

# Dental *focus*

## Holistic dentistry for total health

*Our teeth contain miles of microscopic canals that cannot all be penetrated and sterilized. Root canal teeth therefore harbor bacteria and their toxic byproducts, which diffuse out of the tooth and into the rest of the body through the bloodstream.*

## Root Canal Treatments Do Not Remove All Infection

Does a root canal treatment remove all of the infection? *No*. Root canals harbor bacteria, no matter how perfectly they are done. The trouble lies in the fact that the body of the tooth that surrounds the main root canal is not solid.

Except for the enamel on top of the tooth, the tooth is composed of a material called dentin, which is extremely porous (like a sponge). This porous material is composed of a network of microscopic channels called dentin tubules.

Dentin tubules transport nutrients from the tooth's blood supply to all

parts of the tooth. These tubules are so numerous that, if laid end-to-end, they would stretch for three miles!

The techniques and medications dentists use to "sterilize" the root canal space simply cannot reach all of the dead tissue and bacteria that hide in the miles of microscopic canals in the tooth.

While these procedures may be effective in sterilizing the main root canal, they simply cannot penetrate and sterilize the entire system of dentin tubules

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## See Us at a Geneva Health Fair this weekend!

This weekend, Dr. Garcia will be sharing a booth with Dr. Grasso, our osteopathic physician, and Jim Marlowe, our nutritionist, at a health fair in Geneva. The fair is **FREE** and will feature over 40 local holistic exhibitors. Bring your friends and family to meet us and learn about our practice! *For more information call (630) 232-6646 or visit the celebration's Facebook page.*



**Sunday, Oct. 2, 2011, 10:00 am—4:00 pm**  
**To be held outdoors at Soup to Nuts at 716 W. State Street, Geneva, IL, 60134**

**Dr. Lina Garcia, DDS, DMD**  
33 West Higgins Road  
Suite 600  
South Barrington, IL 60010  
Phone: 847-426-9000  
Fax: 847-426-9050  
Email: [info@drlinagarcia.com](mailto:info@drlinagarcia.com)  
Website: <https://drlinagarcia.com>

## Interrupted Sleep Might Harm Memory

New research from Stanford University suggests that fragmented sleep can affect the ability to build memories.

Researchers have long proposed that a function of sleep is to consolidate memories. Sleep expert Dr. Neil Stanley, a former chairman of the British Sleep Society, says the brain uses sleep to evaluate the day's events and decide what information to keep.

The Stanford University researchers were attempting to find out if the *continuity* of sleep was important for memory consolidation. This could help explain memory problems linked to conditions like Alzheimer's and sleep apnea, in which patients experience disruption of sleep continuity and also have memory deficits.

The Stanford study, done on mice, found that disrupting their sleep made it harder for the mice to recognize familiar objects.

Using a technique called optogenetics, researchers sent light pulses directly into the brains of sleeping mice. The light targeted specific cells involved in switching between being asleep and being awake. The mice's sleep was disrupted, but the total sleep time and the intensity of sleep were the same as for normal mice.

The mice were then placed in a box with two objects, one of which they had seen before. The mice who experienced normal, uninterrupted sleep spent more time examining the new object (as expected). But the mice who experienced broken sleep spent the same time examining both objects, suggesting their memories had been affected.

The researchers concluded that, "regardless of the total amount of sleep or sleep intensity, a minimal unit of uninterrupted sleep is crucial for memory consolidation." *For more information, see BBC News Health's article "Fragmented sleep 'harms memory'" or the original PNAS article "Optogenetic disruption of sleep continuity impairs memory consolidation."*

## From Our Kitchen to Yours...

This tartar sauce from Gwen, our New Patient Coordinator, is a terrific accompaniment to fresh seafood.

### Lemon Pepper Tartar Sauce

1 large, organic egg  
2 T. fresh lemon juice  
1 T. fresh lime juice  
2 tsp. Dijon mustard  
1/8 c. minced organic yellow onion  
2 small bunches cilantro  
1 c. organic olive oil  
1/2 tsp. sea salt or to taste  
1/4 tsp. black pepper or to taste

Combine the egg, lemon juice, lime juice, mustard, onion, and cilantro in a food processor or blender. Process until smooth. With the machine running, slowly add the oil in a steady stream. The sauce will thicken. Add salt and pepper and pulse for 10 seconds. Cover and chill one hour before serving.

## Root Canals: Teeth Have Miles of Side Canals That Can't Be Sterilized

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and side canals. This fact has been confirmed by electron microscope.

Root canals only seem to be "successful" because the infection in the bone around the root may appear healed on an x-ray, and the patient's initial pain from the acute infection may disappear. But x-ray evidence, the absence of pain and discomfort, and the belief that antibiotics can kill off any remaining bacteria are inadequate criteria to determine if an infection remains.

Common x-rays don't have a strong enough magnification to reveal the dentin tubules and side canals, much less the necrotic tissue and bacteria in them. Antibiotics can't circulate into the tooth because the blood supply has been removed, so the antibiotics can't reach the bacteria living there. (If the tooth were alive, it would be

able to flush out these bacteria and the toxins they produce.) Moreover, the patient may not feel any pain even though the tooth is still infected and highly toxic.

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***The bacteria trapped in root canals mutate, learn to thrive in the absence of oxygen, become stronger, and produce highly potent toxins.***

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So while dentists clean and fill the main root canal, there are still over three miles of inaccessible, untreated side canals that are filled with bacteria and necrotic tissue. These tiny tubules can harbor millions of bacteria and other microbes, most commonly streptococcus, staphylococcus, spirochetes, and protozoas.

### **How does the bacteria in a root canal tooth survive?**

Once the tooth is sealed after a root canal, the many bacteria that are normally found in the mouth become trapped inside the teeth and adapt to their new conditions. In the process of adaptation, these formerly "friendly" bacteria become pathogenic (capable of producing disease).

The bacteria mutate into anaerobic bacteria; that is, they learn to thrive in the absence of oxygen. When this occurs, the metabolism of the bacteria changes, and the bacteria produce highly toxic by-products. These toxins diffuse out of the tooth and into the rest of the body through the bloodstream, and they can affect your heart, kidneys, lungs, eyes, stomach, brain, and other body tissues.