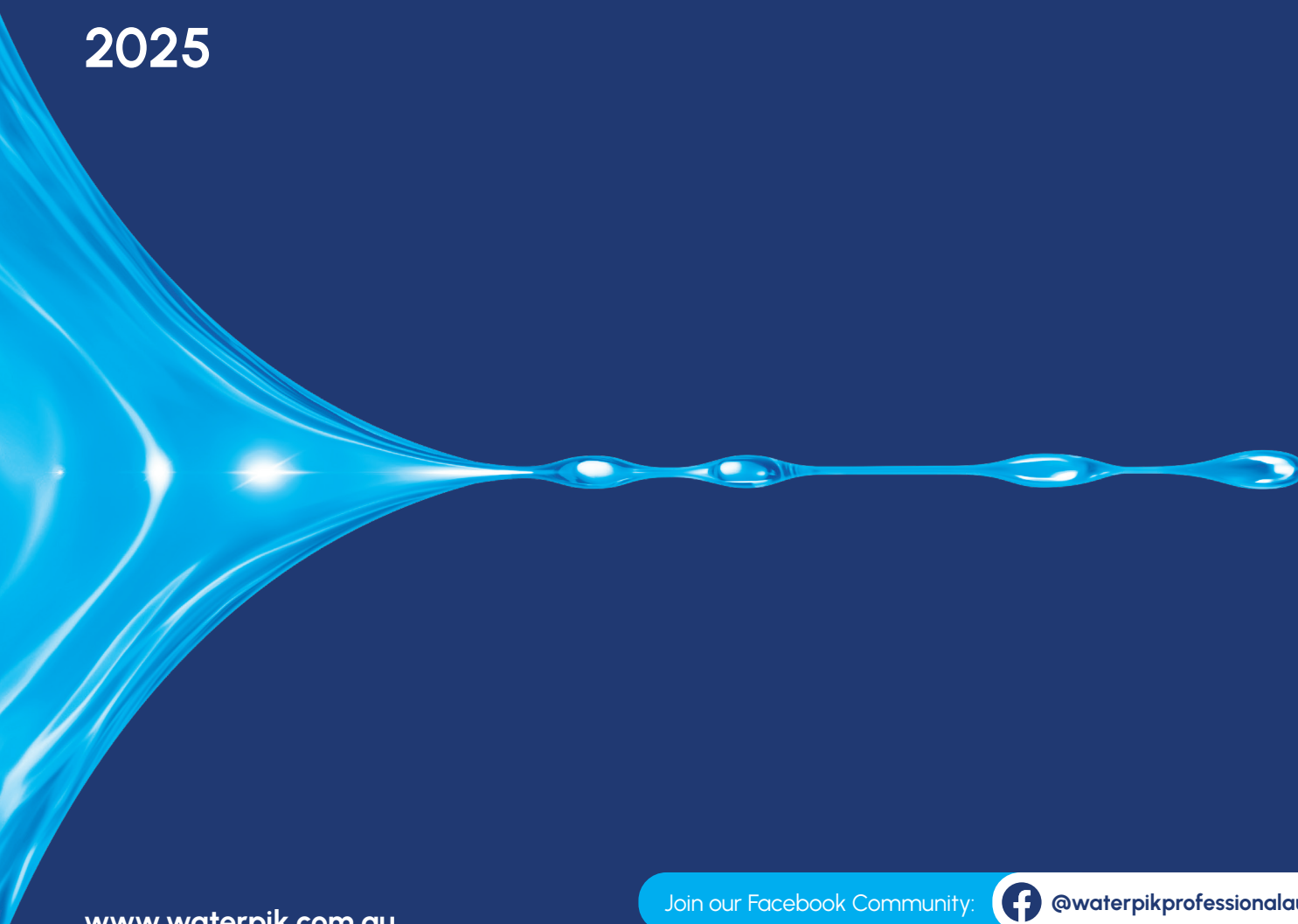




Waterpik™ Clinical Research Summary

2025



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Waterpik™ Water Flosser Removes 99.9% of Plaque Biofilm After 3-Second Treatment

Biofilm Removal with a Dental Water Jet

Gorur A, Lyle DM, Schaudinn C, Costerton JW. *Compend Contin Ed Dent* 2009; 30 (Suppl 1):1-6.
Study conducted at the University of Southern California School of Dentistry, USC Center for Biofilms, Los Angeles, California.

Objective

To evaluate the effect of the Waterpik™ Water Flosser on plaque biofilm removal using scanning electron microscopy (SEM).

Methodology

Eight periodontally involved teeth were extracted. Ten slices were cut from four teeth and were inoculated with saliva and left for four days to further grow plaque biofilm. Four slices were treated with the Classic Jet Tip, four slices were treated with the Orthodontic Tip, and two slices were used as controls. The remaining 4 teeth were treated with the Orthodontic Tip to evaluate the removal of calcified plaque biofilm. All teeth were treated using medium pressure for three seconds and evaluated by SEM.

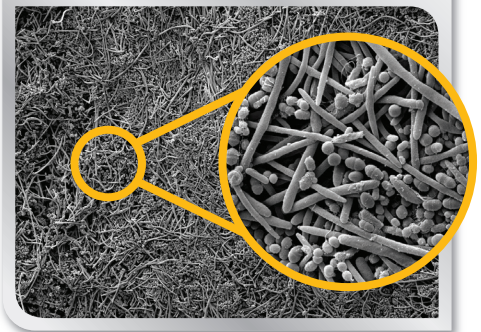
Results

The Classic Jet Tip removed 99.9% and the Orthodontic Tip removed 99.8% of the plaque biofilm from the treated areas after a 3-second exposure as viewed by SEM. The Orthodontic Tip significantly removed the calcified biofilm from the surface of the four teeth as viewed by the naked eye and SEM.

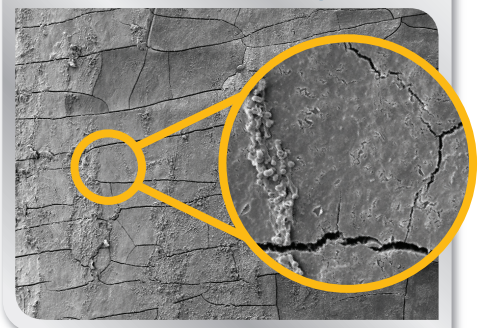
Conclusion

The Waterpik™ Water Flosser significantly removes plaque biofilm.

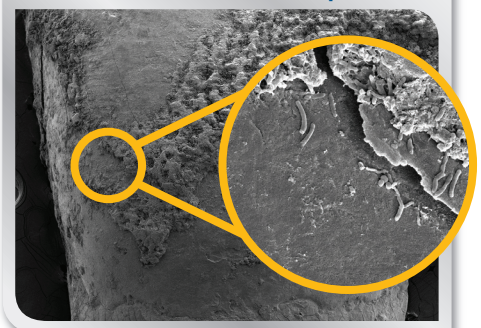
Pre-treatment
Plaque Biofilm



Removal of Plaque Biofilm
with Classic Jet Tip



Removal of Plaque Biofilm
with Orthodontic Tip



Waterpik™ Water Flosser: Significantly More Effective than String Floss for Removing Plaque

Evaluation of the Plaque Removal Efficacy of a Water Flosser Compared to String Floss in Adults After a Single Use

Goyal CR, Lyle DM, Qaqish JG, Schuller R. *J Clin Dent* 2013; 24(2):37–42. Study conducted at BioSci Research Canada, Ltd., Mississauga, Ontario, Canada.

Objective

To compare the plaque removal efficacy of the Waterpik™ Water Flosser to string floss combined with a manual toothbrush.

Methodology

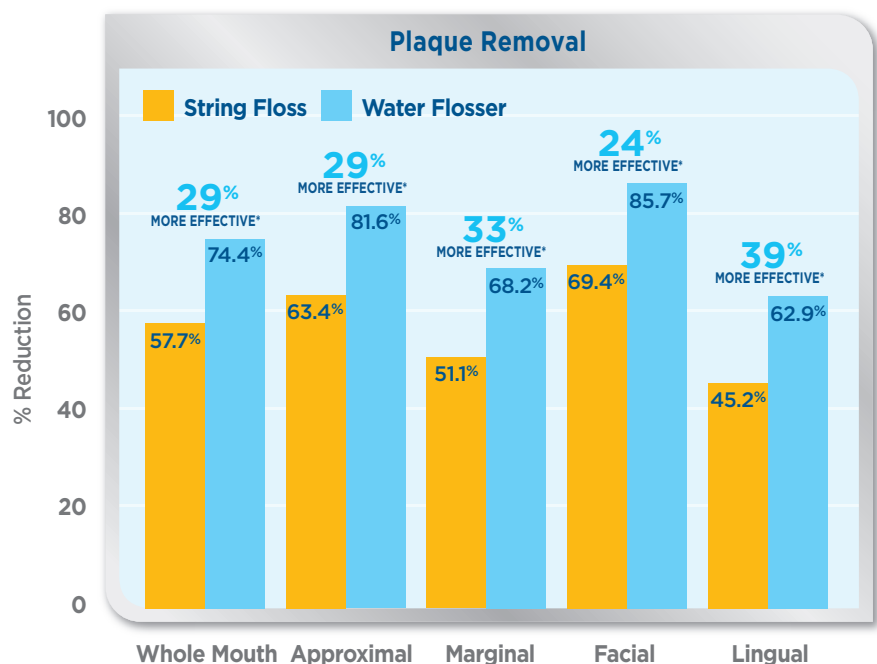
Seventy subjects participated in this randomized, single use, single blind, parallel clinical study. Subjects abstained from any oral hygiene for 23 – 25 hours prior to their appointment. Subjects were screened and assigned to one of two groups: Waterpik™ Water Flosser plus a manual toothbrush, or waxed string floss plus a manual toothbrush. Instructions were provided for each product used. Each participant brushed for 2-minutes using the Bass method. Group 1 used the Water Flosser with 500 ml of warm water and Group 2 used waxed string floss cleaning all areas between the teeth. Subjects were observed to make sure they covered all areas and followed instructions. Scores were recorded for whole mouth, marginal, approximal, facial, and lingual regions for each subject using the Rustogi Modification Navy Plaque Index.

Results

The Waterpik™ Water Flosser was 29% more effective than string floss for overall plaque removal, 29% for approximal surfaces, and 33% for marginal surfaces.

Conclusion

The Waterpik™ Water Flosser is significantly more effective than string floss in removing plaque for all tooth surfaces.



*Statistically significant difference

Waterpik™ Water Flosser: Over 50% More Effective than String Floss for Reducing Gingivitis

Comparison of Irrigation to Floss as an Adjunct to Toothbrushing: Effect on Bleeding, Gingivitis and Supragingival Plaque

Barnes CM, Russell CM, Reinhardt RA et al. *J Clin Dent*, 2005; 16(3): 71-77. Study conducted at the University of Nebraska Medical Center, College of Dentistry, Lincoln, Nebraska.

Objective

To evaluate the ability of a Waterpik™ Water Flosser paired with either a power or manual toothbrush, and a manual toothbrush and floss, to reduce gingivitis, bleeding and supragingival plaque biofilm.

Methodology

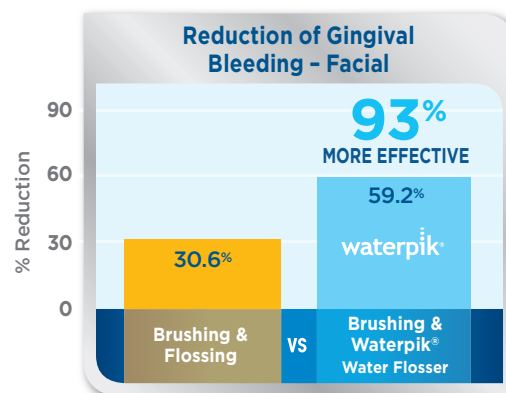
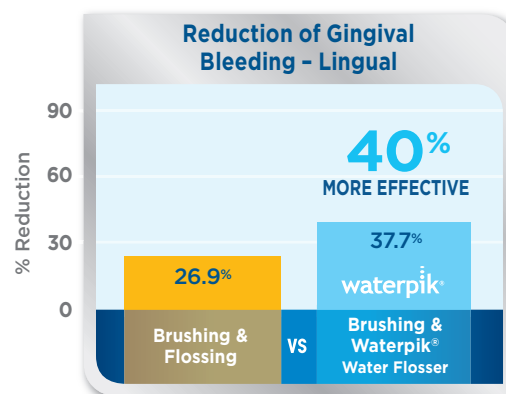
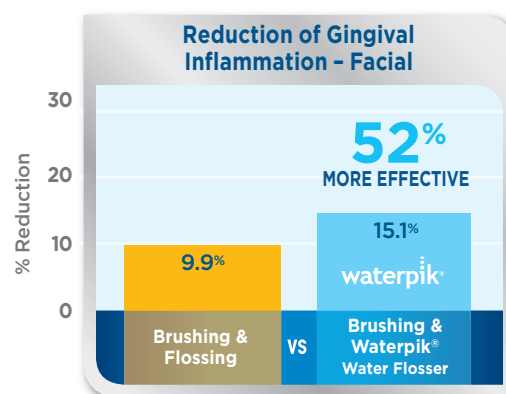
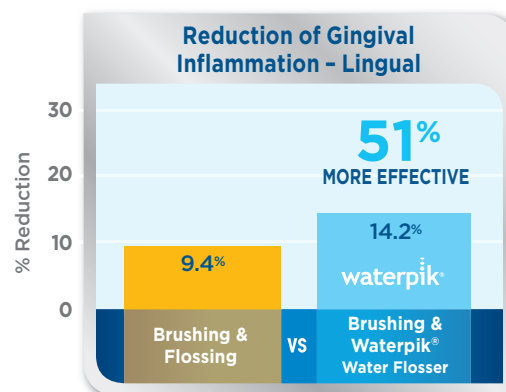
One hundred five subjects participated in this four-week study. One group used a Waterpik™ Water Flosser with a manual toothbrush and a second used the Waterpik™ Water Flosser with a power toothbrush. The control group used a manual toothbrush and floss. Subjects brushed twice daily and used either the Water Flosser or dental floss once daily. Plaque biofilm, bleeding, and gingivitis were evaluated at two and four weeks.

Results

At 4 weeks, the addition of a Water Flosser resulted in significantly better oral health, regardless of toothbrush type used over manual brushing and flossing. Adding the Waterpik™ Water Flosser was up to 93% better in reducing bleeding and up to 52% better at reducing gingivitis than traditional dental floss.

Conclusion

The Waterpik™ Water Flosser is an effective alternative to traditional dental floss for reducing gingivitis.



Waterpik™ Water Flosser: Twice as Effective as String Floss for Reducing Gingival Bleeding

The Effect of Different Interdental Cleaning Devices on Gingival Bleeding

Rosema NAM, et al. *J Int Acad Periodontol* 2011; 13(1):2-10.
Study conducted at the University of Amsterdam, Academic Center for Dentistry, Amsterdam.

Objective

To evaluate the efficacy of a manual toothbrush plus a Water Flosser versus a manual toothbrush plus traditional floss, to reduce gingival bleeding and plaque biofilm.

Methodology

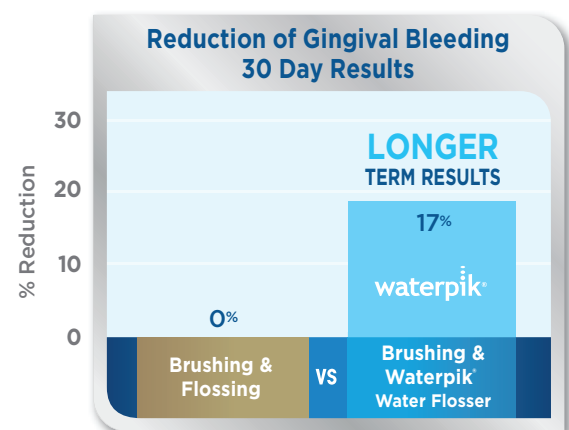
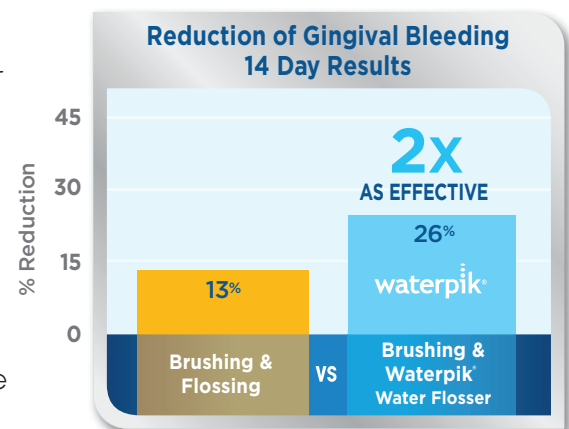
One hundred four subjects participated in this 30-day, randomized, single blind study. Group A used a Waterpik™ Water Flosser with the Classic Jet Tip plus a manual toothbrush, Group B used a Waterpik™ Water Flosser with the Plaque Seeker™ Tip plus a manual toothbrush and Group C used waxed string floss plus a manual toothbrush. Subjects brushed twice daily and used either the Water Flosser or floss once daily in the evening. Gingival bleeding and plaque biofilm were evaluated at day 14 and day 30.

Results

After 14 days, used in conjunction with manual toothbrushing, the Waterpik™ Water Flosser with the Classic Jet Tip was twice as effective as traditional floss at reducing gingival bleeding. At 30 days, the relative improvement in gingival bleeding for the Water Flosser groups was even more dramatic. There were no significant differences between the Water Flosser Classic Jet Tip and the Plaque Seeker™ Tip.

Conclusion

The Waterpik™ Water Flosser is a more effective alternative to traditional dental floss for reducing gingival bleeding and improving oral health.



Classic Jet Tip Data

Waterpik™ Water Flosser: 80% More Effective than Sonicare® Air Floss for Reducing Gingivitis

Comparison of Two Power Interdental Cleaning Devices on the Reduction of Gingivitis

Sharma NC, Lyle DM, Qaqish JG, Schuller R. *J Clin Dent* 2012; 23(1): 22-26.
Study conducted at BioSci Research Canada, Ltd., Mississauga, Ontario, Canada.

Objective

To compare the Waterpik™ Water Flosser to the Sonicare® Air Floss (Model HX8181) for the reduction of gingivitis and plaque biofilm over a 4 week period.

Methodology

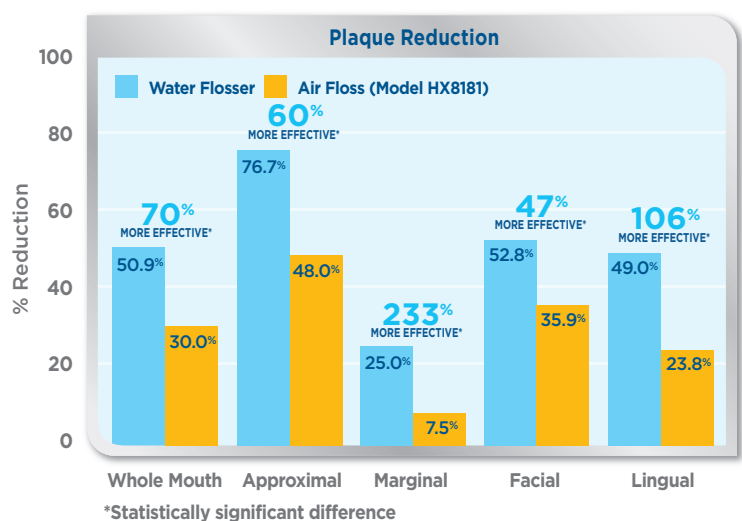
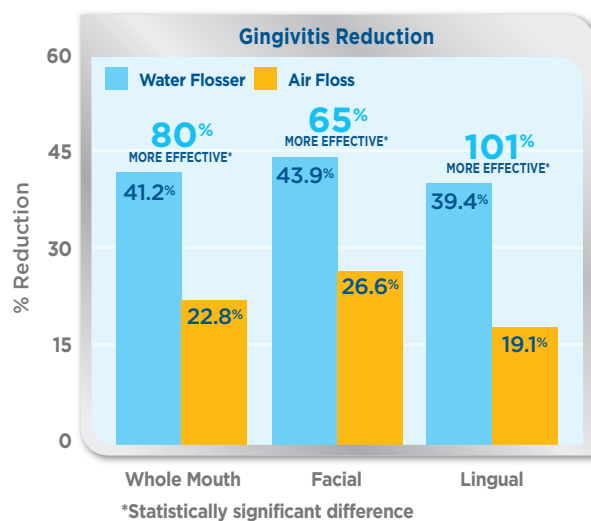
Eighty-two subjects participated in this 4 week, randomized, single blind, clinical study. Subjects were assigned to one of two groups: Waterpik™ Water Flosser plus a manual toothbrush; or Sonicare® Air Floss plus a manual toothbrush. Subjects were instructed on the proper use of the interdental cleaning devices based on manufacturer's directions. Instructions on the Bass method of toothbrushing were also provided. Gingivitis scores were recorded for whole mouth, facial, and lingual using the Modified Gingival Index. Plaque scores were recorded for whole mouth, facial, lingual, marginal, and approximal regions using the Rustogi Modification of the Navy Plaque Index.

Results

The Waterpik™ Water Flosser was significantly more effective than Sonicare® Air Floss at reducing plaque and gingivitis for all areas measured after 4 weeks of use. The Water Flosser was 80% more effective than Air Floss for overall gingivitis reduction, and was 70% more effective for plaque reduction. Notably, the Water Flosser was twice as effective for plaque removal from lingual surfaces and more than 3 times as effective at the gingival margin vs. Air Floss.

Conclusion

The Waterpik™ Water Flosser is significantly more effective than Sonicare® Air Floss (Model HX8181) for reducing gingivitis and plaque.



Waterpik™ Water Flosser: 3X as Effective as String Floss for Orthodontic Patients

The Effect of a Dental Water Jet with Orthodontic Tip on Plaque and Bleeding in Adolescent Orthodontic Patients with Fixed Orthodontic Appliances

Sharma NC, Lyle DM, Qaqish JG et al. *Am J Orthod Dentofacial Orthop* 2008; 133(4): 565-571. Study conducted at BioSci Research Canada, Ltd., Mississauga, Ontario, Canada.

Objective

To compare the use of a manual toothbrush and the Waterpik™ Water Flosser with the Orthodontic Tip to manual toothbrushing and flossing with a floss threader on bleeding and plaque biofilm reductions in adolescents with fixed orthodontic appliances. A control group consisted of brushing only.

Methodology

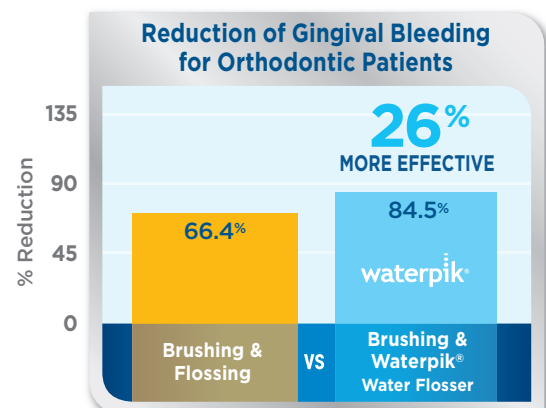
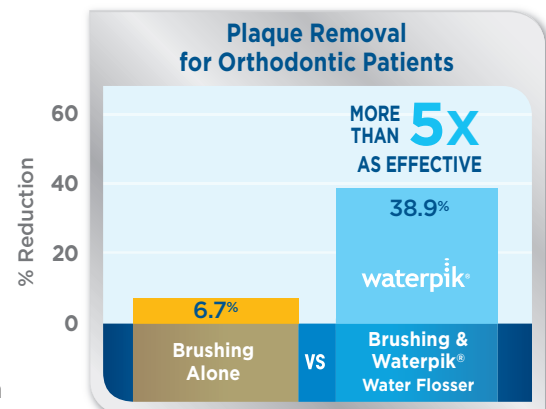
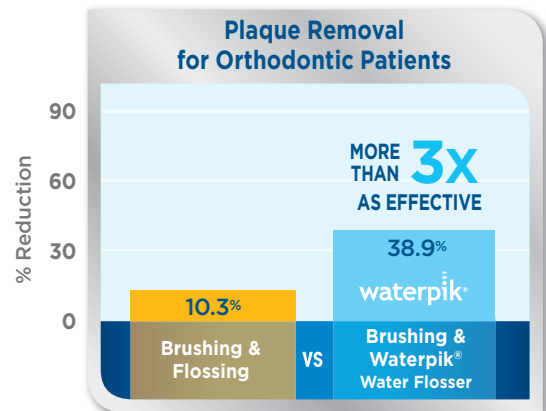
One hundred five adolescents with fixed orthodontics participated in this single-center, randomized study. Bleeding and plaque biofilm scores were collected at baseline and days 14 and 28.

Results

The Waterpik™ Water Flosser was over 3 times more effective than flossing and over 5 times more effective than brushing alone for the reduction of plaque biofilm. For bleeding, the Water Flosser was 26% better than flossing and 53% better than brushing alone.

Conclusion

Adding a Waterpik™ Water Flosser with the Orthodontic Tip to manual toothbrushing is significantly more effective at improving oral health in adolescent orthodontic patients than adding manual floss or brushing only.



Four-week data
Orthodontic Tip data

The Waterpik™ Water Flosser: Significantly more effective than interdental brushes for removing plaque.

Comparison of Water Flosser and Interdental Brush on Plaque Removal: A Single-Use Pilot Study.

Lyle DM, Goyal CR, Qaqish JG, Schuller R. J Clin Dent 2016; 27: 23-26.

Objective

To determine the efficacy of a Waterpik™ Water Flosser vs. interdental brushes for plaque removal.

Methodology

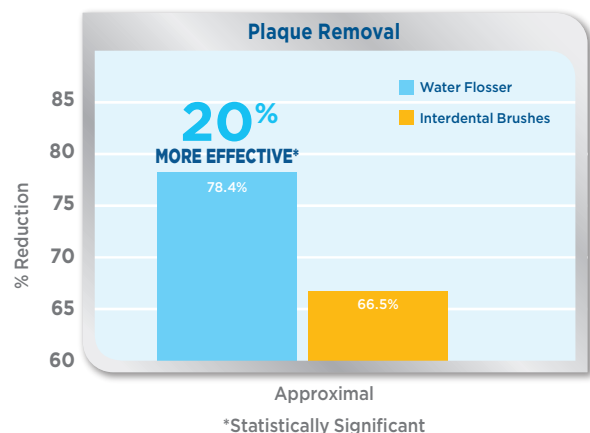
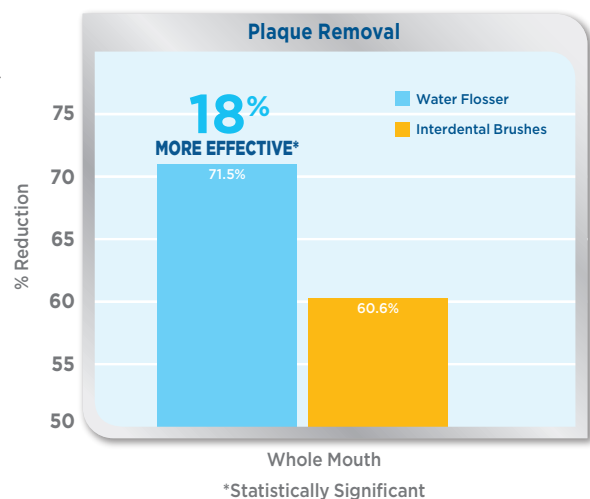
Twenty-eight (28) subjects completed this one-time use study. Subjects were randomly assigned to one of two groups: Waterpik™ Water Flosser (WF) plus manual tooth brushing or interdental brushes (IDB) plus manual tooth brushing. Plaque scores were obtained using the Rustogi Modification of the Navy Plaque Index (RMNPI). Subjects were instructed on the use of their interdental product. Post-cleaning scores were obtained after a supervised brushing and use of the interdental device. Scores were recorded for whole mouth, marginal, approximal, facial, and lingual regions for each subject.

Results

The WF group was significantly more effective than the IDB group for removing plaque from all areas measured. Specifically, the WF was 18% more effective for whole mouth and marginal areas, 20% for approximal areas, 11% for facial areas, and 29% for lingual areas.

Conclusion

The Waterpik™ Water Flosser and manual toothbrush removes significantly more plaque from tooth surfaces than interdental brushes and a manual toothbrush after a single use.



The Waterpik™ Water Flosser: Significantly more effective than interdental brushes for improving gingival health!

Comparison of Water Flosser and Interdental Brush on Reduction of Gingival Bleeding and Plaque: A Randomized Controlled Pilot Study.

Goyal CR, Lyle DM, Qaqish JG, Schuller R. J Clin Dent 2016; 27: 61-65.

Objective

To determine the efficacy of a Waterpik™ Water Flosser vs. interdental brushes for plaque and gingivitis reduction.

Methodology

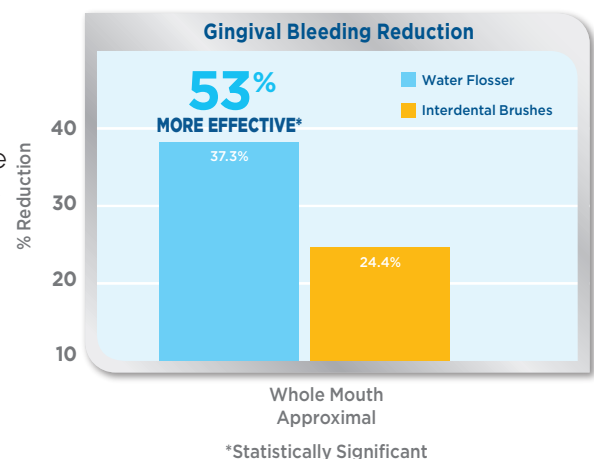
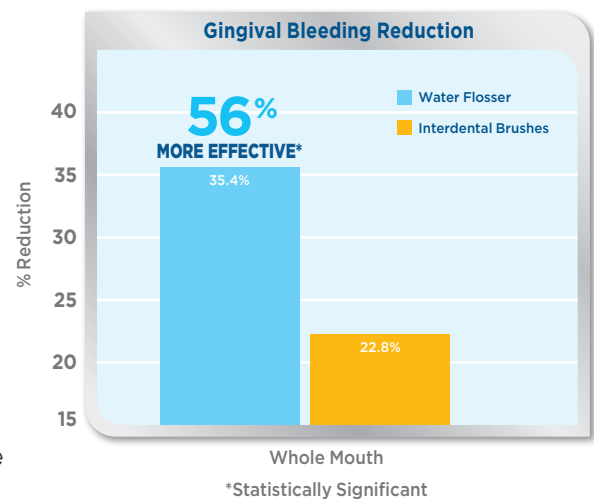
Twenty-eight subjects completed this 2-week study. Subjects were assigned to one of two groups: the Waterpik™ Water Flosser (WF) plus a manual toothbrush or interdental brushes (IDBs) plus a manual toothbrush. Gingival health was evaluated by measuring bleeding on probing (BOP) at six sites per tooth. Plaque removal was measured using the Rustogi Modification of the Navy Plaque Index (RMNPI).

Results

The Waterpik™ Water Flosser was significantly more effective than the interdental brushes for reducing gingival bleeding. Notably, the Water Flosser was 56% more effective for reducing whole mouth bleeding, and 53% more effective for reducing whole mouth approximal bleeding.

Conclusion

The Waterpik™ Water Flosser is significantly more effective than interdental brushes for improving gingival health.



Waterpik™ Water Flosser: 2X as Effective as String Floss For Implant Patients

Comparison of the Effect of Two Interdental Cleaning Devices Around Implants on the Reduction of Bleeding: A 30-day Randomized Clinical Trial

Magnuson B, Harsono M, Stark PC, et al. *Compend Contin Ed Dent* 2013; 34(Special Issue 8):2-7. Study conducted at Tufts University, School of Dental Medicine, Boston, Massachusetts.

Objective

To compare the efficacy of a Waterpik™ Water Flosser to string floss for implant patients.

Methods

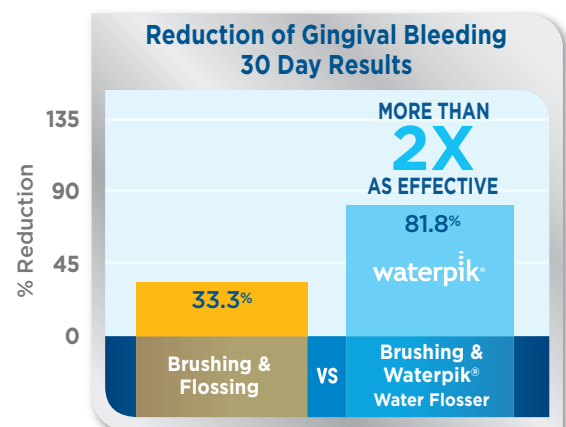
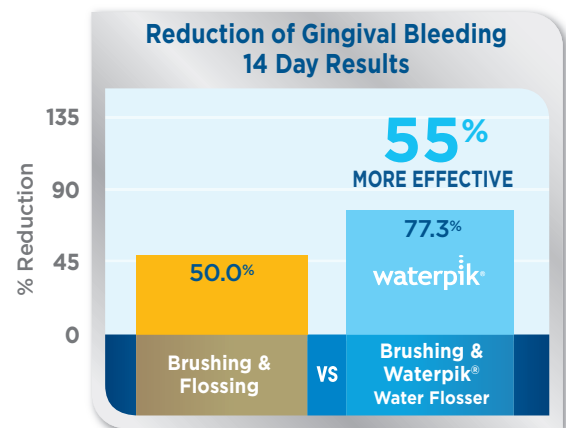
Subjects were randomized into two groups; Group 1 used a manual toothbrush and a Waterpik™ Water Flosser with the Plaque Seeker™ Tip (WF) and Group 2 used a manual toothbrush and string floss (SF). There were 22 implants in each group and the primary outcome was the reduction in the incidence of bleeding on probing. Subjects brushed twice a day and used either the WF or SF once a day.

Results

There were no differences between the groups at baseline. At 30 days, 18 of the 22 (81.8%) implants in the WF group showed a significant reduction in BOP compared to 6 of the 18 (33.3%) from the floss group. The WF group experienced 145% better reduction in gingival bleeding around implants vs. the string floss group ($p=0.0018$).

Conclusion

The Waterpik™ Water Flosser is significantly more effective than string floss for improving gingival health around implants and is safe to use.



Waterpik™ Water Flosser: Significant Reduction in Plaque Biofilm, Gingivitis, and Bleeding for Patients with Diabetes

Comparative Evaluation of Adjunctive Oral Irrigation in Diabetics

Al-Mubarak S, Ciancio S, Aljada A, et al. *J Clin Periodontol* 2002; 29:295-300. Study conducted at the University of Buffalo, School of Dental Medicine.

Objective

To compare the addition of the Waterpik™ Water Flosser with the Pik Pocket™ subgingival irrigation tip to routine oral hygiene on the periodontal health of people with diabetes.

Methodology

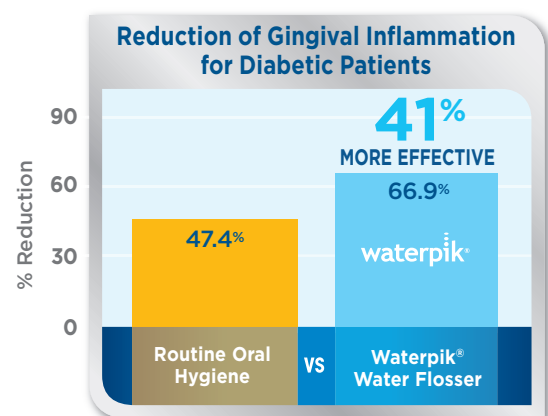
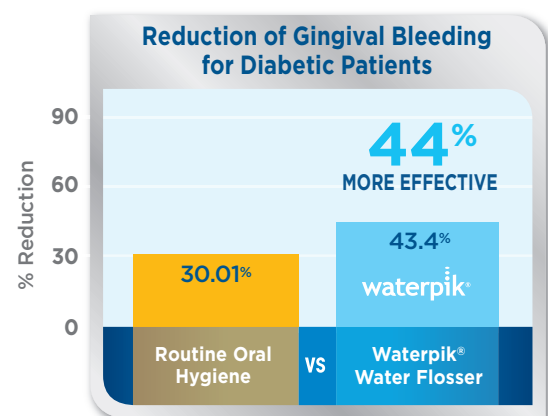
52 subjects with periodontal disease and either type 1 or type 2 diabetes participated in this 3-month randomized clinical trial. All subjects had scaling and root planing at baseline then were assigned to either add a Waterpik™ Water Flosser with the Pik Pocket™ Tip twice daily to their oral hygiene routine or to continue practicing their regular oral hygiene routine. Periodontal health was measured via clinical and metabolic parameters.

Results

Adding the Waterpik™ Water Flosser was superior to normal oral hygiene in reducing the traditional measures of periodontal disease: plaque biofilm, gingivitis, and bleeding on probing. The Water Flosser also reduced the serum levels of pro-inflammatory cytokines IL-1 β and PGE2, as well as the level of reactive oxygen species, a bacteria and host-mediated pathway for tissue destruction implicated in the pathogenesis of over 100 conditions.

Conclusion

The Waterpik™ Water Flosser provides significant periodontal health benefits, both clinically and biologically for people with diabetes.



Waterpik™ Water Flosser: Unequivocally Proven Safe in Clinical Studies

Safety of a Water Flosser: A Literature Review

Jolkovsky DL, Lyle DM. *Compendium of Continuing Education in Dentistry* 2015; 36(2):2-5.

Objective

Since the introduction of the first Waterpik™ Water Flosser in 1962, over 60 clinical trials have been published. Collectively, the studies demonstrate significant plaque removal, reduction of gingival bleeding, and reversal of inflammation (gingivitis). The majority of the studies are randomized controlled trials and published in peer-reviewed journals providing the reader with the best evidence to make informed clinical decisions. This literature review was designed specifically to address the safety of a Water Flosser.

Methodology

This review was divided into four sections: histological findings, subgingival pathogens, probing pocket depth and clinical attachment levels, and bacteremia.

Results

- **Histological findings:** Studies showed a significant reduction in inflammation on the cellular level compared to non-treated sites which showed varying levels of inflammation. This confirms that a Water Flosser is safe for the periodontal pocket tissue.
- **Subgingival pathogens:** Studies show significant removal of subgingival pathogens, even in deep pockets, with the use of a Water Flosser. This was not generally seen in non-Water Flosser sites. This addresses the concern that bacteria might be driven deeper into pockets.
- **Pocket depths and clinical attachment levels:** Studies show a significant improvement in probing pocket depth and clinical attachment levels or no change. These studies address the concern that a Water Flosser might break the epithelial attachment.
- **Bacteremia:** Research shows the incidence of bacteremia is the same for tooth brushing, flossing, wood sticks, water flossing and mastication.

Conclusion

This evidence addresses potential safety concerns associated with water flossing. It is important to make clinical decisions on the best evidence available versus anecdotal information or assumptions. This will help dental professionals provide the best recommendations for their patients that ultimately provide the best oral health outcomes.

Waterpik™ Water Flosser: An Effective Alternative to Subgingival Antibiotic Treatment for Periodontal Maintenance Patients

Periodontal Maintenance Following Scaling and Root Planing, Comparing Minocycline Treatment to Daily Oral Irrigation with Water

Genovesi AM, Lorenzi C, Lyle DM et al. *Minerva Stomatol* 2013; 62(Suppl. 1 to NO. 12):1-9. Study conducted at the Tuscan Stomatologic Institute, Department of Dentistry, Versilia General Hospital, Lido di Camaiore (LU), Italy.

Objective

Assess the efficacy of daily Water Flossing in comparison to subgingival minocycline treatment for subjects with moderate to severe periodontitis.

Methodology

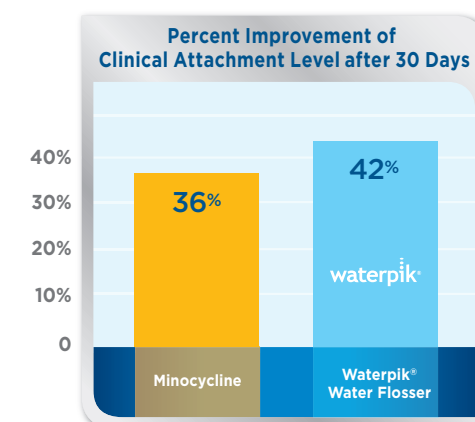
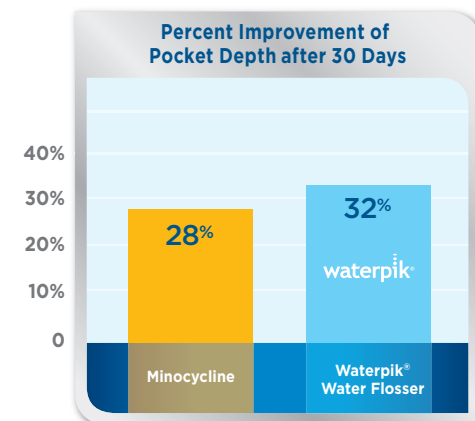
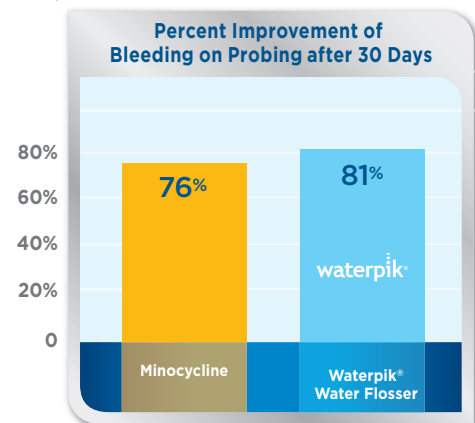
In this single-center, parallel, single blind, randomized clinical study, thirty subjects with moderate to severe periodontitis were placed into a minocycline-treated group or a Water Flossing group. Scaling and root planing was carried out, and both groups received instruction on proper home-based oral hygiene. One group was administered minocycline inside their deepest periodontal pockets at the initial hygiene visit. The second group was instructed to use a Waterpik™ Water Flosser once a day. Clinical and microbiological parameters were measured at baseline and repeated after 30 days.

Results

Both the Waterpik™ Water Flosser and minocycline treatment groups experienced a significant reduction in all clinical parameters tested at 30 days. The Water Flosser group reduced bleeding 81% v. 76% for the minocycline group. Moreover, both procedures effectively reduced the typical parameters of periodontitis (bleeding on probing, pocket depth, and clinical attachment levels). Differences between the two therapies were not statistically significant for clinical parameters or bacterial suppression.

Conclusion

The Waterpik™ Water Flosser is an effective alternative to subgingival antibiotics for periodontal maintenance patients over a 30 day period.



Waterpik™ Complete Care: 70% More Effective than Sonicare® FlexCare for Reducing Gingival Bleeding

The Addition of a Water Flosser to Power Toothbrushing: Effect on Bleeding, Gingivitis, and Plaque

Goyal CR, Lyle DM, Qaqish JG, Schuller R. *J Clin Dent* 2012; 23:57-63.
Study conducted at BioSci Research Canada, Ltd., Mississauga, Ontario, Canada.

Objective

To compare the efficacy of Waterpik™ Complete Care (Water Flosser and Sonic Toothbrush) vs. Sonicare® FlexCare on gingival bleeding, gingivitis and plaque removal.

Methodology

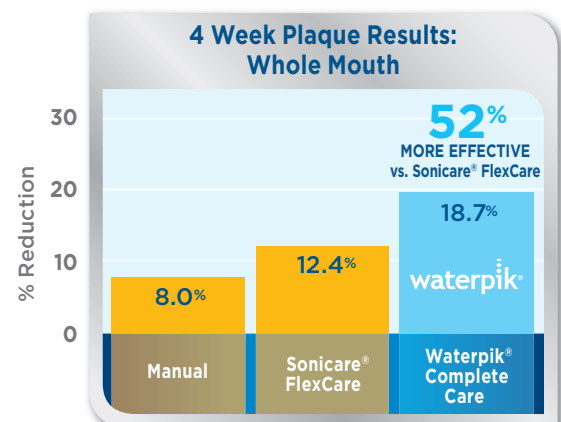
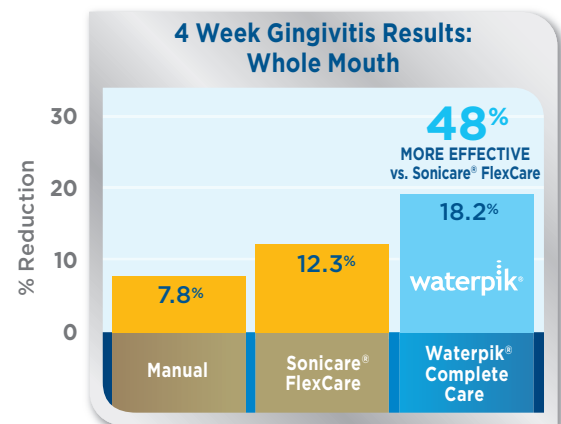
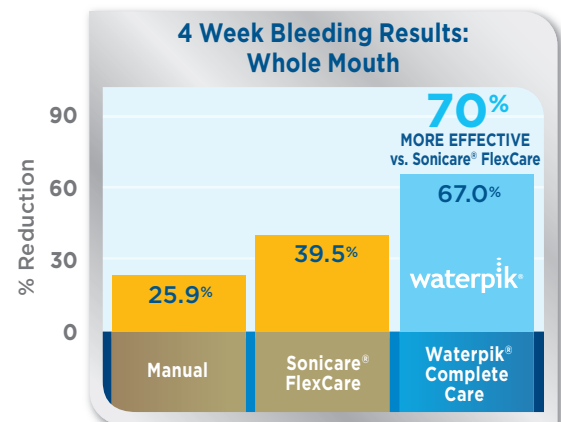
One hundred and forty subjects were enrolled in this 4 week, randomized, single blind, clinical study. Subjects were assigned to one of four groups: Group 1 used a Waterpik™ Complete Care — combination Water Flosser and Sonic Toothbrush, Group 2 used a Waterpik™ Sonic Toothbrush only, Group 3 used a Sonicare® FlexCare only, and Group 4 used an ADA standard manual toothbrush. Bleeding on Probing (BOP), Modified Gingival Index (MGI) and Rustogi Modified Navy Plaque Index (RMNPI) were measured at 14 days and 28 days.

Results

At 4 weeks, Waterpik™ Complete Care was significantly more effective than Sonicare® FlexCare on all measures; 70% better for gingival bleeding, 48% better for gingivitis, and 52% better for plaque removal. At 4 weeks, Waterpik™ Complete Care was also significantly more effective than a manual toothbrush on all measures; 159% better for gingival bleeding; 135% better for gingivitis, and 134% better for plaque removal.

Conclusion

The Waterpik™ Complete Care regimen is up to 70% more effective than Sonicare® FlexCare and up to 159% more effective than a manual toothbrush for improving gingival health.



Waterpik™ Triple Sonic Toothbrush: 9X As Much Stain Removal As A Regular Toothbrush.

Milleman JL, Milleman KR, Battershell K, Schuller R, Lyle DM. Study conducted at Salus Research, Fort Wayne, IN. 2016.

Objective

To determine the effectiveness of the Waterpik™ Triple Sonic Toothbrush compared to a manual toothbrush on stain removal over 2-weeks.

Methodology

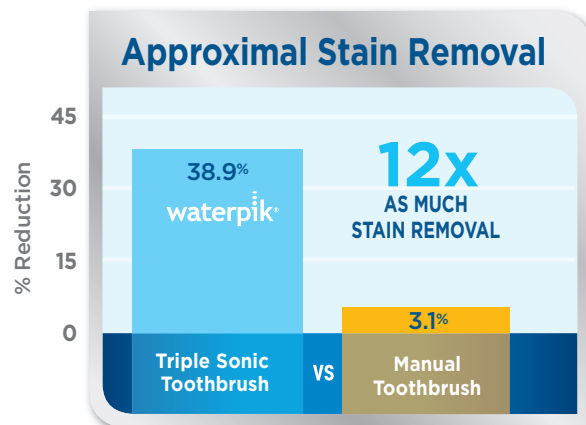
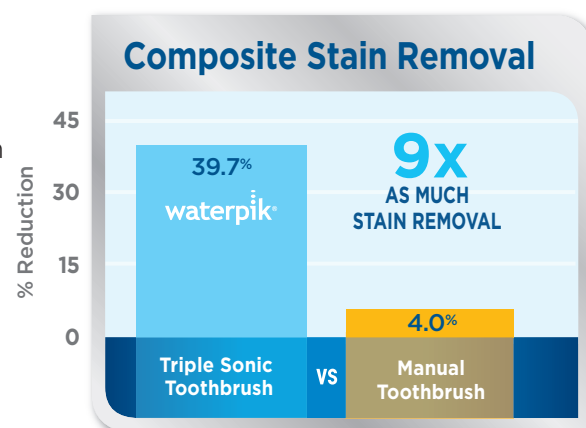
Forty healthy adult subjects who met the inclusion criteria were randomized into two groups in this parallel, single-blind clinical trial. Extrinsic tooth stains were scored at baseline and 2-weeks by an experienced examiner using the MacPherson modification of the Lobene Stain Index (MLSI).

Results

All subjects completed the study and there were no adverse events reported. The Triple Sonic toothbrush removed 39.7% ($p < 0.001$) of overall stain compared to 4.0% ($p = 0.251$) for the manual toothbrush. The Triple Sonic removed 38.9% ($p < 0.001$) of approximal stain (M and D) compared to 3.1% for the manual toothbrush ($p = 0.349$). Differences between the groups for composite stain and approximal scores were statistically significant in favor of the Triple Sonic Toothbrush.

Conclusion

The Waterpik™ Triple Sonic Toothbrush removed 9 times as much stain overall and 12 times as much approximal stain compared to the manual toothbrush.



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