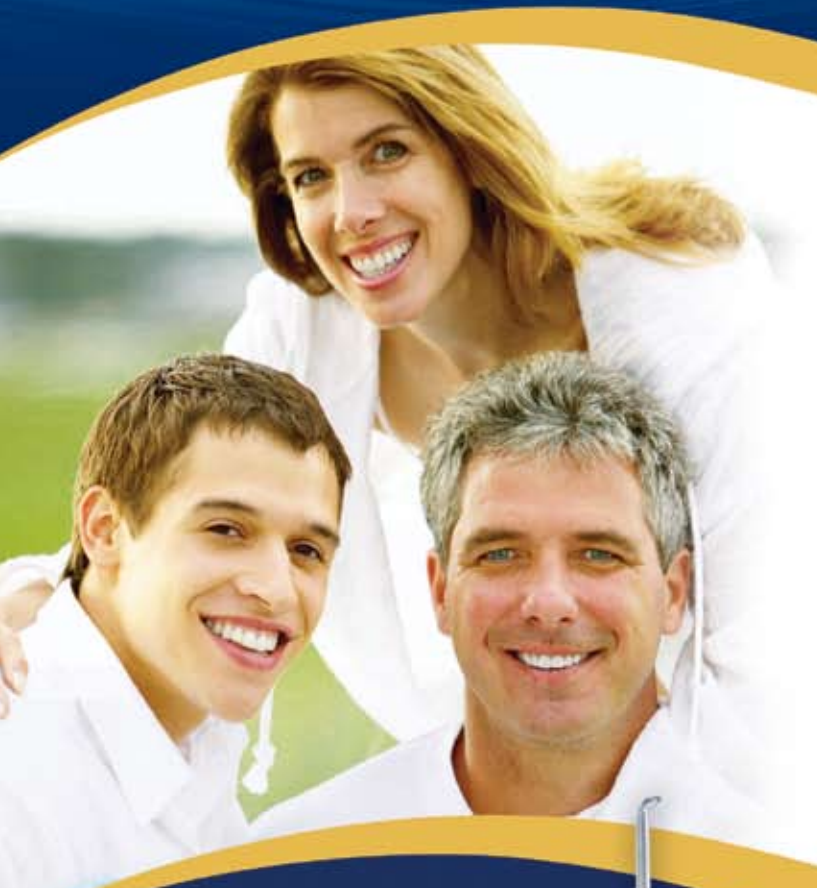


waterpik®



The Dental Water Jet:

THE KEY TO OPTIMAL
ORAL HEALTH



Disclosure Statement:

- This course was designed, developed and produced by Water Pik, Inc.
- Water Pik, Inc. manufactures and distributes products addressed in this course

Course Objective:

To provide the learner with a comprehensive review of the research, which will enable the healthcare provider to recommend, educate and instruct individuals in the use of a dental water jet

Learning Outcomes:

- Identify the target of irrigation
- Distinguish depth of delivery between the jet tip and Pik Pocket® subgingival irrigation tip
- List the clinical parameters reduced by the dental water jet
- Discuss the effect the dental water jet has on infection and inflammation
- Compare the use of the dental water jet to dental floss
- Evaluate solutions/agents for use in a dental water jet
- Understand the benefits of a dental water jet for individuals with gingivitis, periodontitis, implants, diabetes, orthodontics
- Instruct individuals in the use of the dental water jet
- Recommend the dental water jet to appropriate individuals including when to implement the Pik Pocket® tip

INTRODUCTION

Dr. Gerald Moyer, a dentist, and John Mattingly, an engineer, introduced the first dental water jet, called the Octopus in 1962. Since that time, professional opinion on the benefits of using a dental water jet has fluctuated but the research has always been consistently positive. The dental water jet has demonstrated the ability to reduce inflammation and bleeding in some cases better than what can be achieved with normal brushing and flossing.¹⁻⁵

MECHANISM OF ACTION

The dental water jet works through the direct application of a pulsed stream of water or other solution. Studies by Bhaskar et al and Selting et al have found pulsation and pressure to be critical components of a dental water jet. Pulsating devices have been shown to be three times as effective as continuous stream syringe-type devices.⁶ Pulsation provides for a compression and decompression phase that allows for expedient clearing of bacteria from the pocket. A pulsating device also allows for control of the pressure rate.⁷ A medium to a high setting (50 psi - 90 psi) has been shown to be the most effective.^{6,7,8}

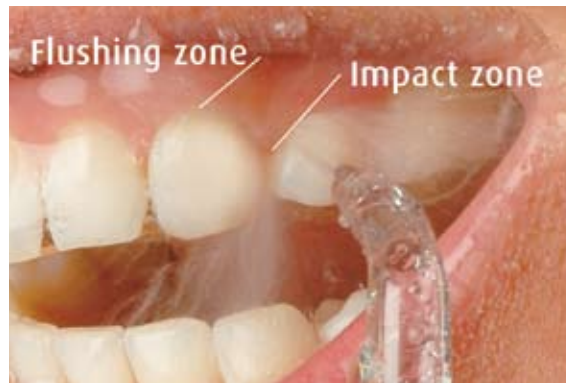


Figure 1: The flushing and impact zones

This pulsation creates two zones of hydrokinetic activity.⁹ See Figure 1.

- The impact zone – where the solution initially contacts in the mouth
- The flushing zone – the subgingival sulcus area where the solution reaches

The outcome of hydrokinetic activity is subgingival penetration. A dental water jet always produces subgingival penetration regardless of the type of tip or attachment used.^{10,11} The lavage action produced causes both quantitative and qualitative changes in the microbial flora by diluting and disrupting the bacterial plaque (also called biofilm).⁹ Because each tip delivers an agent subgingivally,^{10,11} the dental water jet is capable of accessing and targeting the loosely attached biofilm. See Figure 2. This is critical because the loosely attached biofilm contains:¹²

- A high concentration of endotoxins called lipopolysaccharides - LPS
- A large number of white blood cells called polymorphonuclear leukocytes - PMNs
- A high percentage of gram negative bacteria - most pathogenic

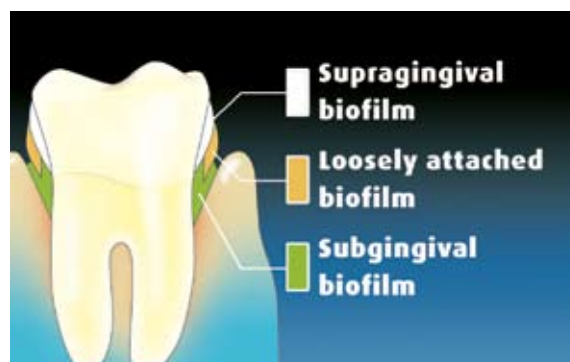


Figure 2: Different biofilm layers

DEPTH OF DELIVERY

Evidence seems to indicate that the dental water jet has the greatest potential for subgingival access into the periodontal pocket.^{10,11,13} Studies documenting subgingival access *in-vivo* for toothbrushing and flossing are limited. The ability of a sonic toothbrush to have an effect on bacteria subgingivally has been tested only in the laboratory setting and has not been proven definitively *in-vivo*.^{14,15,16} One clinical trial by Williams et al compared the disruption of plaque and bacteria from a sonic and a manual toothbrush after 15 seconds of brushing time and found both removed plaque and microbes up to 1 mm.¹⁷

The use of a standard jet tip on the dental water jet is called supragingival irrigation. It is accomplished by the tip on the left in Figure 3. The point of delivery is at or coronal to the gingival margin resulting in penetration of a solution into the subgingival sulcus to approximately 50%.¹⁰ Specifically Eackle found that penetration was 71% for shallow (0-3 mm) pockets, 44% for moderate (4-7 mm) pockets, and 68% for deep (>7 mm) pockets. However, in 60% of deep sites, penetration was 75% or greater.¹⁰



Figure 3: The Jet Tip, Pik Pocket® Tip, and Cannula

The use of a site specific tip on a dental water jet is called subgingival irrigation. Subgingival irrigation is the intentional, localized delivery to a specific site such as a deep pocket, furcation, implant, or crown and bridge. It is located in the center of Figure 3. The delivery device discussed in this course for this procedure is a soft, flexible rubber tip called the Pik Pocket® subgingival irrigation tip. The Pik Pocket® tip has been demonstrated via a clinical trial to deliver a solution into the pocket up to 90% of its depth in pockets 6 mm or less. For pockets 7 mm or greater, depth of penetration is 64%.¹¹

On the right in Figure 3, you will see a cannula. Although use of a cannula is sometimes recommended, its safety and efficacy for home use on a dental water jet has not been extensively evaluated. It is important to remember that regardless of the tip attachment or placement, irrigation with a dental water jet always results in subgingival penetration to control the subgingival microflora and byproducts of the immuno-inflammatory process.^{3,4,9,18,19,20,21,22}

PRODUCT SAFETY

There are numerous dental water jet devices in today's marketplace. The Waterpik® dental water jet has been extensively evaluated for product safety. The more than forty-five studies conducted in twenty-five university and independent research facilities provide a well-documented profile on the safety of the Waterpik® dental water jet.

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Soft Tissue

In a study designed to specifically look at safety for soft tissue, researchers examined untreated, chronic periodontal pockets immediately following irrigation with the Waterpik® dental water jet. Examination of specimens under a scanning electron microscope showed no observable differences between the irrigated and non-irrigated specimens concerning epithelial topography, cavitations, microulcerations, spatial relationships and individual cell appearance.⁹ The investigators concluded that the Waterpik® dental water jet is not injurious to soft tissue.⁹ This concurs with early work by Krajewski et al who found less inflammation, better connective tissue organization and an increased thickness in the keratin layer in individuals who used a dental water jet twice daily compared to those who did not.²³

Penetration of Bacteria

Various researchers have looked at the issue of whether the dental water jet can cause deeper penetration of bacteria into the pocket. Both Manhold et al and O'Leary et al stained tissue with ink and evaluated for penetration of carbon particles. In each instance there was some penetration of carbon into the crevicular epithelium. However, each found mitigating circumstances to question the results. O'Leary et al found that penetration was not influenced by water pressure,²⁴ and Manhold et al found that non-irrigated areas also had carbon penetration leading to speculation that the knife blade caused particle penetration during the biopsy.²⁵ Other researchers have found that a dental water jet reduces the amount of bacteria in the gingival crevice.^{9,18,19,20,21,22,26} Specifically, Cobb et al and Drisko et al found that bacteria was reduced up to 6 mm.^{9,26}

Bacteremia

There is no clear answer regarding the advisability of recommending a dental water jet to an individual at-risk for infective endocarditis.²⁷⁻³¹ The incidence of bacteremia from using a pulsating dental water jet ranges from 7% in people with gingivitis²⁹ to 50% in those with periodontitis.²⁸ These percentages are similar to those found with other self care devices.^{32,33,34} Toothbrushing alone has been shown to cause a bacteremia on 39% of occasions.³³ A bacteremia did not occur in daily flossers but did occur 86% of the time in people who delayed flossing from one to four days.³² Wank et al found similar rates of bacteremia (10-14%) for brushing, flossing, and use of the Perio Aid®.³⁴ Before recommending a dental water jet, it is imperative that practitioners consider both the patient's overall medical and oral health status. A physician consultation is advisable in order to assess the patient's overall risk and execute the best clinical judgment.

REDUCTION IN CLINICAL PARAMETERS

The dental water jet has been scientifically proven to reduce numerous clinical parameters including^{1-5, 9,18-22,35-41}

- Calculus
- Biofilm(plaque)
- Gingivitis
- Bleeding
- Periodontal pathogens
- Probing depth
- Inflammatory mediators

Calculus/Biofilm (Plaque) Removal

The dental water jet has been demonstrated to reduce calculus accumulation. One of the earliest studies found that adding a dental water jet to toothbrushing reduced calculus by 50%.³⁷ Others have found similar findings.^{39,41} Oral irrigators with magnetic polarity have been promoted as tools for enhancing calculus reduction. In two separate clinical trials, the unit with magnetic polarity was compared to a unit of the same brand minus the magnet. The unit with the magnet was shown, via a novel index that combined calculus and plaque, to provide a greater calculus reduction on lower anterior teeth.^{42,43} However, this enhanced calculus reduction did not result in greater improvements in oral health as gingivitis reductions between the magnetized and non magnetized unit were similar.⁴³

Many dental water jet studies have had perplexing findings when it comes to biofilm removal. Some studies would show minimal or no reduction of biofilm, yet gingivitis and bleeding

on probing would be significantly reduced.^{1,2,19,22,36,37,38} The reason for this is not completely known. Some of the answer may lie in the measurement of clinical indices. Biofilm is generally measured by disclosing the teeth and using a standardized index that provides a mean rating score for evaluation. In most studies, the surface area covered by supragingival biofilm is measured. The quality, composition, or thickness of the biofilm is not evaluated. In the future, if indices can be developed to measure both the quantity and quality of the biofilm, different conclusions may be reached.

In the past, when biofilm was considered the focus of periodontal disease pathogenesis, it is easy to see how the usefulness of the dental water jet was dismissed. However, by today's standards, the real test of any home care device is its ability to reduce gingivitis and bleeding.

Gingivitis, Bleeding, Probing Depth Reductions

Several studies have shown that a dental water jet is extremely effective in reducing gingivitis and bleeding on probing.^{1-5,20-22,35-40} In many cases, these outcomes were achieved above and beyond routine oral hygiene including flossing.¹⁻⁵ In a recent study conducted at the University of Nebraska on 105 subjects with at least 50% bleeding sites, a dental water jet was paired with a manual or a power toothbrush and both were compared to traditional manual brushing and flossing to see which regimen was the most effective. Regardless of brush type, the addition of a dental water jet, once daily with plain water, to either a manual or power brushing routine is an effective alternative to dental floss for the reduction of bleeding, gingivitis, and plaque and in some cases may provide superior results for reducing bleeding and gingivitis. Additionally, because significant improvements in oral health occurred regardless of toothbrush type, it is likely that many patients currently using a power toothbrush may get further improvements in oral health by the addition of a dental water jet.⁵ See Chart 1.

Chart 1: Percent Reductions in Clinical Parameters at Day 28

Clinical Reduction	MTB + OI Group 2	PTB + OI Group 3	MTB + FL Group 1
Gingivitis/facial	15.1%*	11.4%	9.9%
Gingivitis/lingual	14.2%*	10.8%	9.4%
Bleeding/facial	59.2%*	50.6%*	30.6%
Bleeding/lingual	37.7%	36.2%	26.9%
Plaque/facial	8.8%	17.3%*	9.0%
Plaque/lingual	10.2%	9.4%	8.1%

*Statistically significant difference compared to MTB + FL at D28

"..when combined with toothbrushing, the dental water jet, once daily with plain water, is an effective alternative to traditional dental floss for reducing bleeding, gingivitis and plaque and in some cases may provide superior results for reducing bleeding and gingivitis."

Similarly, in a study of 155 people in periodontal maintenance, Newman et al found that those who added a dental water jet to routine oral hygiene were able to reduce gingivitis and bleeding better than subjects who only brushed and flossed.¹ In concurrence, Flemmig et al found that people in periodontal maintenance who used a dental water jet reduced bleeding by 50% over a six month time frame.² Newman et al and Flemmig et al allowed individuals who flossed to continue in the study; however not all individuals in the studies used floss. The University of Nebraska study is the first published study that directly compared the effects of flossing to a dental water jet.⁵

Some investigators have looked at the effect of the dental water jet on probing depth reduction. Most have demonstrated statistically but not clinically significant reductions generally ranging from 0.1 millimeters to 0.4 mm.^{1,2,3,20,22,35,38,40} This evidence lends support to the safety of the dental water jet as well as its potential for helping periodontal maintenance patients maintain stability.

Infection and Inflammation:

The dental water jet reduces inflammation even when it has not reduced traditional biofilm measures.^{1,2,5,19,22,36,37,38} Chaves et al found that the dental water jet produced a minimal decrease in biofilm, yet significantly reduced inflammation even in sites with good biofilm control. From this, it was hypothesized that the dental water jet works by a mechanism independent of biofilm removal and may involve specific host-microbial alterations in the subgingival environment.¹⁹

As the paradigm shifts from plaque and gingivitis to infection and inflammation, scientific evidence points in the direction of the dental water jet for managing these clinical outcomes. The dental water jet has been shown to reduce the pathogens responsible for initiation of the periodontal infection as well as the inflammatory mediators responsible for attachment and bone loss.^{3,9} Leading biofilm researchers Socransky and Haffajee note in a review that hydrodynamics affect both the physical shear stress and the rate at which nutrients are trans-

ported to the surface of the biofilm, and these impact the structure and growth of a biofilm. They also state that modification of the host response affects biofilm habitat and the colonization of microbiota.⁴⁴ This has similarities to Cobb et al, which showed that in addition to reduction of pathogens, the dental water jet altered the structural make-up of the biofilm to one with a less dense fibrin mesh¹⁰ and to Culter et al who found reductions in inflammatory mediators with the daily use of a dental water jet.³

The dental water jet has been shown to reduce pathogenic subgingival bacteria^{9,18,19,20,21,22,26} up to as much as 6 mm as evidenced by Cobb et al⁹ and Drisko et al.²⁶ As documented by Chaves et al, the dental water jet reduced subgingival pathogens regardless of the solution used.²⁰ Rinsing with chlorhexidine did not achieve the same results. This is most likely because rinsing provides very little subgingival penetration compared to a dental water jet.¹¹

The Pik Pocket[®] tip also has been shown to be effective at reducing subgingival pathogens as evidenced in studies by Fine et al and Jolkovsky et al.^{20,21} While an antimicrobial agent has been used in studies with the Pik Pocket[®] tip, water may also be effective. This tip is a good choice for individuals who have areas that are challenging to manage periodontally or have areas difficult to access such as a deep pocket, furcation, implant, or crown and bridge. In addition to decreasing pathogens, using the Pik Pocket[®] tip can reduce inflammation and probing depth.^{20,21}

After years of speculation by researchers such as Chaves and others regarding the effect of a dental water jet on the immune system response, a study was undertaken at Baylor University to determine how using a dental water jet impacts the host inflammatory response. For the study, Cutler and coworkers chose to look at traditional periodontal outcomes plus measures of cytokines also called inflammatory mediators. Cytokines were chosen because some, such as IL-1 β , have been implicated in stimulating osteoclasts to destroy alveolar bone.^{45,46} The investigators discovered that the dental water jet reduced the cytokine, IL-1 β , thus potentially inhibiting periodontal disease activity. Additionally, the dental water jet also reduced the pro-inflammatory mediator, PGE₂ but increased the anti-inflammatory mediator IL-10 (a blocker of IL-1 β) and maintaining INF γ , a cytokine key in killing bacteria.³

From these results the investigators concluded:³

- Even though both routine oral hygiene and routine oral hygiene plus a dental water jet reduced biofilm, only the group that added the dental water jet could reduce IL-1 β
- The reduction of bleeding on probing did not correlate with the biofilm reduction but rather the reduction of IL-1 β
- The reduction of cytokines by the dental water jet was apparently selective suggesting a specific modulation of cytokines

It is important to note that these measures were taken eight hours after use of the dental water jet so that the dilution effect would be eliminated.

There are several critical outcomes from this study. It demonstrates that controlling/arresting the periodontal infection requires more than biofilm reduction. It also provides an understanding of why a dental water jet has been effective at reducing inflammation in spite of minimal biofilm removal as measured by standard indices. As the link between oral and systemic diseases begins to hone in on the role of inflammation, this study provides evidence that the dental water jet may be a necessity for any patient; particularly those who fail to resolve inflammation through traditional means.

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INDIVIDUALS WITH SPECIAL NEEDS

Several demographic trends in orthodontics, implantology, and diabetes indicate that an increasing number of individuals are good candidates for using a dental water jet. Statistics from the American Association of Orthodontics show that more than five million people in the US and Canada are in orthodontic therapy.⁴⁷ A 2002 survey from the American Dental Association indicates that more people are choosing implants to replace missing teeth. The number of dentists placing implants in 1999 increased 49% with an average of 56² implants placed annually by dentists, who perform the procedure, compared to 37⁷ implants placed annually in 1995.⁴⁸

According to the American Diabetes Association, 20.8 million or 7% of Americans have diabetes. Another 41 million are estimated to have pre-diabetes, a precursor to type 2 diabetes.⁴⁹ It is predicted that children born in the year 2000 will have a one in three chance of developing diabetes. This trend will impact dental professionals as it is currently estimated that about 5% of all individuals seen in a dental office have diabetes.⁵⁰

Diabetes

A recent study by Al-Mubarak et al looked at the effect of a dental water jet on individuals with diabetes. They found that

in addition to reducing the traditional clinical parameters of biofilm, gingivitis, and bleeding on probing, twice daily use of the dental water jet with the Pik Pocket® tip significantly reduced the expression of destructive inflammatory mediators, IL-1 β and PGE₂, better than routine oral hygiene.⁴ The researchers concluded that the inclusion of the dental water jet and the Pik Pocket® tip as an adjunctive therapy might have a cumulative positive influence in regaining periodontal tissue health within diabetic subjects when compared to the controls.⁴

Implants:

A study by Felo et al found that the Pik Pocket® tip was both safe and effective for controlling bleeding and inflammation around implants. When a dental water jet using 0.06% (half-strength) chlorhexidine (CHX) was compared to rinsing with 0.12% (full strength) CHX, significant reductions strongly in favor of the dental water jet were observed.³⁹

Figure 4 demonstrates the gentle placement of the Pik Pocket® tip around an implant. Although some have suggested it, the jet tip has not been evaluated for safety with an implant.



Figure 4: Photo with PP in implant

Orthodontic appliances

Orthodontic appliances present significant cleaning challenges. Researchers found that regardless of whether a manual or automatic toothbrush was used, adding a dental water jet significantly reduced bleeding and inflammation better than when the individual only brushed with a manual toothbrush.⁴⁰

USING THE WATERPIK® DENTAL WATER JET

Compliance is a major consideration when recommending any self-care device. Several investigators have observed that individuals like and regularly use a dental water jet.^{2,21,38,41,51} Flemmig et al found a 91.5% compliance rate with the dental water jet.³⁹ When Lainson et al followed up with subjects one

year after the completion of participation in an oral irrigation study, they found two-thirds of the subjects were still using a pulsating dental water jet. Importantly, those using the dental water jet had significant reductions in gingivitis compared to those who stopped using one.⁵¹ Recommending the appropriate solution and providing good instructions on use may contribute to compliance.

Many solutions can be used in a dental water jet but most beneficial is a solution that is acceptable to the individual. Otherwise, compliance may be compromised. It is important to remind people that when using a solution other than water, the unit must be flushed by filling the reservoir half full with water, removing the tip, and activating the system. If not, the life of the unit could be shortened.

Three different types of agents have a body of evidence to support their use. They are:

- **Water**
- **Chlorhexidine**
- **Essential Oils**

Water is a very effective agent. Some of the benefits of using water are:

- A true “natural” product
- No side effects
- Cost effective
- Readily available
- Numerous studies demonstrate efficacy^{1-5,9,20,22,3738,40,41}

Chlorhexidine (CHX) has frequently been evaluated in dental water jet studies.^{18,19,20,35,36,38,39} One of the benefits of using CHX is that because of better interproximal and subgingival penetration when compared to rinsing, diluting CHX is acceptable for use in a dental water jet.

Dilutions (based on a 0.12% concentration) that have been shown to be effective via randomized clinical trials are⁵²

- 0.02% = 5 parts water + 1 part CHX
- 0.04% = 2 parts water + 1 part CHX
- 0.06% = 1 part water + 1 part CHX

Essential oils have also been studied as irrigants. The most common brand of essential oils is Listerine® antiseptic. However, there are several hundred generic brands. It is important to note that the effectiveness of Listerine® antiseptic is based on studies using it at full strength only.^{21,22}

Instructions for Using the Waterpik® Dental Water Jet

When giving instructions for the use of the dental water jet, there are some general suggestions that can make learning how to use the dental water jet an easy and quick process.

- ✓ For practical purposes, the unit should not be turned on until the tip is in the mouth.
- ✓ Bend from the waist over the sink and hold arm up perpendicular to torso.
- ✓ Lips should be slightly closed to avoid splashing, but open enough to allow the water to flow freely from the mouth into the sink
- ✓ Before removing the tip from the mouth, pause the flow of water or turn the unit off.
- ✓ For comfort, recommend that any solution used is at room temperature.
- ✓ Advise individuals to begin at the lowest pressure setting when using the dental water jet for the first time.

Because there are different types of units available, be sure to review manufacturer's complete instructions PRIOR to recommending or demonstrating. Recommending and instructing is easier if you have read all instructions and tried the product yourself.

Attachments:

Four different types of tips will fit several Waterpik® dental water jet models – the jet tip, the Pik Pocket® subgingival irrigation tip, the breath freshening tongue cleaner and the new orthodontic tip.



Figure 5: Photo of jet tip in mouth

The **jet tip** is recommended for general, full-mouth irrigation. See Figure 5. When using the jet tip:

- ✓ Recommend beginning in the molar area and follow a pattern throughout the mouth. This helps avoid missing areas.

- ✓ Place the tip between the teeth at a right – 90 degree – angle to the long axis of the tooth at the interproximal space.
- ✓ After the unit has been turned on and water has begun pulsating, briefly hold the tip in place at the interproximal area. This allows adequate penetration of the solution into the gingival crevice or pocket.
- ✓ Move the tip around the mouth in a linear fashion following the gingival margin. Make sure that all areas are irrigated from both the buccal and lingual.

The **Pik Pocket® subgingival irrigation tip** has been designed for low-pressure delivery. It is latex-free. Since this tip is site specific, individuals will need to know exactly where in the mouth it should be used. It is recommended to have extra tips available to demonstrate the placement to the individual. It will also help with compliance.



Figure 6: Photo of PP in furcation

To use the Pik Pocket® tip: See Figure 6

- ✓ Gently place the tip just slightly below the gingival margin.
- ✓ Recommend using a mirror to check that the tip is in the correct place.
- ✓ Slide the pressure control to lowest setting. The Pik Pocket® tip is designed for low-pressure delivery.
- ✓ Briefly hold the tip in place before proceeding to another area.

Most Waterpik® dental water jets come with the **breath freshening tongue cleaner**. A daily routine that includes irrigating teeth, gingiva, and tongue can contribute to optimal oral health.

To use the tongue cleaner: See Figure 7

- ✓ Slide the pressure gauge to the lowest setting. This will minimize the amount of water in the mouth and help prevent gagging.



Figure 7: Illustration of the tongue cleaner

- ✓ Place the tongue cleaner in the middle of the tongue, as far back as comfortable. As the tongue cleaner is used more frequently, it can be placed farther back on the tongue. This is important because the posterior of the tongue is where the odor-causing bacteria reside.
- ✓ Using light pressure, pull the tongue cleaner forward over the tongue.
- ✓ Repeat as needed until the entire tongue is cleaned.

Figure 8 shows the new **orthodontic tip**. It is designed to simultaneously brush and rinse hard to reach areas around orthodontic appliances and other dental work. To use:

- ✓ Place bristles around appliances and gently clean
- ✓ Water will pulsate through the brush for simultaneous irrigation



Figure 8: The new orthodontic tip

Models

There are several models of Waterpik® dental water jets. Most systems have certain features in common:

- 1,200 pulsations per minute
- A variable pressure range for optimum therapeutic effect
- Soft-touch handle controls
- The ability to accommodate antimicrobial agents
- Ounce and milliliter markings on the reservoir for easy measuring

Waterpik® dental water jets are preferred by dental professionals 10:1 over other brands. There is a wide array of choices suitable for every need. For professional dispensing, available models include the Personal, Ultra, Cordless, and Travel units. For retail purchasing, the Personal, Family, Ultra, and Cordless models may be found at many discount and drug chains.

Figure 9 shows the Waterpik® Personal Dental Water Jet, Model WP-60W. It is designed for the single user. It comes



Figure 9: Waterpik® Personal Dental Water Jet

with one jet tip and one tongue cleaner. The Pik Pocket® tip will fit on the unit. This model is available for professional and retail purchase.

Another version Waterpik® personal dental water jet is Model WP-65, which comes with a blue reservoir and can be found at department or specialty stores.



Figure 10: Waterpik® Family Dental Water Jet

Figure 10 shows the Waterpik® Family Dental Water Jet, Model WP-70W. It is designed for multiple users. It comes with two jet tips and two tongue cleaners and will accommodate the Pik Pocket® tip. It has a frosted reservoir. This unit is available at retail.



Figure 11: Waterpik® Ultra Dental Water Jet

The Waterpik® Ultra Dental Water Jet, Model WP-100W, Figure 11, is Water Pik, Inc.'s newest professional model. It features a dramatically new design. It is smaller and quieter to operate than previous countertop models. It has a covered reservoir with tip storage and an advanced 10-setting pressure control system. It comes with eight tips; three standard jet tips, three tongue cleaners, one Pik Pocket® tip, and one new orthodontic tip.



The Waterpik® Cordless Dental Water Jet, model WP-360W is highlighted in Figure 12. It is lightweight and easy to use. The size makes it great for mobile homes, travel, small bathroom counters, or where ever space is an issue. It is easy to store when not in use. It comes with two low-pressure tips and two high-pressure tips for customized use. The rechargeable battery will stay charged for approximately one week. This model is available for professional and retail purchase.

Figure 12: Waterpik® Cordless Dental Water Jet



Figure 13: Waterpik® Traveler

Waterpik® Traveler, Model WP-350W is highlighted in Figure 13. This is the original model designed for the business traveler or frequent flier. It comes with two jet tips for variable pressure control, a travel case, and multi-voltage rechargeable battery that will convert to international voltage. This model is only available via a professional purchase.

When you recommend a dental water jet, it is beneficial to know where it can be purchased along with the estimated cost. Having this information will enhance your credibility and increase compliance with your recommendation. Alternatively, products can be purchased directly from Water Pik, Inc. or through your dental dealer for dispensing or selling in the office. Retail locations for the Waterpik® Dental Water Jet can be found on-line at www.waterpik.com.

Conclusion:

There is a long-standing, well-documented body of evidence supporting the use of the Waterpik® Dental Water Jet. It is an effective alternative to dental floss for reducing bleeding and gingivitis.⁵ The Waterpik® Dental Water Jet is appropriate for people of almost any age including adolescents. Even for those who use a power toothbrush, improvements in oral health may be gained by adding a dental water jet.⁵ They are affordable and when used daily with water are long-term, cost-effective tools for ensuring optimal oral health.

Product Disclaimer: Most studies referenced in this course have been done using the Waterpik® Dental Water Jet by Water Pik, Inc. While other brands of dental water jets are available, products are not equivalent when it comes to pressure and pulsations. Therefore, expectations of similar clinical outcomes on products of different brands cannot be assumed.

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POST TEST COURSE #05-05

The Dental Water Jet: The Key to Optimal Oral Health

1. Which statement is true?

- a) Pulsation is 3 times more effective than a steady or continuous stream.
- b) Pulsation creates a compression and decompression phase.
- c) Pulsation allows for the regulation of pressure.
- d) All of the above

2. Pulsation creates two zones of hydrokinetic activity.

These zones are called:

- a) Impact zone and the flushing zone
- b) Impact zone and the sulcular zone
- c) Coronal zone and the flushing zone
- d) Coronal zone and the sulcular zone

3. Which individuals with special needs have been shown to benefit from a dental water jet?

- a) People with implants
- b) People with orthodontic appliances
- c) People with diabetes
- d) All of the above

4. Average estimated depth of delivery into the sulcus using the standard jet tip is:

- a) 10%
- b) 25%
- c) 50%
- d) 100%

5. Which statement is true regarding the Pik Pocket® subgingival irrigation tip?

- a) In pockets ≤ 6 mm it reaches 52%; pockets ≥ 7 mm it reaches 99%
- b) In pockets ≤ 6 mm it reaches 90%; pockets ≥ 7 mm it reaches 64%
- c) In pockets ≤ 6 mm it reaches 52%; pockets ≥ 7 mm it reaches 28%
- d) In pockets ≤ 6 mm it reaches 76%; pockets ≥ 7 mm it reaches 42%

6. Which agents are the only ones with a body of scientific evidence to show they are effective when used with a dental water jet?

- a) Chlorhexidine, Essential Oil, Water
- b) Chlorhexidine, Sodium Chlorite, Povidone Iodine
- c) Chlorhexidine, Essential Oil, Povidone Iodine
- d) Chlorhexidine, Sodium Chlorite, Water

7. The Waterpik® dental water jet has been shown to reduce pathogenic bacteria up to:

- a) 2 mm
- b) 4 mm
- c) 6 mm
- d) 8 mm

8. Which statement is true?

- a) A dental water jet can reduce inflammation without reducing the plaque biofilm index
- b) A dental water jet can reduce inflammation only by also reducing the plaque biofilm index
- c) A dental water jet can reduce the plaque biofilm index but not inflammation
- d) A dental water jet cannot reduce the plaque biofilm index or inflammation

9. The dental water jet + a manual toothbrush is an effective alternative to floss. The dental water jet + a power toothbrush is an effective alternative to floss.

- a) The first statement is true; the second statement is false
- b) The first statement is false; the second statement is true
- c) Both statements are true
- d) Both statements are false

10. The site specific Pik Pocket® subgingival irrigation tip is recommended for:

- a) Furcations
- b) Implants
- c) Difficult to access areas
- d) All of the above

11. The incidence of bacteremia from a dental water jet ranges from 7-50%; the rate is similar to other self-care devices.

- a) Both statements are true
- b) Both statements are false
- c) The first statement is true; the second statement is false
- d) The first statement is false; the second statement is true

12. Before recommending a dental water jet in a patient at-risk for infective endocarditis, which should occur?

- a) Evaluation of the medical/dental history
- b) A dental exam
- c) A physician consultation
- d) All of the above

13. The dental water jet modulates the host inflammatory response; however, this has no impact on periodontal disease activity.

- a) Both statements are true
- b) Both statements are false
- c) The first statement is true; the last statement is false
- d) The first statement is false; the last statement is true

14. The use of a dental water jet twice daily on people with diabetes:

- a) Had no effect at all on oral health
- b) Reduced traditional clinical parameters
- c) Reduced traditional clinical parameters and destructive inflammatory mediators
- d) Improved blood sugar readings

15. The use of the jet tip includes:

- a) Placement at a 90 degree angle to the long axis of the tooth
- b) Irrigating from both the buccal and lingual
- c) Briefly held in place to facilitate penetration into gingival crevice or pocket
- d) All of the above

OBTAINING CONTINUING EDUCATION CREDITS

Water Pik, Inc. is designated as an Approved PACE Program Provider by the Academy of General Dentistry. The formal continuing education programs of this provider are accepted by the AGD for Fellowship, Mastership, and membership maintenance credits. Approval does not imply acceptance by a state or provincial regulatory board. The current term of approval extends from 06-01-2006 through 05-31-2010.

Credits: 3 hours

If you have questions about CE requirements in your state or province, please consult your regulatory board.

Directions:

- Fill out the Waterpik CE Registration Form and Answer Sheet.
- Answers should be logged on the answer sheet. Please make a copy of your answer sheet to retain for your records. Do not submit the post test, ONLY the CE Registration Form and Answer Sheet.
- Only one original answer sheet per individual will be accepted. Photocopies are not valid.
- Answers left blank will be graded as incorrect.
- Please fill out the course evaluation portion.
- Submit your answer sheet via mail or fax to:

Carol Jahn, RDH, MS
Manager, Professional Education
and Communications
Water Pik, Inc.
1730 East Prospect Road
Fort Collins, CO 80553
Fax: 630.393.4706

Scoring:

In order to receive credit, you must answer correctly 10 questions out of 15.

Results:

Will be mailed in 8 to 10 weeks.

Questions:

Please contact Carol Jahn, Manager, Professional Education and Communications at 1.800.525.2020 x 8565 or via email at cjahn@waterpik.com



CE REGISTRATION FORM AND ANSWER SHEET

Course # 05-05

The Dental Water Jet: The Key to Optimal Oral Health

Name: _____

Credentials: _____

Name of Practice: _____

Street Address: _____

City: _____

State: _____ Zip: _____

Daytime Phone: _____

Email: _____

Answer Sheet

Please circle the correct answer for each question.

1.	a	b	c	d
2.	a	b	c	d
3.	a	b	c	d
4.	a	b	c	d
5.	a	b	c	d
6.	a	b	c	d
7.	a	b	c	d
8.	a	b	c	d
9.	a	b	c	d
10.	a	b	c	d
11.	a	b	c	d
12.	a	b	c	d
13.	a	b	c	d
14.	a	b	c	d
15.	a	b	c	d

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Circle your response: 1 = lowest, 5 = highest

Course objectives were met
1 2 3 4 5

Content was useful
1 2 3 4 5

Questions were relevant
1 2 3 4 5

Rate the course overall
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