

Dental Decay: a Medical Disease

(From a compilation of peer-reviewed articles, studies, and clinical guidelines referenced by several international organizations, collegiate institutions, and the American Dental Association, 1987-2009)

The human organism is complex. Abnormalities of almost any of its parts or processes have profound effects on multiple other body areas, exemplified by the process of tooth decay. **The general medical or human physical condition is a significant active participant in dental decay diseases. Diet, lifestyle, and medical conditions affect the level of risk or presence of tooth decay.**

Decay is a chronic bacterial disease. It destroys the hard tissues of teeth. Dental caries is common. There is currently no vaccine or cure. Patients with decay usually have no symptoms in the early stages of the disease, but can progress to severe pain and infection. The diagnosis of dental decay requires evaluation by a trained professional.

Causes

Dental decay begins with a **microbial infection**, followed by destruction of the teeth caused by accumulation of acid-forming bacteria on tooth surfaces. When teeth are not disinfected on a regular basis, bacteria begin to colonize, and the bacterial acids decay the hard tissues of the teeth. Although bacteria are a major factor, other risk factors appear to influence the severity and extent of disease. Saliva is important for oral health, and contains remineralizing properties. If there is inadequate quantity or quality of saliva, the risk of tooth decay significantly increases.

Treatment

Traditional “drill and fill” strategies for tooth decay work well to treat the obvious decay issues. But it is important to realize that **the disease of dental decay is complex, ongoing, and does not currently have a cure. The appropriate strategy for dental decay is similar to other medical diseases: to combine direct treatment with prevention.** Prevention means reducing bacteria and strengthening the teeth. Removing bacteria attached to the teeth is crucial. Antibacterial mouth rinses may be used for patients with higher risk. Topical (surface) treatments with fluoride and other products remineralize the hard tissues of the teeth and increase the resistance of teeth to acid decay. Topical treatments differ from systemic (swallowed) fluoride. Topical fluorides are not ingested, which increases patient safety. And topical fluorides have been proven to arrest dental decay in its early stages. Antibiotics are not an effective treatment, because bacteria are continually reemerging. Antibiotics do not eliminate decay in the oral cavity.

Advanced dental decay may require surgery to gain adequate access for removal of the bacteria and debris on or in the teeth. In some instances, surgical approaches include fillings, crowns, root canal therapy, a combination of those treatments, or tooth extraction.

Prevention

Long-term clinical studies have clearly demonstrated that the regular and effective removal of bacteria on the teeth can prevent dental decay. Effective removal requires excellent oral hygiene, and consistent, recurring professional maintenance. Regular exposure of teeth to fluoride and other remineralizing products promotes resistance of teeth to caries disease. This often requires professionally prescribed treatments. Generally, **the greater the risks for decay disease, the more frequent the need for bacterial disinfection, fluoride exposure and maintenance.**

ASSOCIATION BETWEEN DENTAL DECAY AND OTHER CONDITIONS

The risk for dental caries is influenced by a combination of factors. In addition to a lack of oral hygiene, the following risk factors are common to decay disease:

- (1) A history of 8 or more teeth that have been decayed, missing or filled is classified as higher risk for future decay.
- (2) Multiple medications, drug use, and alcohol consumption. These dry the mouth, increase acidity, and increase decay risk.
- (3) Medical complications, eating disorders, systemic disease, and/or a history of chemo/radiation therapy .
- (4) Age. Salivary production decreases, increasing caries risk.

- (5) Diet. Foods rich in starches, sugars, and carbohydrates promote decay. Acidic foods also promote decay. Carbonated beverages and energy drinks promote decay.

- (6) Dental restorations, dentures, orthodontic appliances. These create food impaction, and form a habitat for bacteria. Poor fillings or crowns also create a habitat.

CLINICAL RECOMMENDATIONS: PATIENTS WITH DENTAL DECAY RISKS

Patients with high dental decay (DD) risks should consider a medical evaluation if they have not done so in the past 12 months. Medical

evaluation should include a complete physical examination and blood tests. Medical evaluation of patients with DD should also include assessment of medically or medication-related dry mouth (xerostomia) and oral pH balance. This can be done with collaboration by your dentist and physician. Recent studies have concluded that these tests have value by helping determine how DD risk should be treated.

Patients with high DD risks who have new or progressive decay even after initial treatment should be referred for medical evaluation if they have not done so in the past 12 months.

All patients with any DD risks and untreated DD should undertake lifestyle changes, including a diet low in simple sugars, starches, and carbohydrates, a diet low in carbonated and acidic beverages and acidic foods, and moderation of alcohol intake. In addition to altering diet, lifestyle modifications include improving oral hygiene, using topical fluoride, and specific maintenance by dental professionals.

CLINICAL RECOMMENDATIONS: PATIENTS WITHOUT A PREVIOUS DIAGNOSIS OF DENTAL DECAY

Dentists and physicians managing patients with DD or other inflammatory diseases should work together to optimize risk reduction and dental care. **Dental decay evaluation should occur at least twice yearly in patients** who have signs or symptoms of disease (including tooth sensitivity), significant tooth damage, and unexplained dry mouth. Dental evaluation of patients with dry mouth or poor saliva should include a comprehensive examination of dental health. **If patients have untreated or uncontrolled dental caries, they should be treated with a focus on reducing and controlling bacterial infection and improving resistance of teeth to dental decay.**

If you have questions about this information, or would like to schedule an appointment, Please call our office at 360.629.7229 or visit us on the web at www.cascadiadentistry.com.

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