

# 31<sup>st</sup> International Webinar on DENTISTRY

January 06, 2022 | Webinar

## Effect of Er: YAG laser irradiation and acidulated phosphate fluoride therapy on remineralization of white spot lesions

**Malihe karrabi**

Sabzevar University of Medical Sciences, Iran

**Statement of the Problem:** This study evaluated the effect of erbium-doped yttrium aluminum garnet (Er: YAG) laser irradiation and application of acidulated phosphate fluoride (APF) gel (alone and in combination) on remineralization of artificial white spot lesions (WSLs).

**Purpose:** This study sought to assess and compare the effects of Er: YAG laser and APF gel on remineralization of WSLs.

**Materials and Method:** This in vitro, experimental study evaluated 90 buccal and lingual slabs of extracted human premolars. The specimens underwent pH cycling to induce WSLs. They were then randomly divided into 6 groups of caries-free positive control (c+), negative control with WSLs (ws), 1.23% APF gel applied on the enamel (F), Er: YAG laser irradiation (80 mJ, 10 Hz, and 8 J/cm<sup>2</sup>) of enamel (L), APF gel application followed by laser irradiation (FL), and laser irradiation followed by fluoride gel application (LF). The fluoride ion content of specimens was measured before and after the intervention using a potentiometer. Data were analyzed by ANOVA ( $p < 0.05$ ).

**Results:** APF gel application before/after laser irradiation maximally increased the fluoride uptake by the enamel ( $p = 0.000$ ). Application of APF gel in group F and laser irradiation in group L increased fluoride uptake by the enamel, compared with groups 1 and 2 ( $p = 0.000$ ). Laser-treated (L) and APF-treated (F) groups had no significant difference in this respect ( $p = 0.945$ ). Maximum fluoride concentration was noted in combined laser and fluoride groups (FL=332.07ppm and LF=341.27ppm) with no significant difference between the two ( $p = 1.000$ ).

**Conclusion:** Er: YAG laser irradiation changes the chemical composition of enamel and probably promote its remineralization, especially when combined with APF gel application, which highlights its cariostatic potential.

### Biography

Malihe karrabi is well experienced dental surgeon and specialized in restorative dentistry. She is working as a Assistant Professor in the department of oral and prosthodontics, school of medicine, Sabzevar University of Medical Sciences, Sabzevar, Iran.

malih.karrabi@gmail.com