous studies have shown that endocal expands on setting. A current study involving teeth out of the mouth demonstrated vertical fracture of the roots. The results of the study showed that Endocal sealed as well as gutta-percha and sealer. However, this study only used a 30-min evaluation period, A longer time period may have given different results.

Root canals can now be tested. A very sophisticated test, TOPAS test, tests for toxins around teeth either from the gums or from the root canals.