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Avoiding tooth decay
(*lower your risk of cavities*)

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DENTAL & ORAL HEALTH



Are you at high risk of tooth decay?
Here's how to change to low risk.

Know the enemy: Strep Mutans

Plaque germs normally live in the mouth where there are hundreds of different kinds of bacteria. But usually only one of these bacteria, 'Strep Mutans', causes tooth decay, because it produces acid. Usually Strep Mutans makes up no more than 1 or 2 % of the plaque bacteria, and causes no problems. But tooth decay occurs when Strep Mutans overgrows all the other bacteria, and starts to produce more acid for longer periods of time. In some cases, Strep Mutans can make up 50% or 60% of the plaque!

What causes Strep Mutans to grow and plaque to get out of balance? It's the environment in your mouth. If you make the environment 'friendly' to Strep Mutans, it will grow and reproduce fast, and start to cause cavities. If you make the environment 'unfriendly' to Strep Mutans, it won't thrive, and won't cause cavities.

Now that you know the enemy that causes tooth decay, let's look at how to change the environment in your mouth so that Strep Mutans stays controlled.

1. Snacks

Strep Mutans likes snacks, and finds no difference between a soda cracker and a candy - both are good for making acid. The common ingredient is refined carbohydrate, usually found in highly processed foods. Some examples of *refined carbohydrates* that welcome Strep Mutans are: ?

- Sucrose: candy, cookies, cake, fruit drinks, soda ?
- Fructose: fruit, fruit juice, dried fruit, honey ?
- Lactose: milk ?
- Starch: processed foods such as bread, crackers, pasta, potato chips, pretzels, sweetened cereal, French fries, etc.

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Let's talk about juice. It's quite acidic (pH 3-4), not very different from pop (Coke is pH 3). If juice is simply swallowed, usually it's fine. But some people swish juice around the teeth before swallowing. The acid in the juice attacks the enamel directly, but even worse, Strep Mutans loves an acidic environment and lives quite happily when those conditions occur.

High risk:

- routine snacking on refined carbohydrates
- swishing juice or pop around the teeth
- allowing acid environment to be created around the teeth

Low risk:

- a choose healthy snacks such as raw vegetables or fruit
- a chew some hard cheese to end a snack - the calcium helps to buffer any acids
- a rinse with water or brush with toothpaste after snacks to clear away food particles and get mouth pH back to normal
- a snacking on refined carbohydrates infrequently (e.g. once a week)

2. Saliva

Imagine twins who eat the same food, and have exactly the same tooth brushing habits. Yet one of them has many more cavities than the other. What's happening? It could be as simple as one twin eating her snacks much more slowly than the other. When food stays in the mouth for a long time, the Strep Mutans can make acid for a long time, and cause more tooth decay.

Saliva is our natural defence against tooth decay - it buffers the acids from plaque. However, saliva flow is not constant during the day. It peaks at meal times, is low between meals, and drops to almost zero when we sleep. With this information, you can use the natural rhythms of saliva flow to help fight cavities

Baby bottle tooth decay in infants is a tragic result of sleeping (when there is almost no saliva) with a snack in the mouth (usually juice) and not cleaning the teeth (so Strep Mutans feels very welcome). [Click here for a photo of baby bottle tooth decay.](#)

High risk:

- snacking several times throughout the day
- allowing snacks to stay on teeth
- sleeping with plaque-covered teeth

Low risk:

- a limit snacking to only a few times a day
- a rinsing teeth with fluoridated water after snacking, to wash away particles that plaque

might use

- a brushing before bedtime with a fluoride toothpaste

3. Fluoride

Imagine a brick wall with two teams of construction workers. One team keeps building the wall thicker and thicker, and the other team keeps taking out bricks here and there. That's a good example of what happens to tooth enamel.

Whenever fluoride is at work, it's building in more bricks. Whenever the plaque is at work, it's taking out bricks. Fluoride works by remineralizing areas of enamel that plaque has demineralized. For teeth, it's a constant seesaw of either losing tooth mineral calcium or rebuilding it. Calculate the odds - how much time do you spend snacking (generating plaque acids) versus how much time that fluoride is present (after toothbrushing, after drinking/rinsing with fluoridated water)?

Fluoride does not prevent all tooth decay. A recent large review of studies showed that regular fluoride toothpaste reduced cavities, on average, by 24%. That means 76% of cavities still occurred! So fluoride is just one tool to use. It does not change the environment in your mouth, it tries to strengthen what's there, and to rebuild what's been weakened.

High risk:

- Rarely using fluoride toothpaste or tap water.

Low risk:

- a using fluoride toothpaste at least twice daily
- a brushing with a small amount of fluoride toothpaste for two minutes, and NOT rinsing with water afterwards. Spit out all the extra paste, but let the remainder linger for a little while, remineralizing the enamel in your mouth.
- a daily rinsing with an over-the-counter non-alcohol mouth rinse containing 0.05% NaF (Sodium Fluoride)

If you always get new cavities, ask your dentist about:

- a high-fluoride toothpaste. One example is "Prevident" with 5000 ppm fluoride (about 5 times as much fluoride as normal toothpaste) available by request at the pharmacy.
- a applying professional-strength fluoride to the teeth in the dental office (2 - 4 times per year).

4. Xylitol

Xylitol is a natural sweetener found in strawberries and other fruits and vegetables. Strep Mutans cannot use xylitol to make acid. More importantly, regular use of xylitol changes the mouth environment so that

Strep Mutans does not cause acid and cavities. Xylitol works in a completely different way than fluoride.

High risk:

- Not using xylitol-containing products.

Low risk:

- a using products (e.g. Trident gum, Smints, Xyli-chew gum, etc.) that contain xylitol as the primary sweetener.

Some sources of xylitol products are:

- a www.epicdental.com, 1-866 920-4200
- a www.omniipharma.com, 1-800 445-3386
- a www.xylitolnow.com, 1-619 445-2689

5. Sealants

Back teeth have natural grooves and valleys on the chewing surface of the tooth. These enamel crevices are often very narrow and deep - and impossible to keep clean. Plaque and strep mutans may easily grow deep down inside. Sealants can protect these grooves by closing them over with a thin wash of plastic. Ask your dentist to seal any teeth that are at risk of deep grooves and cavities

6. Anti-bacterial products

All of the steps above will help reduce the risk level of tooth decay. However, in some cases (examples: low flow of saliva; cannot brush teeth routinely) people need more help. In these cases the dentist might suggest some products which directly attack the plaque bacteria.

a rinse and brush teeth with Betadine Solution (iodine) for 1 minute once every 2 months (note: cannot be used for people allergic to iodine or shellfish).

a rinse and brush teeth with chlorhexidine (0.12%) once a day for 2 weeks every 3 months.

Any questions or comments?

Please email us at: community.dental@calgaryhealthregion.ca

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