

Dr. Kallis has been practicing dentistry for over 25 years and has had an avid interest in laser dentistry for almost a decade. In 2006 he gained his MSc. Degree in Laser Dentistry from the AALZ Institute at the University of Aachen. Dr. Kallis is one of the pioneers of laser dentistry in Greece and is co-founder and Vice President of HELSOLA. He is also co-founder of the GSLD, a European division member of the WFLD.



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Class V Cavity Preparation Using Er:YAG Laser

This 64-year old male patient visited us at our dental office with severe cervical attrition to the upper anterior teeth and strong hypersensitivity to warm and cold. The patient was familiar with laser-assisted dentistry since he was treated for periodontitis at our clinic 3 years prior to this visit. He was hoping that the laser would be of help in his current condition.

We prepared the cavities with the AT Fidelis' Er:YAG laser and R02 handpiece using the settings in the table below. To the patient's surprise the entire procedure took no longer than 6 minutes and apart from a slight sensitization at the beginning of the treatment he did not feel anything of any significance.

As we move into the dentin we lower our energy and frequency settings since ablation is faster in dentin due to its higher water content. We use even lower energy and frequency settings for the final modification to create a retentive surface for the filling material. Expose the tooth surface to a few shots while the laser beam is continuously moved across the treatment area. Laser surface modification results in good adhesion of the filling material, eliminating the need for acid etching. After the modification, dry the surface with air and then apply the adhesive and composite material.

During all phases of the preparation we use water and air spray to avoid desiccation of the tissue and maintain ablation efficiency.

	Cavity preparation	Dentin modification
Laser source:	Er:YAG (2940 nm)	Er:YAG (2940 nm)
VSP Mode:	MSP	MSP
Pulse energy:	200 mJ	120 mJ
Frequency:	15 Hz	10 Hz
Handpiece:	R02	R02
Water/Air Spray Setting:	Water 4 – Air 6	Water 4 – Air 6



Before



During



During



After

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