

## ABSTRACT

**BACKGROUND:** Bonding and debonding procedures in fixed orthodontic treatment cause irreversible changes on the enamel surface which are important when they occur on the most resistant outer layer. Studies have shown that synthetic apatites like conventional hydroxyapatite (CHAP) and amorphous calcium phosphate (ACP) have been suggested to repair the damaged enamel, which showed different dimensions morphological characters by which their repairing properties on the enamel surface are compromised.

**AIM:** The aim of this in-vitro study was to assess the effectiveness of Nanohydroxyapatite dentrifice and fluoridated dentrifice on enamel roughness after orthodontic debonding.

**MATERIALS AND METHOD:** Human premolars extracted and enamel were cleaned to assess initial surface roughness by Non contact 3D profiler. 3M stainless steel premolar bracket were placed and excessive resin was removed and stored in artificial. Surface roughness were registered again after debonding the brackets. Samples of group I brushed manually with Nanohydroxyapatite (NHAP) toothpaste and Group II brushed with standard fluoride toothpaste for 20s for 10 days. Third roughness parameters registered for these two groups.

**RESULTS:** Data showed that there was significant interaction between the treatment and time variables for all roughness parameters between these two groups. Fluoride group showed slight decrease in roughness following treatment whereas NHAP group showed a significant reduction of enamel roughness after treatment.

**CONCLUSION:** NHAP dentifrice with the protocol used in the study showed decrease in all surface roughness parameters than the fluoride dentifrice treated group and this difference was statistically significant.

**KEY WORDS:** Nanohydroxyapatite, Fluoride, Debonding, Surface Roughness.