



**POSITION STATEMENT & POSITION PAPER ON
TOOTHBRUSHING RECOMMENDATIONS FOR CHILDREN**

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POSITION STATEMENT TOOTHBRUSHING RECOMMENDATIONS FOR CHILDREN

Children's teeth should be brushed for two, preferably three minutes at a time using a technique that is best suited to each child's individual motivation, needs and abilities. Toothbrushing should be done at least twice daily with fluoridated toothpaste containing 1,000 ppm fluoride for children in optimally fluoridated and fluoride deficient communities. A soft manual toothbrush, or a powered toothbrush with rotation oscillation action, is recommended. Parents should begin brushing their children's teeth as soon as the first primary tooth erupts, and remain as the primary provider of oral hygiene until the child can effectively remove plaque. For older children, parents should supervise brushing. Children under six years of age should have their toothpaste dispensed by a parent/caregiver and only a pea sized amount should be used. In order to maintain the anticaries efficacy of fluoride toothpaste in the mouth, rinsing should be kept to a minimum and young children should spit out excess toothpaste.

POSITION PAPER

TABLE OF CONTENTS

I. BACKGROUND

II. METHODOLOGY

III. EVIDENCE BASED RECOMMENDATIONS

- A. Toothbrushing Technique
- B. Age to Begin Brushing
- C. Frequency
- D. Duration
- E. Manual & Powered Toothbrushes
- F. Use of Fluoridated Toothpaste
- G. Amount of Toothpaste
- H. Rinsing
- I. Supervision and Assistance with Toothbrushing

IV. SUMMARY TABLE OF RECOMMENDATIONS

V. REFERENCES

VI. OAPHD PERMISSION STATEMENT

I. BACKGROUND

Toothbrushing is essential for the prevention of dental disease and to maintain good oral health. It disrupts and removes bacterial plaque, clears the mouth of food and debris, stimulates the gingival tissue, helps prevent halitosis and the build up of stain and hard deposits, as well as serving as a vehicle for dentifrice (toothpaste).

The purpose of this paper is to provide recommendations on all areas related to children's toothbrushing, based on a review of available evidence.

II. METHODOLOGY

A literature search was done in Medline, PubMed and the Cochrane Library. As well, policy statements and websites for groups who are primarily involved in health care for children were sought and reviewed for evidence based recommendations. Current teaching in preventive dentistry was also reviewed in the form of course outlines and textbook information, along with references. A relevant article was also obtained from the Colgate Oral Care Report, which is a peer reviewed summary journal.

III. EVIDENCE BASED RECOMMENDATIONS

A. Toothbrushing Technique

Of the major toothbrushing techniques that have been advocated over the years, most involve horizontal, vertical, roll, scrub, physiological, circular and vibratory type motions. The level of manual dexterity required ranges from low to high depending on the technique. Some techniques have a greater propensity to cause damage to hard tissue and soft tissue, particularly if there is over-vigorous brushing, excessive force, and hard or frayed bristles on the toothbrush.

The Bass technique most effectively cleans the gingival area, however, it is only appropriate for some adolescents and adults with a high level of manual dexterity, not children.

Previous literature reviews have concluded that no one brushing technique is superior to another.^{1,2} If used regularly, all of the brushing techniques are effective.³ Plaque removal is paramount, and if a technique effectively removes plaque without causing trauma, then there is no need to modify a current technique.⁴ Duration, frequency and a systematic approach, without trauma, are more important than a specific technique.

Toothbrushing is a complex motor skill and children lack the manual dexterity to effectively brush their own teeth until they are able to write. In fact, most children do not approach the same level of toothbrushing ability as adults until they are 10 – 11 years of age.⁵ According to the literature very young children may also have difficulty

understanding language commands, thus supporting the need for the parent to brush the child's teeth.^{5,6}

Children should be encouraged to brush their teeth regularly using a technique that is appropriate for their *individual* ability, language comprehension and motivation. For children, the scrub technique has been found to be effective in removing plaque⁵ and the Fones technique is relatively easy to learn.^{4,7} Their brushing should be supervised and assisted by a parent and or caregiver until they can thoroughly remove plaque throughout the mouth. The adult who is assisting with the mouth care should also be taught a toothbrushing technique that is appropriate for their own ability.

B. Age to Begin Brushing

Prior to the eruption of teeth, the mouth should be cleansed with a clean, damp cloth. As soon as the first primary tooth starts to erupt, the parent or caregiver should begin brushing, using a small soft toothbrush. Several studies have reported an association between the age that brushing was started and caries experience. Children whose teeth were brushed starting at an early age are more likely to be caries free.^{8,9} Children whose parents reported brushing their teeth prior to one year had significantly less caries than children whose parent reported starting brushing between ages one and two, or past two years of age.^{1,9}

C. Frequency

While there are individual variations on the frequency that teeth should be brushed it is recommended that toothbrushing be done at least twice daily. One study found that in young children whose first permanent molars were in the process of erupting, twice daily brushing reduced the incidence of caries in these teeth by 50%, when compared to brushing once a day or less.¹⁰

Frequency of toothbrushing needs to be emphasised more with parents of young children. A major study of toothbrushing amongst children six months to sixty months found that even at age five, less than half the children were having their teeth brushed twice a day.¹¹

D. Duration

Studies which examined the effectiveness of children's toothbrushing, duration of brushing was found to have a greater impact on plaque removal.^{12,13} It is generally recommended that toothbrushing be done for two, preferably three minutes at a time; however, most people rarely actually brush for longer than 60 seconds.^{1,4} Studies investigating toothbrushing duration by children find the time to be even shorter. Children aged three to five brushed on average for 28 seconds, while those aged six to eight years of age brushed for an average of 35 seconds and those nine to eleven years brushed for 47 seconds.¹⁴ When examining the duration of supervised toothbrushing sessions with parent and toddlers, the average duration of a session was 142 seconds, but

the brush was only in the mouth half of the time.²⁵ Duration of toothbrushing needs to be addressed more during oral health education and interventions.

E. Manual & Powered Toothbrushes

For a manual toothbrush, recommendations include the selection of an infant or child sized toothbrush depending on the age and size of the mouth, with a small head, and soft, rounded bristles, that are arranged at different heights to enhance plaque removal interdentally. The handle should be appropriate to the user's age and manual dexterity.^{1,2}

A recent Cochrane Review on manual versus powered toothbrushing for oral health concluded that power brushes with a rotation oscillation action reduce plaque and gingivitis more than manual toothbrushing.¹⁵ There is evidence not to recommend rotary or vibratory action brushes and also evidence to support not recommending sonic action brushes, due to increased potential for bacteremia in children with compromised cardiac conditions.¹⁶

For children or parents with limited manual dexterity, a powered toothbrush may be more effective. Power toothbrushes have also been found to be more effective on the lingual surfaces, particularly of primary molars.¹⁷ Many powered toothbrushes have timers and this may assist in increasing brushing duration.

Cost is a factor that must be taken into consideration when making recommendations and decisions about manual and powered toothbrushes, particularly for low income families.

Either a soft manual toothbrush or a powered toothbrush with rotation oscillation action is recommended, based on the individual child's and parent/caregiver's needs.

F. Use of Fluoridated Toothpaste

While toothbrushing is generally accepted as preventing dental decay, there is in fact little evidence to support that brushing alone prevents decay. However, there is strong evidence that brushing with fluoridated toothpaste reduces caries in children. In a recent review on fluoride toothpastes for preventing caries in children and adolescents, by the Cochrane group, the authors concluded that the benefits for fluoridated toothpastes are firmly established by high quality trials and clear evidence that the fluoride toothpastes are efficacious in preventing caries. They found strong evidence that daily use of fluoridated toothpaste significantly reduces decay in young, permanent molars. Brushing with fluoridated toothpaste was also found to have a greater benefit; in children with high caries risk and a higher brushing frequency. A higher fluoride concentration, as well as supervised brushing, also increased the benefit. The reviewers found little information concerning the effect of fluoride on deciduous teeth or on any adverse effects.^{18,19,21}

Current best practice is recommending twice daily use of fluoridated dentifrice containing 1,000 ppm concentration of fluoride, for children in both optimally fluoridated and fluoride deficient communities.²¹

G. Amount of Toothpaste

Small amounts of toothpaste have been found to be comparable in efficacy to large amounts.²⁰ While the evidence that fluoride toothpaste may be a risk factor for enamel fluorosis is inconclusive, recommendations have been developed in order to minimize potential risk to young children who may swallow toothpaste. Use of fluoridated toothpaste in children under the age of two years should be based on caries risk assessment.²¹

Children under six years of age should have their toothpaste dispensed by a parent/caregiver. Only a small smear should be placed on the brush until the child can effectively spit out. Once a child can spit out, a pea sized amount (0.25g to 0.5g) may be used. However, some people may have difficulty determining the amount or may have different cultural perceptions about what constitutes a ‘pea sized’ amount. A transverse technique of applying the toothpaste across the width of the child’s brush has been found to be effective with both mothers and children in reducing the amount of toothpaste used.²²

It is critical that parents of young children dispense the toothpaste, as studies have found children often apply their own toothpaste and usually dispense double the desired amount.

For children at higher risk for caries, it may be important to ensure the fluoridated toothpaste comes in contact with the teeth. One modified technique is to apply the appropriate amount of toothpaste directly to the teeth first and then commence brushing.²³

H. Rinsing

Studies have confirmed that rinsing should be kept to a minimum after brushing to maintain the anticaries efficacy of fluoride toothpaste in the mouth.^{1,20,23} This is particularly critical for children with newly erupted teeth and for those at higher caries risk.

Therefore, it is recommended that rinsing be kept to a minimum and that young children should spit out excess toothpaste.

I. Supervision and Assistance with Toothbrushing

For children age six years or under, not only should the parent/caregiver apply the toothpaste to the toothbrush, but they should also be the primary provider of oral hygiene services²⁴. Research shows good evidence for higher caries reduction when brushing is supervised.

IV. SUMMARY TABLE: Toothbrushing Recommendations for Children

Practice	Effectiveness	References	Recommendations
Toothbrushing technique	Systematic literature reviews have found that no one specific toothbrushing technique that is better than another. If used regularly, all of the brushing techniques are effective. ³ Plaque removal is paramount, and if a technique effectively removes plaque without causing trauma, then there is no need to modify a current technique. ⁴	1,2,3,4	Recommendations regarding brushing technique and/or type of toothbrush need to be tailored to each child's individual motivation, needs and abilities.(A)
Age to begin brushing	Several studies have reported an association between the age that brushing was started and caries experience. Children whose teeth were brushed from an early age on are more likely to be caries free.	1,8,9	Toothbrushing should begin as soon as the first primary tooth erupts. (A)
Frequency	Research found that in young children whose first permanent molars were in the process of erupting, twice daily brushing reduced the incidence of caries in these teeth by 50%, when compared to brushing once a day or less. ¹⁰	10, 11, 21	Children's teeth should be brushed at least twice a day using fluoridated toothpaste.(A)
Duration	In studies which examined the effectiveness of children's toothbrushing, duration of brushing was found to have a greater impact on plaque removal.	1,4,12,13,14	Toothbrushing should be done for two, preferably three minutes at a time. (B)
Manual & Powered toothbrushes	Manual toothbrushes should be infant or child sized depending on age and size of mouth, with a small head, and soft, rounded bristles, arranged at different heights to enhance plaque removal interdentally. A recent Cochrane Review concluded that power brushes with a rotation oscillation action reduce plaque and gingivitis more than manual toothbrushing.	1,2,15	A soft manual toothbrush or a powered toothbrush with rotation oscillation action is recommended, based on the individual child's and parent/caregiver's needs. (A)
Use of fluoridated toothpaste	There is strong evidence that daily use of fluoridated toothpaste reduces decay in young, permanent molars.	18, 21	Current best practice is recommending twice daily use of fluoridated dentifrice containing 1,000 ppm fluoride for children in optimally fluoridated and fluoride deficient communities. (A)

Continued

Practice	Effectiveness	References	Recommendations
Amount of toothpaste	Small amounts of toothpaste have been found to be comparable in efficacy to large amounts. Research has shown that concentration, topical contact and frequency, not quantity give the greatest benefit. The amount of toothpaste used should be limited until children can effectively spit out and control their swallowing reflex.	^{19, 20, 21, 22, 23}	Adults should apply toothpaste to the brush for young children and only a pea sized amount of paste should be used. This can be accomplished by applying the toothpaste across the transverse or narrow width of the brush. (A)
Rinsing	Studies have confirmed that rinsing should be kept to a minimum after brushing to maintain anticaries efficacy.	^{1,20,23}	Rinsing after brushing should be minimal. Young children should spit out excess toothpaste (A).
Supervised brushing	Research shows good evidence for higher caries reduction when brushing is supervised.	^{18, 19, 24}	Parents/caregivers should be the primary providers of oral hygiene for young children and supervise the brushing of older children. (A)

* *Superscript refers to references*

Letters refer to the Grade of Recommendation, Canadian Task Force on Preventive Health Care Methodology www.ctfphc.org/methods

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