GREENLANE DENTAL IMPLANTS & COSMETICS INSTITUTE

How Cavities Develop

Dental Decay is an infectious disease

Combination of acid producing bacteria, frequent supply of carbohydrates, reduced salivary flow
These bacteria thrive in an acid environment, where beneficial oral bacteria die off.
As the pH drops (more acidic environment), these bacteria multiply and take over
These bacteria colonize after the first tooth erupts, establishing significant numbers somewhere between 18 to 36 months
Mothers, as primary caregivers, pass their existing beneficial or harmful bacteria to their children

- This process is well-documented and known as vertical transmission
- Children of high cavity risk mothers are at much greater risk of decay than the general population

How do cavities develop?

Begins with colonization of acid producing, harmful bacteria. No bacteria = No cavities!
These bacteria ferment carbohydrates in the diet, producing organic acids
These acids diffuse into the tooth, partially dissolving the mineral crystals (composed of carbonated hydroxyapatite) of the enamel
Mineral (calcium and phosphate) diffuses out of the tooth, eventually causing a break in the surface of the tooth, or a cavity
Re-mineralization occurs when calcium and phosphate in the saliva, together with fluoride, bathe the tooth and deposit new minerals in the enamel
The new mineral crystal surface is much more resistant to acid as compared with the original carbonated hydroxyapatite mineral
The process of demineralization and re-mineralization generally occurs numerous times daily, leading either to cavitation, to repair and reversal, or to maintenance of the status quo

What does this mean for me?

Cavities are not binary, meaning you don't suddenly go from zero to a cavity
Decay is a process, that can be reversed…up to a point
Once that process causes a break in the surface of enamel, dental surgery is needed to repair the tooth (i.e. a filling)
Re-mineralization can only occur at a neutral pH, usually provided by the buffering action of saliva
Frequent sugary liquids or snacks prolong the demineralization phase
Sugar free gums and healthy snacks stimulate the re-mineralization phase

Changing the dental model

We need to move beyond "fillings", they do not stop the decay process

- Decay is a symptom and not the cause

Treatment should diagnose the cause of the demineralization
Treatment should move the patient back towards re-mineralization or balance

- Improve salivary function to buffer against acid challenge
- Increase availability of calcium, phosphate and fluoride in the saliva
- Suppress the growth and action of the acid-producing bacteria

Recommend Xylitol products for home use to suppress bacteria and stimulate saliva