

Problem Solvers 42 New Paradigms in Cavity diagnosis and treatment!  
Synonyms: CariScreen, CAMBRA, Caries risk assessment, Fluoride, Fluorosis.

In 2009 the American Dental Association came out with an endorsement for using caries risk assessment as a new standard of care. This means that dentistry was going to look at the risk factors and guidelines for treatment of people with a high, medium and low risk for developing cavities. An acronym called CAMBRA or caries management by risk assessment is being used in over 40 dental schools currently. This problem solver article will look at risk factors for cavities and what can be done to prevent them.

Some of the diagnostic methods for determining how much risk a person has for cavities is to look at factors such as home care like brushing and flossing habits, the amount of saliva a person produces and their diet and medication use.

Using new screening tests such as CariScreen Meter, a bioluminescence test and GC America's Saliva-Check Buffer Kit, will allow bacteria that are responsible for cavities to be measured.

The CariScreen Caries Susceptibility Test is a chairside test that is a painless way to check for bacteria by swabbing the plaque, combining it with a bioluminescence reagent (luciferase) and then measuring the bioluminescence to evaluate the risk a person has for developing cavities. It does this by measuring the amount of ATP or energy produced from the bacteria in the plaque after subjecting it to a light and reading it in a meter. If the bacteria, Streptococci mutans and Lactobacillus are identified in high numbers, then strategies can be used to decrease these cavity-causing bacteria before more damage is done.

People with a high caries index (that are at high risk for developing future cavities), can be treated by eradicating the bacteria before doing "final" fillings. This is done by filling cavities with glass ionomer fillings, which will continue killing the bacteria by leaching fluoride into the tooth. This is done until the saliva test shows the bacterial numbers are within normal limits and the acidity of the saliva has been neutralized. Then the definitive fillings can be placed and have a much higher success of lasting

What can I do to stop getting cavities?

In order to get cavities you need three things: 1) sugar, 2) bacteria, and 3) time.

So first you need to decrease the amount of sugar in your diet. Most people are drinking more soda and sports drinks instead of milk and water. Eliminating sugary drinks and sweets will decrease the food that the bacteria eat in order to produce acid and make cavities.

Next to decrease bacteria you must brush, floss your teeth and use home fluoride to decrease bacterial numbers. The act of brushing will introduce oxygen to the bacteria and help kill the bacteria. The physical act of scrubbing and flossing will help remove the bacteria laden pellicle layer that is found on teeth. Lastly by brushing and flossing at bedtime, the bacteria won't have 8 hours (while you are sleeping) to ingest the sugars and produce cavities.

How long does it take to make a cavity?

It only takes 10 hours for a beginning cavity to form! So you must brush everyday so that the acidic environment can be neutralized and bacteria removed every morning and every night.

How does fluoride help stop cavities?

When acid attacks and softens enamel (a cavity) and demineralizes it, the fluoride can repair this weakened enamel and help remineralize it.

Fluoride can join with the matrix of the enamel and form fluoro-hydroxyapatite, which is strong (actually stronger than the original tooth structure) and remineralized tooth structure.

Does fluoride help prevent decay or only help once a tooth is attacked by acid?

Studies have shown that bacteria in dental plaque actually produce less acid in the presence of fluoride. When bacteria can't take in the sugar, as efficiently they can't produce as much cavity inducing acid.

What can I do to prevent cavities?

- Ingest less sugar! That means fewer sugary snacks and drinks and when you do ingest these products you should brush and floss to decrease the time the sugar is in contact with your teeth.
- Use fluoridated toothpastes that have the ADA (American Dental Association's) seal of approval.
- Drink fluoridated water and if you have a well, have your well checked for fluoride content. If it is lower than 1 part per million, ask your dentist about fluoride tablets or augment your fluoride with prescription strength fluoride

- gels and pastes.
- Have a professional fluoride treatment at the dentist office every 6 months to give your teeth additional fluoride protection.
  - Ask for fluoride varnishes! They are longer lasting ways of adding fluoride topically for people that are at higher risk for developing cavities.

Is Fluoride safe?

Any medication used to excess can cause illness. When it is properly, fluoride is a safe way to decrease cavities. Dental caries is a major public health problem through out the world. Adding fluoride to the water can decrease cavities by as much as 40% even in adults that use fluoride-containing toothpastes!

The CDC or Centers for Disease Control has listed fluoridating water as one of the ten greatest public health achievements in the 20<sup>th</sup> Century. While there are many people that are opposed to the practice of adding fluoride to the water, feeling it is dangerous, causes fluorosis (discoloration of teeth) and other health related problems, the research surrounding fluoride has continued to support the positive benefits to moderate fluoride addition to prevent the chronic health related problems associated with cavities.

In my office there are two questions that I ask when I see people with rampant decay. Do you drink a lot of Mountain Dew? What soda are you drinking? The use of soda as a beverage of choice is a serious health problem. Soda has been linked to obesity, diabetes, ADHD (Attention Deficit Hyperactivity Disorder), and rampant dental cavities. The continued use of soda will lead to decay around new fillings, new crowns and veneers so it is crucial that your dentist evaluate what caused your overabundance of cavities before fixing your teeth.

If people don't change the behavior that got their teeth in trouble, nothing done to restore your mouth will last.

What is the one piece of advice you would give your patients to help them rebound from extensive cavities?

Drink water and milk (not chocolate milk unless it's sugar free). I have found that soda is the number 1 cause of gross dental disease and it's use should be eliminated in people that have had bad problems with their teeth.

Avoid any beverage that has "...ose" as an ingredient. That would mean glucose, sucrose, fructose, etc. Typically, if a drink has more than 20-30 calories, it will contain sugar in high amounts! A typical can of soda can have 11-12 teaspoons of sugar in EACH can! So my message is to "just say no" to soda, excess fruit juices and energy drinks that contain sugar.

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