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Original Research

Comparison of effect of dry and wet brushing on dental plaque in children

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ABSTRACT:
Background: It is clearly evident that fluoridated toothpaste could directly effect on the mineralization of enamel and therefore reducing the chance of demineralization. The present study was conducted to compare effect of dry and wet brushing on dental plaque in children. **Materials & Methods:** 150 schoolchildren of 10–12-years old of both genders were classified into 2 groups. Group I children were instructed to brush teeth using dry technique with a pea-sized toothpaste and group II children were instructed to use wet technique with pea-sized toothpaste for a period of 1 week. Evaluation of dental plaque was performed at the buccal surfaces of teeth 11, 16, 21 and 26, and lingual surfaces of teeth 31, 41, 36, and 46. **Results:** Age group 10 years comprised of 20 in group I and 25 in group II, 11 years has 35 in group I and 26 in group II and 12 years has 20 in group I and 24 in group II. The mean plaque score in 11 was 7.8 and 7.9, in 16 was 6.9 and 6.8, in 21 was 6.5 and 6.2, in 26 was 7.0 and 6.8, in 31 was 6.9 and 6.5, in 36 was 6.5 and 6.2, in 41 was 7.0 and 6.7 and in 46 was 7.2 and 7.0 respectively. The difference was non- significant (P> 0.05). **Conclusion:** Both the methods were comparable in terms in decreasing plaque score.
Key words: Plaque score, fluoridated toothpaste

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INTRODUCTION

The risk of swallowing large amounts of toothpaste by young children has made Pediatric dentists concerned over the use of fluoridated toothpaste in very young.[1] Several experimental and epidemiological studies have demonstrated the role of microbial plaque as one of the main causes of dental caries and periodontal diseases. It has been shown that there is a significant correlation between dental hygiene and a rise in caries, periodontal, and cardiovascular disease risk factors.[2]

It is clearly evident that fluoridated toothpaste could directly effect on the mineralization of enamel and therefore reducing the chance of demineralization.[3]The use of toothbrush without toothpaste is believed to have no effect on the bacterial flora and only displaces them within the oral cavity.[4] Children younger than the age of two are also proved to be unable to expectorate and therefore the formation of high volumes of toothpaste foam would bring the child to an unavoidable status of swallowing the oral content.[5] Repeated effect of such action is believed to be a possible cause of future teeth discoloration in the line of fluorosis. Many Pediatric dentists prefer to advise parents not to use any toothpaste for their young children to avoid such complication.[6]The present study was conducted to compare effect of dry and wet brushing on dental plaque inchildren.

MATERIALS & METHODS

The present study comprised of 150 schoolchildrenof 10–12-years old of both genders. The consent was obtained from their parents.

Data such as name, age, gender etc. was recorded. Children were classified into 2 groups. Group I children were instructed to brush teeth using dry technique with a pea-sized toothpaste and group II children were instructed to use wet technique with pea-sized toothpaste for a period of 1 week.

Evaluation of dental plaque was performed at the buccal surfaces of teeth 11, 16, 21 and 26, and lingual surfaces of teeth 31, 41, 36, and 46 using Replaque solution. This measurement was carried out in several steps including the first visit before starting the technique, at the end of the 1st week, after the washout period, and at the end of the second step of the experiment. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of children

Age group (years)	Group I	Group II	P value
10 years	20	25	0.12
11 years	35	26	
12 years	20	24	

Table I, graph I shows age group 10 years comprised of 20 in group I and 25 in group II, 11 years has 35 in group I and 26 in group II and 12 years has 20 in group I and 24 in group II. The difference was non- significant (P> 0.05).

Graph I Distribution of children

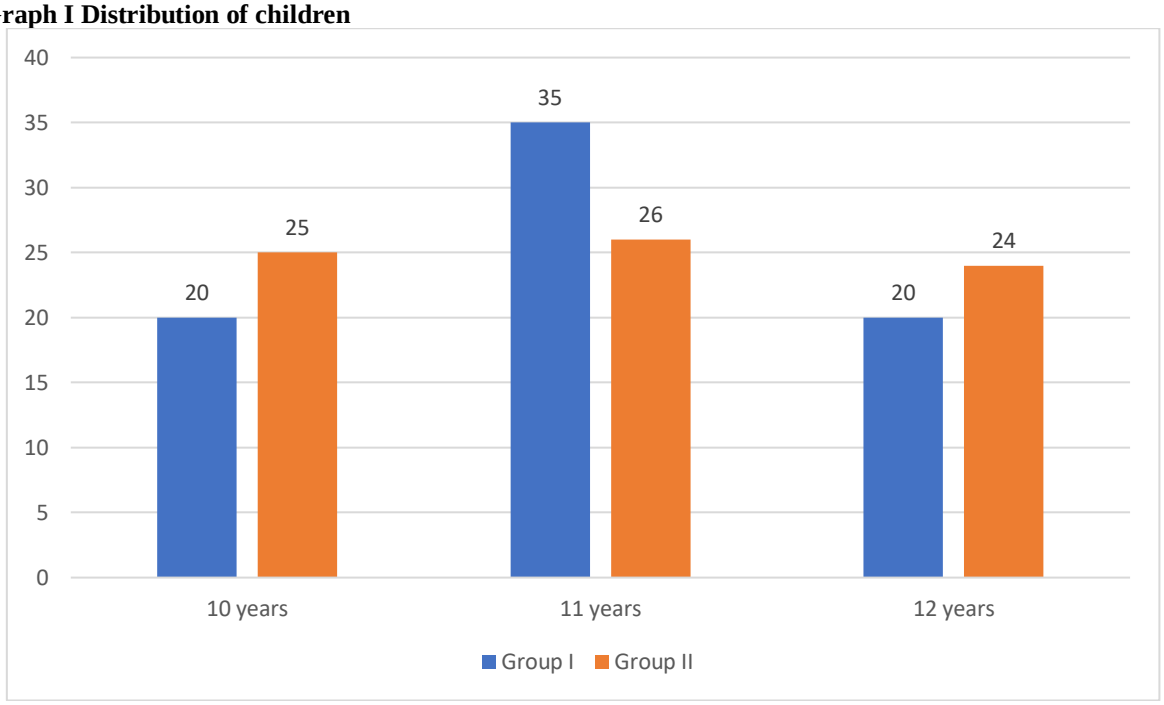
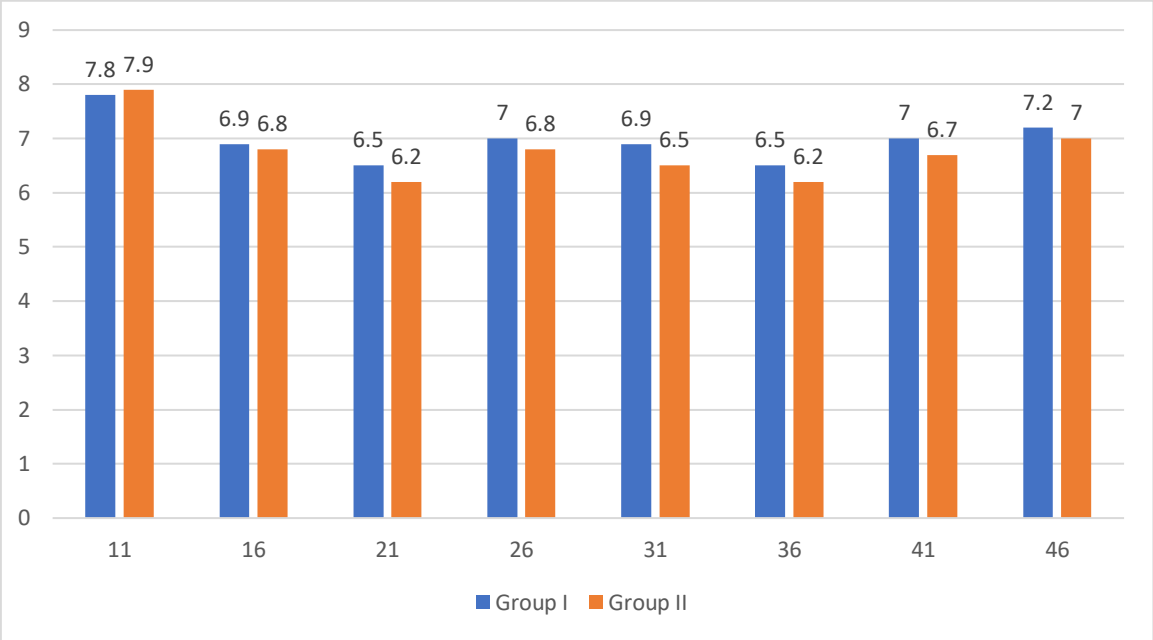


Table II Comparison of plaque score

Teeth	Group I	Group II	P value
11	7.8	7.9	0.15
16	6.9	6.8	
21	6.5	6.2	
26	7.0	6.8	
31	6.9	6.5	
36	6.5	6.2	
41	7.0	6.7	
46	7.2	7.0	

Table II, graph II shows that mean plaque score in 11 was 7.8 and 7.9, in 16 was 6.9 and 6.8, in 21 was 6.5 and 6.2, in 26 was 7.0 and 6.8, in 31 was 6.9 and 6.5, in 36 was 6.5 and 6.2, in 41 was 7.0 and 6.7 and in 46 was 7.2 and 7.0 respectively. The difference was non- significant (P> 0.05).

Graph II Comparison of plaque score



DISCUSSION

Appropriate and efficient brushing is a key to microbial plaque control, which includes initial removal as well as maintaining teeth and gum's health. Mechanical and chemical methods are still considered as the most reliable methods for dental plaque control.[7] Proper brushing method is instructed by dental professionals, with an important role played in oral health maintenance of different age groups. The old tradition to supposedly wash the toothbrush before use has currently been practiced by many different communities with varying ethnicity which in fact makes the toothbrush wet. This wetting step is effective on the flexibility and strength of the toothbrush bristles and their clinical performance.[8] Early childhood caries is mainly caused by lack of appropriate oral hygiene while having a high sugarintake. There are substantial reports on the causative role of bottle milk for early caries development in children with little to no attempt to brush afterward.[9] It is clearly evident that fluoridated toothpaste could directly effect on the mineralization of enamel and therefore reducing the chance of demineralization. The use of toothbrush without toothpaste is believed to have no effect on the bacterial flora and only displaces them within the oral cavity.[10]The present study was conducted to compare effect of dry and wet brushing on dental plaque inchildren.

We found that age group 10 years comprised of 20 in group I and 25 in group II, 11 years has 35 in group I and 26 in group II and 12 years has 20 in group I and 24 in group II. Ansari et al[11] in their study 43 children aged 10–12 years were randomly selected and instructed for this brushing project. Each case served as self-control. Each patient was requested to brush through one of the wet/dry techniques for 1 week and other technique on the 2nd week. Samples had a washout step using pumice prophylaxis prior to each brushing week. Tooth Cleanliness Index was used to measure the plaque removal level. Two uniform Oral-B toothbrushes were used one for each week through the Modified Stillman technique. The level of brushing efficacy was slightly higher in males with no statistically significant difference between sexes. Remaining plaque measured was higher in wet group with significant difference (7.3 ± 1.7 for dry brushing and 7.6 ± 2.6 for wet brushing).

We found that mean plaque score in 11 was 7.8 and 7.9, in 16 was 6.9 and 6.8, in 21 was 6.5 and 6.2, in 26 was 7.0 and 6.8, in 31 was 6.9 and 6.5, in 36 was 6.5 and 6.2, in 41 was 7.0 and 6.7 and in 46 was 7.2 and 7.0 respectively.Kawoos et al[12] in their study 60 children age ranged 6- 12 years of both genders were divided into 2 groups of 30 each. They were recalled after 2 weeks to assess plaque level in teeth 11, 16, 21 26, 31, 36, 41 and 46. Group I subjects were put on dry brush technique and group II on wet brush technique.There was non- significant difference of plaque score in both groups. There was non-significant difference in plaque score with both dry and wet brushing technique.

Rosema et al[13] in their study found that the age of a toothbrush is not a determining factor in plaque score reduction. The wear level of the bristles is known to be directly influencing the effectiveness of brushing. However, for a more secure status, the toothbrushes used in the first and second phases of the current study were both newly opened for use. It is demonstrated that toothbrush depreciation has a direct effect on its ability to remove plaque. Although new toothbrushes are able to remove more plaque, this difference is so little, with no significant difference among the groups.

CONCLUSION

Authors found that both the methods were comparable in terms in decreasing plaque score.

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