Policy on the Role of Dental Prophylaxis in Pediatric Dentistry

Latest Revision

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Purpose

The American Academy of Pediatric Dentistry recognizes the dental prophylaxis as an integral component of periodic oral health assessment, education, and preventive care.

Methods

This policy was developed by the Clinical Affairs Committee, adopted in 1986,[1] and last revised in 2022.[2] This revision by the Council on Clinical Affairs included a new literature search of PubMed/MEDLINE using the terms: *dental prophylaxis*, *toothbrushing*, *professional tooth cleaning*, *fluoride uptake*, and *professional dental prophylaxis*, limited to children (birth to 18 years), the last 10 years, and English language, resulting in 1,039 articles. The resultant list was filtered to utilize randomized control studies and systematic reviews, relevant review studies, and book chapters resulting in 113 papers for review. When necessary, hand searching for articles and Google Scholar searches were utilized. Expert and/or consensus opinion by experienced researchers and clinicians also was considered.

Background

The aim of oral prophylaxis is to remove supragingival plaque, extrinsic stain, and calculus from patients' teeth.[3] This may be accomplished utilizing toothbrush, dental floss, rotary rubber cup, hand instruments, ultrasonic scalers, and air polishers. Persistent gingival inflammation in young patients with reasonable supragingival home plaque control often is related to calculus deposits previously not detected or only partially removed.[4] Attachment loss due to chronic subgingival calculus in young children has been reported.[5] Thus, supra- and subgingival instrumentation is an important component of initial and recall dental appointments.[6] The instrumentation technique (eg, toothbrush prophylaxis, hand-scaling) needed for each patient is determined on an individual basis. For example, in the young or pre-cooperative patient, patients with special health care needs, or patients with no calculus or extrinsic stain, a toothbrush prophylaxis may be utilized by the dental professional.

Limited evidence suggests that, although prophylaxis may lead to short-term reductions in plaque levels and gingival bleeding, it may not lead to the prevention of gingivitis.[7,8] Nevertheless, prophylaxis is a fundamental component of pediatric oral health care and, among other benefits detailed in the Table, facilitates the conduct of a high-quality comprehensive oral examination and home oral hygiene techniques. The coronal polish procedure typically entails the application of a dental polishing paste to tooth surfaces with a rotary rubber cup or bristle brush to remove plaque and extrinsic stains from teeth. A toothbrush coronal polish (ie, toothbrush and toothpaste) is a procedure that is used to remove plaque from tooth surfaces and demonstrate brushing techniques to patients/caregivers for young children and for patients with special needs who cannot tolerate the use of a rotary rubber cup.[9] Air polishing uses a mix of pressurized air, abrasive powder, and water to remove supragingival extrinsic stains, plaque, and deposits from teeth.[10] Dental scaling is a procedure in which hand or ultrasonic instruments are used to remove calculus and extrinsic stains. Ultrasonic devices may cause less soft tissue trauma, require a shorter treatment time, and are less technique and operator sensitive than hand instrumentation.[11] Full mouth debridement may be necessary as a preliminary treatment for those whose medical, psychological, physical, or periodontal condition results in calculus accumulation beyond the scope of routine prophylaxis.

Table. BENEFITS OF PROPHYLAXIS OPTIONS

	Plaque removal	Extrinsic-stain removal	Calculus removal	Facilitate education on home care techniques	Facilitate examination
Toothbrush	Yes	No	No	Yes	Yes
Interdental cleaners (eg, floss, interdental brush)	Yes	No	No	Yes	Yes
Rotary rubber cup or bristle brush	Yes	Yes	No	No	Yes
Hand instruments	Yes	Yes	Yes	No	Yes
Ultrasonic scalers	Yes	Yes	Yes	No	Yes
Air polishing	Yes	Yes	Yes	No	Yes

These procedures facilitate the clinical examination and introduce dental procedures to the patient. Additionally, the accompanying preventive visit allows the practitioner to educate the patient/caregiver about the need to remove plaque biofilm and demonstrate proper oral hygiene methods. Professional oral hygiene instruction and reinforcement can lead to behaviors that reduce both plaque and gingivitis[12] but, in the absence of patient oral hygiene instruction, professional supragingival and submarginal plaque and calculus removal has little value in gingivitis prevention.[13] A comprehensive oral health education program with oral prophylaxis is effective in reducing plaque and improving oral health knowledge, desirable oral health behaviors, and attitudes.[14]

The frequent disruption or removal of plaque biofilm from various areas of the oral cavity is crucial to oral disease prevention and is achieved through regular personal oral hygiene and professional prophylaxis.[15] Accurate detection of biofilm is critical to effective removal, and special dyes of iodine, gentian violet, erythrosine, basic fuchsin, fast green, food dyes, fluorescein, and 2-tone disclosing agents are available in the forms of tablets, solutions, wafers, lozenges, or mouthrinses.[16] Biofilm staining allows for effective personalized oral health guidance from health care providers. Severe dental caries is most strongly associated with biofilm in the upper posterior palatal, lower posterior buccal, and lower posterior lingual spaces, as well as on the tongue.[17] Disclosing agents for both professional and personal use can supplement a personal oral hygiene protocol.

Flossing is an important part of the prophylaxis that removes interproximal and subgingival plaque, aids in educating the patient/caregiver, and facilitates the oral examination. Since interdental plaque biofilm is not completely removed with brushing,[12,18] interdental cleaning is indicated when interdental spaces are filled with gingiva or contacts are closed.[19,20] Different devices (eg, dental floss, interdental brushes, oral irrigations) are used to remove plaque interdentally.[12,18] The benefits of various prophylaxis options are shown in the Table.

Numerous reports have shown plaque and pellicle are not a barrier to fluoride uptake in enamel and, consequently, patients who receive rotary rubber cup dental prophylaxis or a toothbrush prophylaxis before fluoride treatment exhibit no difference in caries rates.[7,8,21] Prophylaxis is not required prior to the topical application of fluoride.

A patient's risks for caries[22] and periodontal disease[6], as determined by the patient's dental provider, can help establish the interval of the prophylaxis or periodontal maintenance. An individualized preventive plan increases the probability of optimal oral health through proper oral hygiene methods and techniques as demonstrated by oral health professionals. In addition, removing plaque and debris, extrinsic stains, calculus, and the factors that influence their buildup increases the probability of optimal oral health. Patients who exhibit higher risk for developing caries or periodontal disease can benefit from recall visits at more frequent intervals.[6,22-24]

Policy statement

The American Academy of Pediatric Dentistry supports a professional prophylaxis during new patient comprehensive oral evaluations and periodic oral examinations to

- instruct the caregiver and child or adolescent in proper oral hygiene techniques.
- remove dental plaque, extrinsic stains, and calculus deposits from the teeth.
- facilitate the examination of hard and soft tissues.
- introduce dental procedures to the young child and apprehensive patient.

Determination of interval for periodic examinations takes into consideration a patient's assessed risks for caries and periodontal disease.

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