

A comparative study of the in vivo effect of three remineralizing materials on white spot lesions after orthodontic treatment

Thesis

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

” قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا عَلَّمْتَنَا
إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ “

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Dedication

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ABBREVIATION LIST

Abbreviation	Abbreviation for
WSLs	White Spot Lesions
Ms	Mutans streptococci
ICDAS	International Caries Detection and Assessment
Ca	calcium
P	phosphate
QLF	Quantitative laser or light induced fluorescence
F	Fluoride
X	Xylitol
ml	milliliter
NaF	Sodium fluoride
CPP	Casein phosphopeptides
ACP	Amorphous calcium phosphate
JPEG	Joint Photographic Experts Group
g	gram

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INTRODUCTION

Esthetic is the major demand for orthodontic patients as they often seek comprehensive orthodontic treatment for a variety of reasons. The most common reasons for orthodontic therapy are to improve patient's dental function and esthetics. Also, there are several psychological benefits derived from orthodontic treatment. These include an improvement in a patient's overall self-esteem and attitude.¹

Oftentimes, the orthodontic success of an ideal occlusion is tarnished by the appearance of white spot lesions on the facial surface of teeth after removing the fixed appliances. Prevention of these white, opaque areas throughout orthodontic treatment is essential to provide the patient with the most esthetic outcome. It has been concluded that fluoride preparations, oral hygiene instruction and dietary control have the greatest effect on reducing demineralization.¹

If prevention of these white, opaque areas did not succeeded it will become a common complication of orthodontic fixed appliance therapy. Several studies have reported a significant increase in the prevalence and severity of demineralization after orthodontic therapy compared with controls.²

Clinically, the white opaque spot is an early carious lesion that is softer than the surrounding enamel. The white appearance is created by an optical phenomenon and increases in whiteness as dried with air.²

Various methods have been used to test and visualize white spot lesion development. Due to the large degree of subjectivity with visual inspection which is used to determine the presence of buccal surface lesions by visual inspection and tactile sensation with an explorer, other methods have been tested such as photographic examination, fluorescent dye uptake, ultraviolet light, lasers, and quantitative light induced fluorescence.³