

Section 3

Tooth Decay (Caries)

The Process of Tooth Decay	3 - 1
Steps in the Decay Process	3 - 3
Early Childhood Tooth Decay (ECTD)	3 - 4

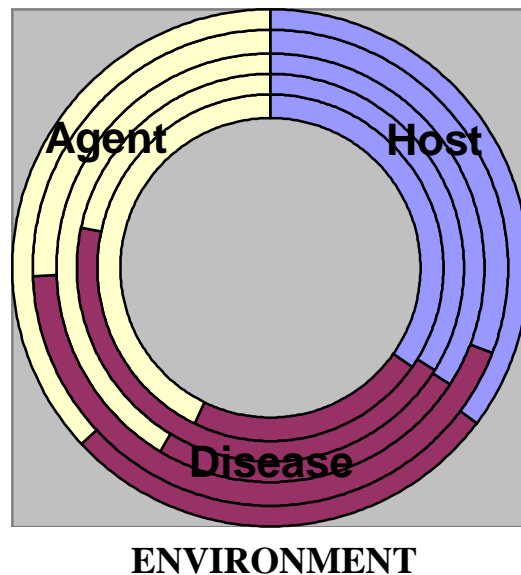
The Process of Tooth Decay

Plaque	+	Sugar	=	Acid
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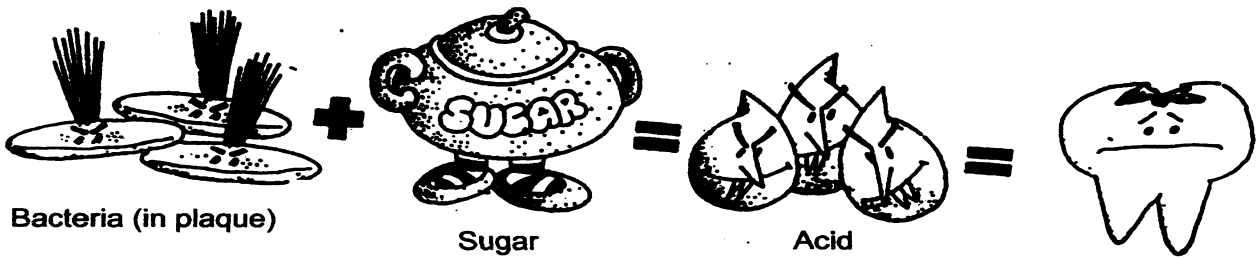
Acid	+	Tooth	=	Decay
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Plaque forms constantly on everyone's teeth. When food containing **sugar** is eaten, bacteria in plaque break down the food and change the sugar to **acid**. Plaque holds acid to the tooth surface causing it to **decay**, making a **cavity**. The longer the plaque stays on the tooth and the more sugar that is eaten the larger the cavity grows.

The dental decay process will only take place if all three factors are present: the agent (plaque), the host (tooth), and the environment (sugar). The decay process can be interrupted by controlling these factors. Toothbrushing and flossing will reduce the build-up of plaque. Use of fluoride will make the tooth structure stronger and more resistant to decay. Smart snacking and attention to diet can reduce the number of times the tooth is exposed to sugar and acid attack.



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Steps in the Decay Process

Tooth decay is a slow gradual process.

Demineralization starts on the outer surface of the enamel forming a **white spot lesion**. Good oral hygiene, diet control and use of fluoride toothpaste can reverse the process at this point.

The more often the tooth is exposed to “acid attack” the further the decay penetrates into the enamel. Eventually it reaches the dentin. At this point remineralization is no longer possible. The tooth has a **cavity** and requires a filling.

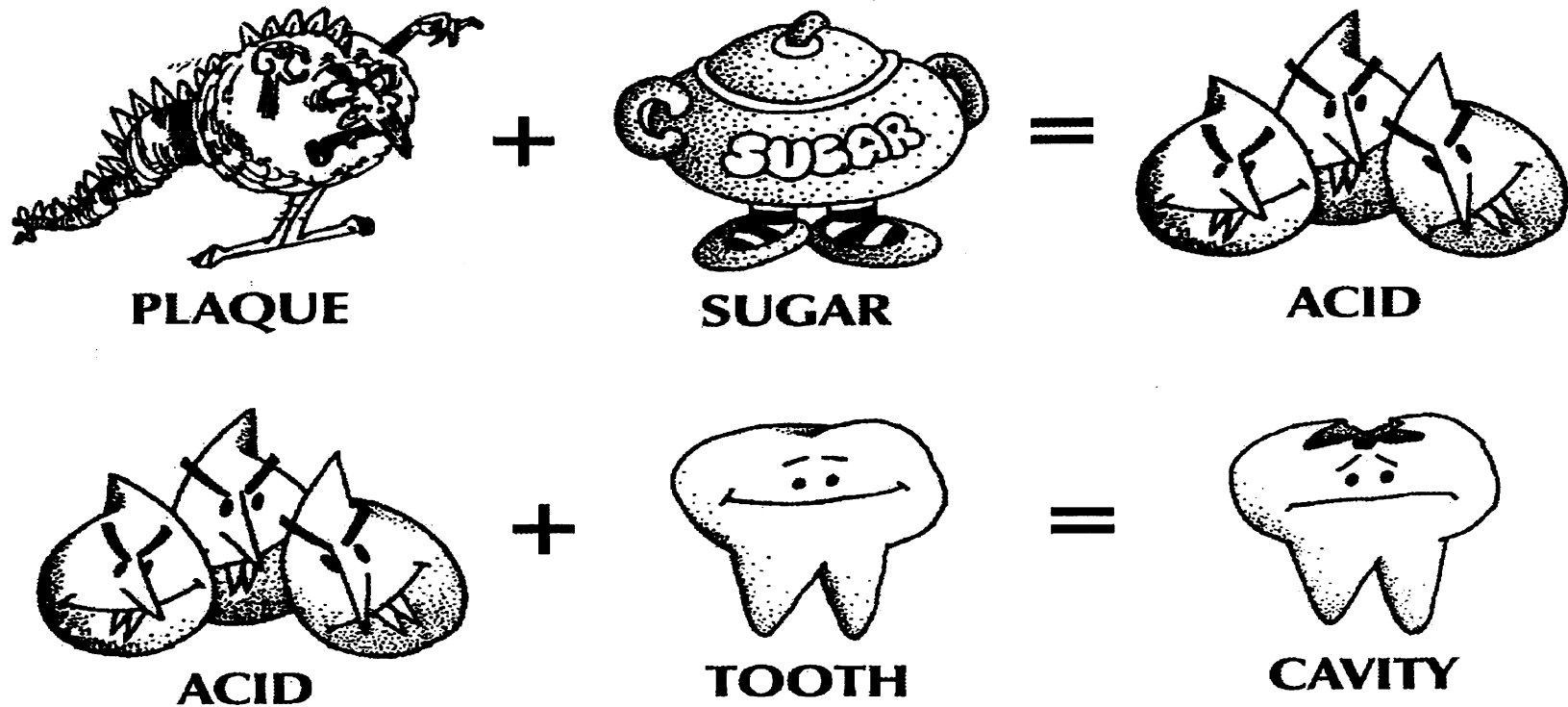
The decay process moves much more quickly when it reaches the dentin. If left untreated the cavity will reach the pulp, resulting in pain and possibly an abscess. At this point the tooth may be saved with root canal treatment or will have to be extracted (pulled out).

For further information about preventing tooth decay, see:

Section 5: Dental Nutrition

Section 6: Prevention of Dental Disease.

The Process of Tooth Decay



Early Childhood Tooth Decay (ECTD)

ECTD is a form of dental decay (caries) that attacks children up to age four. Many synonyms are used to describe this decay pattern. These include ECC (Early Childhood Caries), baby bottle tooth decay and most recently, early childhood tooth decay.

ECTD is a significant childhood disease for several reasons. Prevalence rates are greater than all other childhood diseases combined, at five to fourteen percent in Ontario. It is a painful dental condition that can interfere with eating and speaking and commonly progresses to the formation of abscesses. Such infection can affect the developing permanent teeth. The treatment of ECTD is costly both financially and emotionally. Frequently, treatment must be performed while the child is sedated or under general anaesthetic, often in a hospital.

Studies suggest that ECTD is an infectious and transmissible disease. It is caused by a number of factors: pathogenic bacteria, prolonged and frequent exposure of the teeth to sugar-containing substances, decreased host resistance and time for the decay to develop and progress. Research generally has shown that most children acquire caries-causing bacteria at age 22 months to 26 months and that the source of transmission of the bacteria is from parents or caregivers. Transmission can be indirect (via eating utensils, cups, glasses, etc.) or directly through kissing. For dental caries to occur three essential factors must be present at the same time: an adequate number of cariogenic bacteria; a susceptible tooth surface to be attacked and available food to support the growth of the bacteria.

The caries process either will not occur or can be prevented or interrupted if any one of these conditions does not exist or is modified. This suggests that the parent or caregiver can inhibit the process by reducing the frequency of eating fermentable carbohydrates.

While bottle feeding practices have been implicated in the aetiology of ECTD, these practices are not the sole dietary factor in the disease. In addition, frequent snacking, feeding on demand, breast feeding and the addition of highly sugared substances have been associated with the disease.

It is important to look for and recognize the early warning signs of ECTD. The decay begins with white spots or areas at the gum line of the upper anterior teeth, observable by **lifting the upper lip**.

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ECTD is a preventable disease. The best preventive strategy is early intervention, before the habits that lead to the condition are established. Habits once established are difficult to break. The early establishment of good oral health habits, cleaning baby's teeth as soon as they erupt and "lift the lip" are good preventive strategies.

Continued use of a bedtime bottle containing liquids other than water (e.g. milk or juice), nursing a toddler to sleep, or continuous sucking on a bottle or soother dipped in syrup or honey during the day can result in damage to the primary teeth. If a bedtime bottle is provided, it should contain only water.