PIPS®

Photon Induced Photoacoustic Streaming

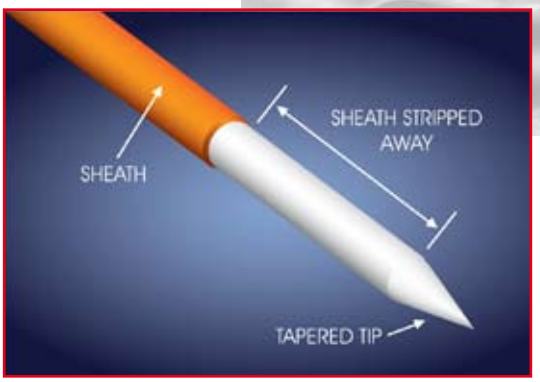
The first endodontics breakthrough in 50 years.
Available only with Fotona dental lasers.

Fotona
choose perfection

Photon Induced Photoacoustic Streaming

What is PIPS®?

PIPS® (patent pending) is a revolutionary method for cleaning and debriding the root canal system using Er: YAG laser energy at sub-ablative power levels.



The stripped and tapered PIPS® tip (patent applied for) optimizes the propagation of shock waves at sub-ablative laser power.

The PIPS® tip is only inserted into the coronal 1/3 of the Canal.

How does PIPS® work?

PIPS® harnesses the power of the Er:YAG laser to create photoacoustic shock waves within the cleaning and debriding solutions introduced in the canal. The containment of the shockwaves thoroughly streams these solutions through the entire canal system, enhancing their effectiveness. The canals and subcanals are left clean and the dentinal tubules are free of smear layer. PIPS® is equally effective for final water rinsing prior to obturation.

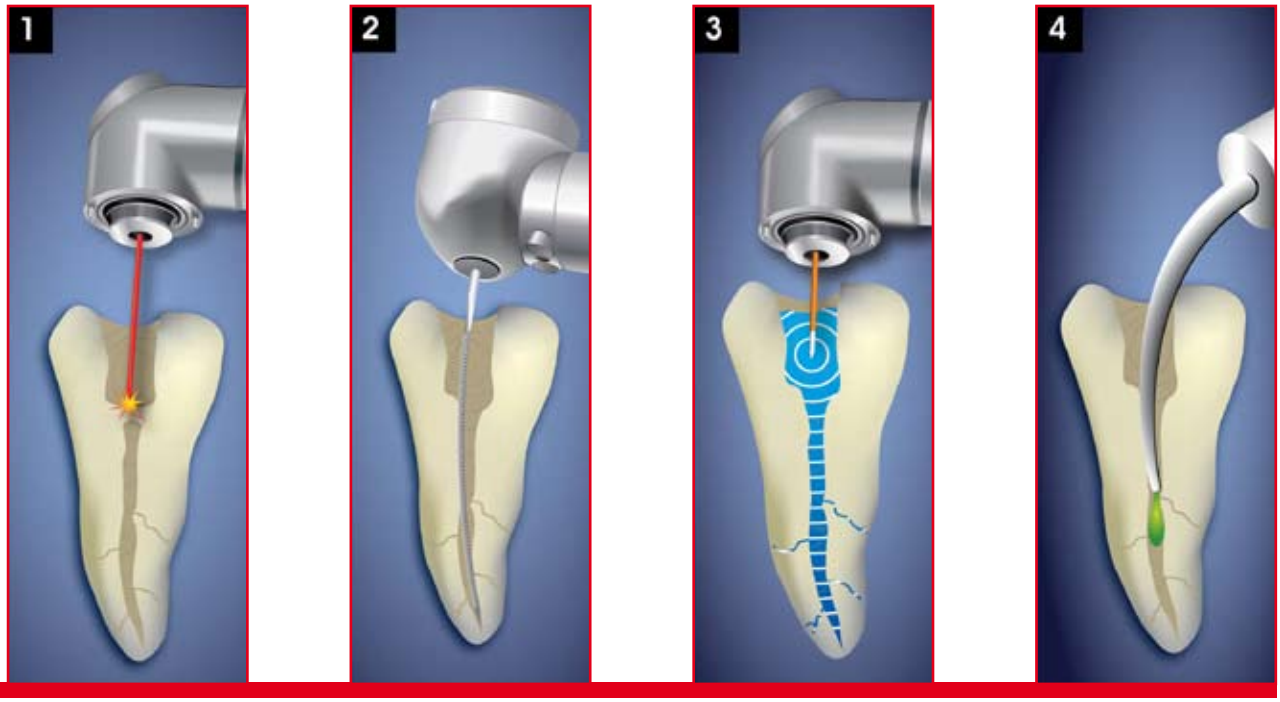
How is PIPS® applied during root canal therapy?

1 Gain access to the canal
Open with the Fotona Er:YAG laser as you normally would prior to root canal therapy.

2 Instrument the canal to ISO #20
Instrument the canal as you normally would but stop at ISO #20. It isn't necessary to remove any additional tooth structure, which preserves tooth strength.

3 Perform PIPS® with the Fotona handpiece
PIPS® is performed with the Fotona dental laser and an exclusive protocol using 15% EDTA and NaClO and then water to flush the canal system clean.

4 Obturate the canal
Obturate the canal as you normally would. PIPS® is perfect for use with advanced endodontic filling resins. You are now ready to complete your restoration.



The exclusive advantages of PIPS® for you and your patients

1. The entire root canal and sub-canal system is more effectively cleaned and debrided than with traditional instrument-only techniques, reducing the risk of re-infection.

2. The minimally invasive nature of PIPS® preserves more tooth endoskeleton than traditional instrument techniques since filing is limited to a maximum size ISO #20, maintaining more post-restoration tooth strength.

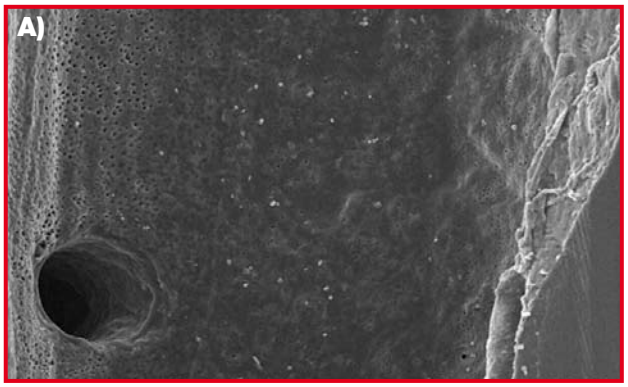
3. Sub-ablative power levels eliminate the risks of ledging and demineralization inherent to other laser endodontic methods.

4. Since the PIPS® tip is only inserted into the coronal 1/3 of the canal, there is no risk of tip breakage from curved canals or unwanted apical extrusion of chemical irrigants possible with other laser endodontic methods.

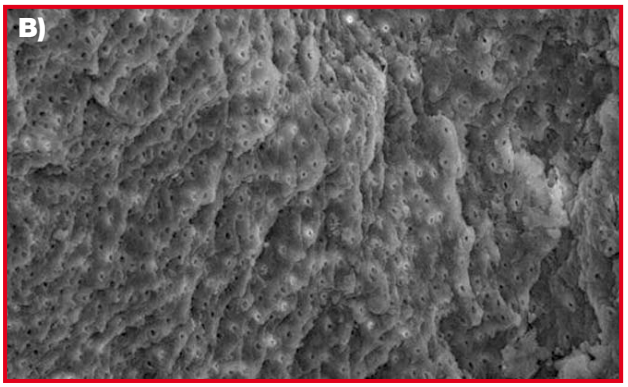
5. Less filing time and less soaking time for chemical agents saves 20-30 minutes per canal for patient and clinician.

SEM photos demonstrate the effectiveness of PIPS®

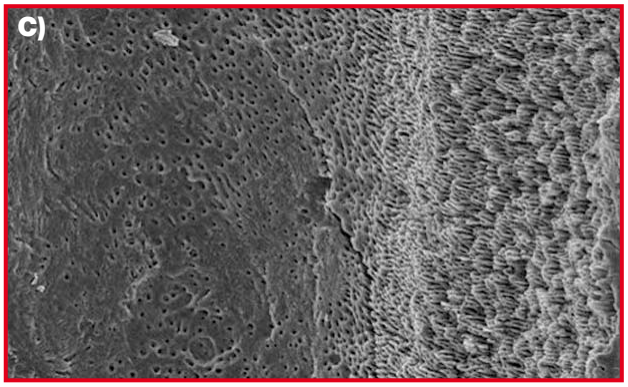
A) Smear layer around opening of lateral canal has been removed



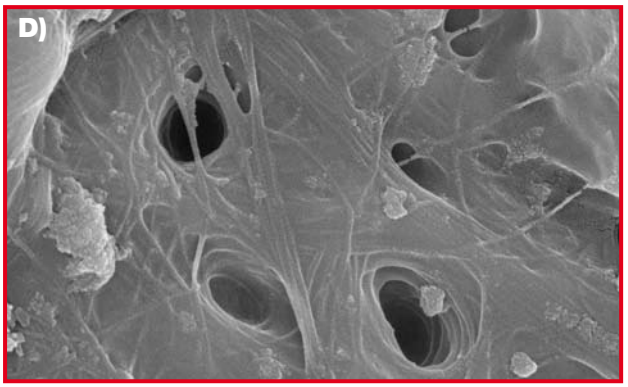
B) Open dentinal tubules with minimal smear layer

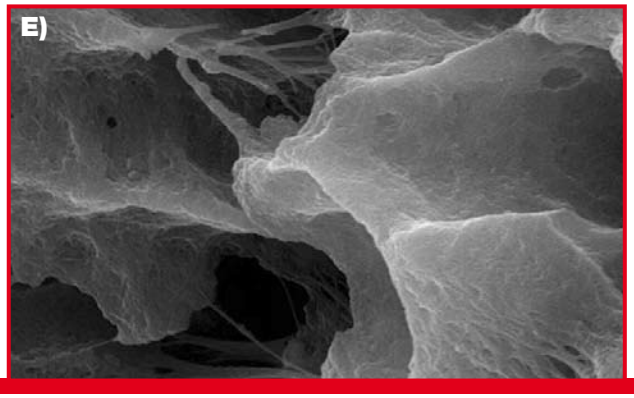


C) Clean dentinal canal walls



D-E) Canal wall collagen fibers and internal hydroxyapatite matrices intact and visible





What makes the Fotona Er:YAG laser perfect for PIPS®?

Dr. Mark Colonna demonstrates PIPS® during advanced endodontic training at the Montana Center for Laser Dentistry.

The Fotona Er:YAG laser energy is uniquely suited for optimum performance of PIPS® because:

1. Of the two Erbium laser wavelengths used in dentistry, Er:YAG laser energy has the highest absorption rate in water.
2. The super short, 50 microseconds pulse duration available on the Fotona laser, combined with the efficient design of the PIPS® tip, allow for the lowest possible energy per pulse (millijoules) and repetition rate (hertz), minimizing thermal effects and maximizing the propagation of the PIPS® shock waves.
3. Sub-ablative power levels eliminate the risks of ledging and demineralization.
4. The specialy developed H14 PIPS handpiece makes PIPS® treatments easy to perform.

The development of PIPS®

PIPS® was developed by Dr. Enrico DiVito, along with his research team at Medical Dental Advanced Technologies Group, LLC (MDATG) with assistance from Dr. Mark Colonna. Patents have been applied for utilizing the application of PIPS® in endodontics and other areas of dentistry.

The MDATG team of dentists, engineers and biochemists carefully optimized the PIPS® system for use with special handpieces on the world's most advanced all-tissue dental laser made by Fotona.

Dr. DiVito is founder of the Arizona Center for Laser Dentistry and maintains both a general and cosmetic private practice in Scottsdale, Arizona. He is a clinical instructor at the Arizona School of Dentistry and Oral Health where he helped develop and establish the first curriculum based laser dental program. He is a pioneer in research and development for minimally invasive laser endodontic procedures and a member of the World Clinical Laser Institute with Mastership status.

Dr. Enrico DiVito

References:

1. DiVito E, Peters OA, Olivi G (2010) Effectiveness of the Erbium:YAG laser and new design radial and stripped tips in removing the smear layer after root canal instrumentation. Laser Med Sci. [to be published]

2. Loma Linda University School of Dentistry (2010) Final Report: Efficacy of Er:YAG Laser on Root Canals Infected with Enterococcus faecalis (ATCC 4082). Loma Linda: LLUSD

This photo of a cleared human tooth shows a complicated canal system thoroughly cleaned using PIPS®. This tooth had five portals of exit.

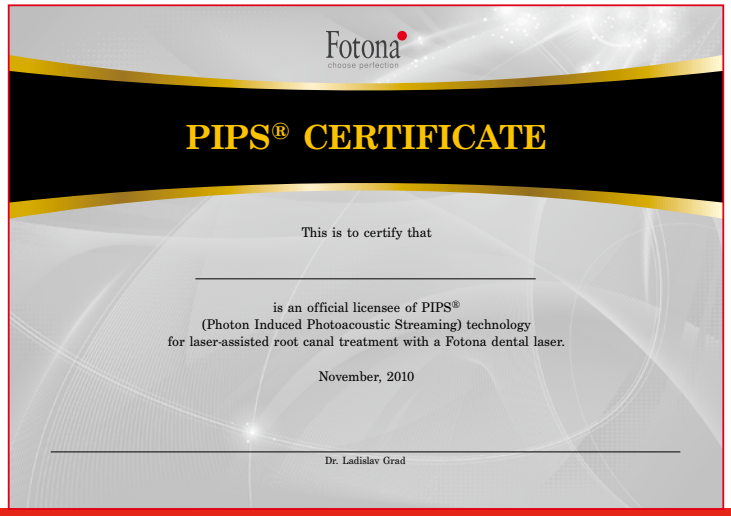
Getting started with PIPS®

The PIPS® Upgrade Package for the Fotona dental lasers

Purchase of the PIPS® Upgrade Package includes the special PIPS® handpiece and an initial supply of PIPS® tips and entitles you to:

- Perform the PIPS® (patent applied for) procedure.
- Attend the Advanced Endodontics Training Course to learn to perform PIPS®.
- Purchase replacement PIPS® tips.

To learn more about PIPS® and what the Fotona all-tissue dental laser can do for your practice, visit www.pips-endo.com.



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