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Mouthwashes: Effect on surface hardness and accuracy of light-cured compositeSaja Ali Muhsin and Ihab Nafe'a Yaseen
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Statement of the Problem: Using mouthwashes have been recommended to limit dental caries, periodontal diseases and due to their affection for restorative dental materials. The longevity and durability of the aesthetic composite resin restorative materials are important factors in the oral environment. However, many studies conducted the effect of some mouthwashes on the surface hardness and accuracy of composite resin.

Aim: The purpose of this study is to investigate the effect of both Listerine alcohol-contained and GUM alcohol-free mouthwashes on the surface hardness and dimensional accuracy of light-cured composite resin.

Methodology & Theoretical Orientation: 30 disc-specimen of nanohybrid light-cured composite resin was prepared for this study (Smile USA, shade A2). According to ISO standardization, the disc dimension was of $12(\pm 0.2\text{mm})$ in diameter and thickness of $3(\pm 0.2\text{mm})$. The sample divided into three groups ($n=10$) (3-readings each), G1: Control non-treated (distilled water); G2: Listerine (Alcohol-contained mouthwash) (Johnson and Johnson, UK) and; G3: G.U.M (Alcohol-free mouthwash) (Ivohealth, South Africa). The specimens were measured for surface hardness using Shore D and for dimensional accuracy by digital vernier caliper device at different immersion intervals. These include pre-treatment (initial), after 1 week, after 4 weeks, and after re-curing. Data were analyzed via one-way ANOVA (post-hoc Turkey test) performed at a confidence level of 95% and a significant P-value of ($P \leq 0.05$).

Findings: Within the study limitation, both Listerine alcohol-contain and G.U.M alcohol-free mouthwashes had no effect on the hardness and dimensional accuracy of the composite material before recurring. While after the re-curing process, only GUM mouthwash showed a reduction in the surface hardness of the composite material. Further studies were needed to estimate the effect of mouthwashes on the micro-hardness and wearability of the composite materials.



Figure 1: Diagram showing the timeline of the tested groups

Recent Publications

1. Muhsin S A, Wood D J, Johnson A, Sereno N and Hatton P V (2018) Effects of novel polyetheretherketone (PEEK) clasp design on retentive force at different tooth undercuts. Journal of Oral and Dental Research 5:13-25.

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2. Al-Obaidi D M, Muhsin S A and Ibrahim A A (2017) *In vivo* antimicrobial inhibition of Punica granatum extracts as mouthwash. 6(4):1-5.
3. Muhsin S A and A I Haddad (2017) Effect of phenol-formaldehyde bonding agent on acrylic resin impact strength. Journal of Basic and Applied Research 3(3):127-132.
4. Muhsin S A (2017) Bond strength of repaired acrylic denture teeth using visible light cure composite resin. The Open Dentistry Journal 11:57-64.

Biography

Saja Ali Muhsin has her expertise in dental technologies and materials science since 2008. She was awarded the "BSODR Dental Materials Group Prize" and "VOCO Dental Biomaterials Prize Award", IADR/PER Congress; "The 3 Minute Thesis Competition", Faculty of Medicine Dentistry and Health, University of Sheffield (UK -2015); The Achievements of the Iraqi Women in the UK by The Ambassador of the Republic of Iraq in the UK, (London-2016); and "The Academic Excellence in the UK", Iraqi Cultural Attaché in London (2016). Recently, appointed as a committee member for the IADR KULZER Travel Award and for three years starting from 2019 (International & American Associations for Dental Research, Alexandria, Virginia-USA).

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