Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies ***NLM ID:*** *101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Index Copernicus value = 85.10

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Efficacy of two commercially available manual tooth brushes for removal of dental plaque

Sapanpuneet Kaur

House No-1, Greater Mohali, Sunny Enclave, Sector-125, Pincode-140301, Desu Majra, Punjab, India
Current Address- Soraway, Sacramento, California

ABSTRACT:
Background: Periodontal disease is the second-leading cause of tooth loss and, overall, it is thought to account for up to 30-35% of all tooth extractions. The present study was conducted to compare the efficacy of manual tooth brushes for removal of dental plaque. **Materials & Methods:** 30 subjects age ranged 18-27 years were divided into 2 groups. In group I subjects, colgate charcoal tooth brush and in group II colgate sensitive tooth brush was used. Plaque score was compared in both groups. **Results:** The mean plaque score in group I was 0.820 and in group II was 1.048. The difference was significant (P< 0.05). **Conclusion:** Colgate Charcoal tooth brush was better in plaque control compared to Colgate sensitive tooth brush.
Key words: Coalgate, Periodontitis, Tooth brush.

Received: November 24, 2020 Accepted: December 27, 2020

Corresponding author: Dr. Sapanpuneet Kaur, House No-1, Greater Mohali, Sector-125, Pincode-140301, Desu Majra, Punjab, India, Current Address- Soraway, Sacramento, California

This article may be cited as: Kaur S. Efficacy of two commercially available manual tooth brushes for removal of dental plaque. J Adv Med Dent Scie Res 2021;9(1):72-75.

INTRODUCTION

Periodontal disease is a plaque-dependent disease and its stagnation can lead to inflammatory processes in the supporting tissue, triggering the destruction of protective tissue (gingivitis) and supporting tissue.[1] One of the most severe and advanced consequences of periodontitis is the irreversible loss of the supporting tissues of the teeth, which can lead to loss of teeth.[2] Periodontal disease is the second-leading cause of tooth loss and, overall, it is thought to account for up to 30-35% of all tooth extractions, and, because of cumulative effects or from the disease itself, these losses increase with the individual's age. Severe periodontitis affects from 5 to 20% of the adult population, and most children and adolescents present signs of gingivitis. In Brazil, gingival bleeding and calculus are more common in adolescents while the most severe forms of periodontal disease have found to be prevalent in adults.[3]

There are many adjuncts for maintaining oral hygiene but by far the most widely accepted and adopted tooth cleaning tool is still the toothbrush.[4] Numerous brands of toothbrushes are emerging these days with every company claiming superiority of their product over others. Colgate slim soft charcoal tooth brush has been introduced recently by Colgate Palmolive limited. This toothbrush has soft bristles that have been infused with Japanese charcoal.[5] The charcoal makes the brush naturally anti-bacterial.[4] The charcoal's deodorization properties helps to naturally clean your mouth, and remove dental plaque, while also preventing any bacterial build up between brushings.[6] The present study was conducted to compare the efficacy of manual tooth brushes for removal of dental plaque.

MATERIALS & METHODS

The present study was conducted among 30 subjects age ranged 18-27 years of both genders. All were

informed regarding the study and written consent was obtained.

General data such as name, age, gender etc. was recorded. Subjects were divided into 2 groups. In group I subjects, colgate charcoal tooth brush and in group II colgate sensitive tooth brush was used. Treatment was divided into 2 phases. In Phase I, plaque score was brought to zero and in phase II, plaque score was evaluated after 15 days in both groups. Modified Stillman's technique of brushing with same frequency was used by subjects in both groups. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of subjects

Groups	Group I	Group II
Brush	Colgate charcoal tooth brush	Colgate sensitive tooth
Number	15	15

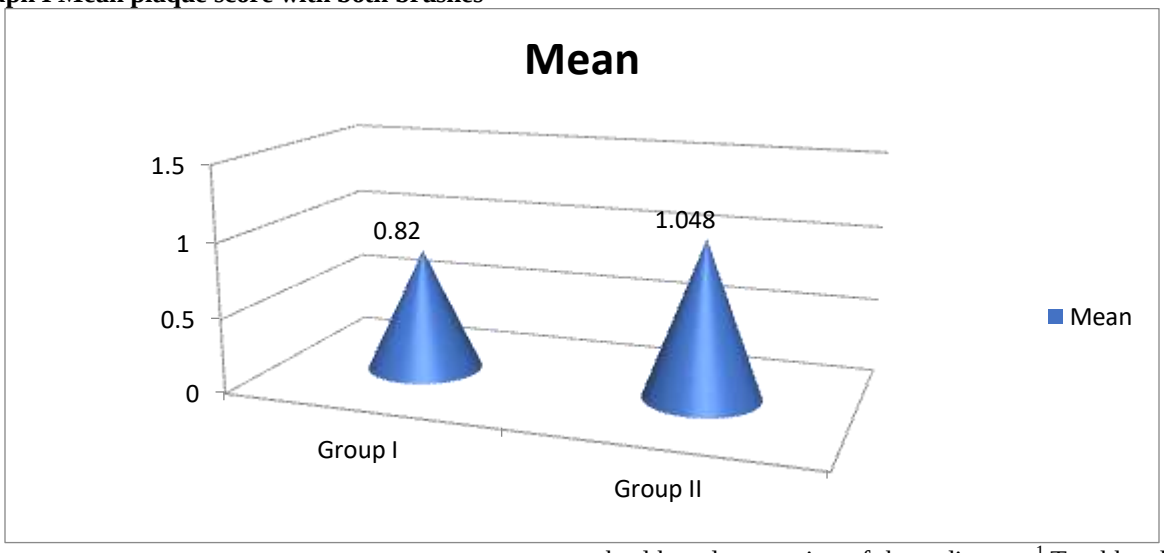
Table I shows that group I subjects used colgate slim soft charcoal tooth brush and group II used colgate sensitive tooth brush.

Table II Assessment of plaque score in both groups

Groups	Mean	S.D	P value
Group I	0.820	0.214	0.031
Group II	1.048	0.310	

Table II, graph I shows that mean plaque score in group I was 0.820 and in group II was 1.048. The difference was significant (P< 0.05).

Graph I Mean plaque score with both brushes



DISCUSSION

Efficient plaque removal is essential for dental caries and gingivitis prevention. It is an important aspect for the perpetuation of proper oral hygiene. In obtaining and preserving good oral health and to avoid periodontal diseases efficient plaque removal aids are most essential. As a solitary means of plaque removal manual toothbrush is extensively used by the public.[7] Effective plaque control and good oral hygiene maintenance play a solid role in the maintaining oral health and prevention of these diseases.[1] Toothbrushing is the most widely used method for plaque control, and a wide variety of toothbrushes is available in the market. Studies comparing the efficacy of available toothbrushes are scarce. The use of soft bristles has been recommended to improve plaque reduction while minimizing harm to the gingival tissues. Different varieties of manual toothbrushes are available in the market now.[8,9] The present study was conducted to compare the efficacy of manual tooth brushes for removal of dental plaque.

In present study, group I subjects used colgate slim soft charcoal tooth brush and group II used colgate sensitive tooth brush. Each group had 15 subjects. Sharma et al[10] conducted a study which consisted of fifty seven subjects with age ranging from 15 to 28 years distributed into 3 different groups, Group A (multi angle cross bristled toothbrush), Group B (circular bristled toothbrush), Group C (z shaped bristles toothbrush). Study was single blinded, randomized clinical trial. Rustogi modified navy plaque index (RMNPI) and Sulcular bleeding index (SBI) were assessed at baseline, 7th day and 21st day. All brushes showed significant reduction in plaque score over 3 weeks period. Comparison of mean plaque index and Average SBI between the three groups shows that Group C has the highest value of 0.9086 (RMNPI) and 0.9204 (SBI). However, the reduction of plaque scores is greater in Group C (oral B shiny clean) when compared to other groups.

We observed that mean plaque score in group I was 0.820 and in group II was 1.048. Carvalho et al[11] enrolled 56 volunteers, randomly allocated to two different groups: group A (n = 28) for the manual toothbrush (Curaprox 5460 Ultra Soft®) and group B (n = 28) for the sonic toothbrush (Edel White®). Mean age was 17.2 ± 1.1 years. A calibrated periodontist performed a periodontal evaluation to assess the presence of plaque with the Turesky Modification of the Quigley Hein Plaque Index (PI) and the gingival inflammation with the Silness & Löe Gingival Index (GI). Adolescents received instructions about the mechanical control of plaque at baseline (T0), with a reexamination after 3 months (T1) and 6 months (T2). There has been PI reduction concerning the study times (T0, T1 and T2, $p<0.05$), but not between the groups A and B ($p>0.05$). As for GI there has been no significant difference between the groups and between the study times ($p>0.05$). Both toothbrushes were efficient in the control of supragingival plaque (visible biofilm). While selecting an effective toothbrush, the bristles are perhaps the most important consideration. As there are so many varieties of brushes currently available and also due to constant development of new brushes, the dental professionals must have a high level of knowledge of these products and advice the patients accordingly. The Colgate 360° sensitive toothbrush is a manual toothbrush providing gentle, proven plaque removal for patients with exposed dentine and/or dentine hypersensitivity.[12] Charcoal toothbrushes remove stains on the teeth, leaving smile looking brighter.

Adatrow says the activated charcoal binds to acidic components from things like coffee, tea, and wine in order to remove the stains they can leave behind.This absorbency also increases your mouth's PH level. Charcoal toothbrushes have been found to have antibacterial properties. In one 2018 study(13) involving 50 patients, individuals were instructed to brush their teeth with both charcoal and standard brushes for 1 week each.Researchers found that the charcoal toothbrushes had fewer bacteria on them than the regular toothbrushes did after 1 week of use, and that the non-charcoal toothbrush retained almost twice the amount of bacteria than the charcoal toothbrushes did. Another study(14) found that charcoal toothbrushes accomplished just that. Twenty-five people were instructed to brush their teeth twice daily after meals with both a nylon brush and a charcoal brush.The charcoal bristles were found to remove more plaque than a regular toothbrush after 6 weeks of use. The charcoal bristles were also less worn than the regular toothbrush at the end of the study.

CONCLUSION

Authors found that Colgate Charcoal tooth brush was better in plaque control compared to Colgate sensitive tooth brush.

REFERENCES

1. Haruaki Hayasaki, Issei Saitoh, Kuniko Nakakura Ohshima, Mika Hanasaki, Yukiko Nogami, Tsutomu Nakajima et al. Tooth brushing for oral prophylaxis. Japanese Dental Science Review 2014; 50:69-77.
2. Hayaski H, et al. Tooth brushing for oral prophylaxis. Jpn Dent Sci Rev. 2014; 50:69-77.
3. Bergenholtz A, Gustafsson LB, Segerlund N, Hagberg C, Ostby N. Role of brushing technique and toothbrush design in plaque removal. Scand J Dent Res. 1984; 92:344-51.
4. Staudt CB, Kinzel S, Haßfeld S, Stein W, Staehle HJ, Dorfer CE. Computer based intraoral image analysis of the clinical plaque removing capacity of 3 manual toothbrushes. J Clin Periodontol. 2001; 28:746-752.
5. Claydon NC. Current concepts in toothbrushing and interdental cleaning. Periodontol. 2000; 2008; 48:10-22.
6. Sharma NC, Qaqish J. A Clinical Evaluation of the Plaque Removal Efficacy of Five Manual Toothbrushes. J Clin Dent 2010; 21:8-12.
7. Nageshwar Iyer, Shalu Chandna, Ashish Loomba. Plaque removal efficacy of Colgate 360 toothbrush: A clinical study. Contemp Clin Dent 2016; 7:317-21.
8. Bhatia A, Bains SK, Singh BV. To assess the effectiveness of a single sub gingival application of chlorhexidine chip in the treatment of chronic Periodontitis: A clinical study J Pharm Biomed Sci. 2012: 20 (2); 1-7.
9. Claydon N, Addy M. Comparative single-use plaque removal by toothbrushes of different designs. J Clin Periodontol. 1996; 23:1112-1116.
10. Sharma NC, Goyal CR, Qaqish JG, Cugini MA, Thompson MC, Warren PR, et al. Single-use plaque removal efficacy of three power toothbrushes. Journal of dent. 2005; 33:11-15.
11. Carvalho MA, Flório FM, Pereira SA, Martin AC, Silveira EJ, Saba-Chujfi E. Efficacy of Two Different Toothbrushes on Plaque Control: A Randomized Clinical

Study. Pesquisa brasileira em odontopediatria e clínica integrada. 2019;19.
12. Muhammad Kashif. Efficacy of tooth brushes of different bristles design in plaque removal. JUMDC. 2015; 6:41-47.
13. Thamke MV, Beldar A, Thakkar P, Murkute S, Ranmare V, Hudwekar A. Comparison of Bacterial Contamination and Antibacterial Efficacy in Bristles of Charcoal Toothbrushes versus Noncharcoal Toothbrushes: A Microbiological Study. Contemp Clin Dent. 2018;9(3):463-467. doi:10.4103/ccd.ccd_309_18
14. Kini V, Yadav S, Rijhwani JA, Farooqui A, Joshi AA, Phad SG. Comparison of Plaque Removal and Wear between Charcoal Infused Bristle and Nylon Bristle Toothbrushes: A Randomized Clinical Crossover Study. J Contemp Dent Pract. 2019 Mar 1;20(3):377-384. PMID: 31204332
15. https://www.healthline.com/health/dental-and-oral-health/do-charcoal-toothbrushes-work