Guideline on the Role of Dental Prophylaxis in Pediatric Dentistry

Originating Committee
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1986

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1993, 2000, 2003, 2007

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1996

Purpose
The American Academy of Pediatric Dentistry (**AAPD**), as an advocate for optimal oral health of infants, children, and adolescents, must educate caregivers and other interested third parties on the indications for and benefits of a dental prophylaxis in conjunction with a periodic oral health assessment.

Methods
This guideline is based on a review of current preventive, restorative, and periodontal literature, as well as AAPD's Policy Statement on the Use of a Caries-risk Assessment Tool (CAT) for Infants, Children, and Adolescents[1] and the American Academy of Periodontics' (**AAP**) Periodontal Diseases in Children and Adolescents.[2] A MEDLINE search was conducted using the terms "dental prophylaxis", "toothbrushing", "professional tooth cleaning", and "professional dental prophylaxis in children".

Background
Microbial plaque is the primary etiological factor in caries and periodontal disease.[3,4] Although it may be possible to remove most plaque using mechanical oral hygiene aids, many patients do not have the motivation or skill to maintain a plaque-free state for extended periods of time.[5] Clinical studies show that "self-administered plaque control programs alone, without periodic professional reinforcement, are inconsistent in providing long-term inhibition of gingivitis".[5]

Indications for a professional dental prophylaxis include:

1. removal of plaque, stain, and calculus;[6]
2. elimination of factors that influence the build-up and retention of plaque;[7-9]
3. demonstration of proper oral hygiene methods to the patient/caregiver;
4. facilitation of a thorough clinical examination;
5. introduction of dental procedures to the child.

The type and frequency of professional prophylaxis recommended is based on an individual patient's risk-assessment for caries and periodontal disease. The AAPD has developed a tool[1] to determine caries risk and the AAP has guidelines[2] to address periodontal risk. These assessments may include:

1. medical history/current systemic health including medications;
2. age and cooperation of the patient;
3. compliance of the patient and family;
4. past and current caries;
5. family history of caries;
6. past and current periodontal health;
7. family history of periodontal disease;
8. oral hygiene;
9. presence of plaque;
10. presence of gingivitis;
11. presence of calculus;
12. presence of extrinsic stain;
13. local factors that would influence the build-up and retention of plaque.

A professional prophylaxis can be performed using toothbrush, rubber cup, flossing, and/or mechanical instruments. In the absence of stain or calculus, a manual toothbrush and non-abrasive paste may fulfill the goals of a professional prophylaxis. Rubber cup prophylaxis, with paste grit as fine as possible, is indicated for the removal of extrinsic staining and smoothing of rough enamel surfaces following scaling.[6] A practitioner diagnosing localized stain and/or calculus may elect to polish only selected teeth rather than the full erupted dentition. The benefits of various prophylaxis options are shown in Table 1.

Rubber cup prophylaxis using pastes or pumice may be performed prior to the application of a professional fluoride treatment. The use of abrasive toothpastes and whitening products, as well as abrasion during a prophylaxis, can remove the acquired pellicle. This can have an adverse effect on exposed tooth surfaces by increasing the chances of enamel loss through exposure to dietary acids.[10] Furthermore, even though

Table 1. BENEFITS OF PROPHYLAXIS OPTIONS

	Plaque removal	Stain	Calculus	Polish/smooth	Education of patient/parent	Facilitate Examination
Toothbrush	Yes	No	No	No	Yes	Yes
Power brush	Yes	Yes	No	No	Yes	Yes
Rubber cup	Yes	Yes	No	Yes	Yes	Yes
Hand instruments	Yes	Yes	Yes	No	Yes	Yes

the pellicle begins forming immediately after it is removed, it may take up to 7 days, possibly longer, to mature fully and offer maximal protection against dietary acid challenges.[10]

Rubber cup prophylaxis with pumice paste can remove up to 0.6–4.0 microns of the outer enamel[11-14] which includes the fluoride-rich layer. This is dependent on the speed of the handpiece, abrasivity of the paste, and the amount of time spent cleaning the tooth.[11-14] Researchers have concluded that a pumice prophylaxis followed by a topical fluoride application results in "similar" levels of fluoride uptake as a topical fluoride application without a prophylaxis.[15,16]

Recommendations

A periodic professional prophylaxis should be performed to:

1. instruct the caregiver and child or adolescent in proper oral hygiene techniques;
2. remove microbial plaque and calculus;
3. polish hard surfaces to minimize the accumulation and retention of plaque;
4. remove extrinsic stain;
5. facilitate the examination of hard and soft tissues;
6. introduce dental procedures to the young child and apprehensive patient.

In addition to establishing the need for a prophylaxis, the clinician should determine the most appropriate type of prophylaxis for each patient. The practitioner should select the least aggressive technique that fulfills the goals of the procedure. To minimize loss of the fluoride-rich layer of enamel during polishing, the least abrasive paste should be used with light pressure. If a rubber cup/pumice prophylaxis is performed, a topical fluoride application is recommended.[17]

A patient's risk for caries/periodontal disease, as determined by the patient's dental provider, should help determine the interval of the prophylaxis. Patients who exhibit higher risk for developing caries and/or periodontal disease should have recall visits at intervals more frequent than every 6 months. This allows increased professional fluoride therapy application, microbial monitoring, antimicrobial therapy reapplication, and reevaluating behavioral changes for effectiveness.[18] An individualized preventive plan increases the probability of good oral health by demonstrating proper oral hygiene methods and techniques and removing plaque, stain, calculus[6], and the factors that influence their build-up.[7-9]

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