Objective: The purpose of this in vitro study was to evaluate the effect of two consumer available brush-on whitening products on enamel microhardness. Methods: Eighty enamel slabs measuring 3 x 3 x 2 mm were embedded in phenolic rings and polished with 1200-grit SiC abrasive and randomly divided into 4 groups: (1) control (no treatment); (2) Crest Night Effects™ (Procter and Gamble); (3) Simply White™ (Colgate) and (4) Opalescence™ (Ultradent, Inc.). The specimens in Groups 2-4 underwent 2 weeks of treatment for 8 hours per day. To simulate overuse for the OTC products, experimental groups received a third week of treatment. Specimens were stored in artificial saliva between treatments. Using a microhardness testing machine, three indentations were made in each specimen with a 50 g load applied for 15 sec to the enamel surface. Microhardness measurements were performed at baseline, after 1, 7 and 14 treatment-days and at 21 days. ANOVA was performed for the mean KHN values at p= 0.05. Results: No statistically significant differences existed among groups at baseline. After 14 treatment-days the only Group with a statistically significant change (decrease) in microhardness was Group 3 when compared with the untreated group. After 7 more treatment-days, Group 3 showed a statistically significant decrease in microhardness from Group 2 and the other groups. Paired t-tests analysis between baseline and 1, 7 and 14 treatment-days were performed to evaluate the behavior of significance among Groups within time intervals. A statistically significant difference was measured only at day 7 for Group 2. A significant reduction in microhardness was observed from baseline and all other time intervals for Group 3. Conclusion: Consumer available whitening products may adversely affect enamel microhardness, depending on which product you choose.