CAM resin crown bonding - Reduction of bond strengths due to artificial saliva contamination

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> ⓘ **Bibliography**
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> 1. Kawaguchi-Uemura A, Mine A, Matsumoto M, et al. Adhesion procedure for CAD/CAM resin crown bonding: Reduction of bond strengths due to artificial saliva contamination. *J Prosthodont Res*. 2018;62(2):177-183. doi:10.1016/j.jpor.2017.08.006

Information

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Abstract

> 📋 **Abstract**
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> PURPOSE: The present study aimed to elucidate how saliva contamination affects microtensile bond strength of resin cement to CAD/CAM resin blocks and identify a decontamination method that can restore original bond strength.
> METHODS: The KATANA AVENCIA block (Kuraray Noritake Dental) was sandblasted

on the adherend surface (P-Co group). Then, the block was contaminated with artificial saliva (Saliveht Aerosol, Teijin). Air dry (N-Co), sandblasting (Sb) and phosphate acid cleaning (AT) groups were prepared. After silane treatment, PANAVIA V5 (Kuraray Noritake Dental) was built up and microtensile bond strength (μTBS) was measured after immersion in water (n=24 per group). Scanning electron microscopy (SEM) analysis, surface roughness and contact angle measurement of each surface were performed.

RESULTS: The P-Co group showed the highest μTBS value, and bond strength was significantly lower in the N-Co group than the other groups (P<0.001). In all groups, decreased bond strength resulted from long-term water storage. In the N-Co group, a contaminated layer was observed on the surface by SEM and the contact angle was significantly smaller than the other groups (P<0.001). In Sb and AT groups, μTBS values that were reduced by artificial saliva contamination significantly increased but did not recover to P-Co group values (P<0.001). SEM showed no morphological difference between P-Co, Sb and AT groups. The Sb group showed increased surface roughness.

CONCLUSION: The long-term durability of bonds between CAD/CAM resin blocks and luting agent cement was significantly reduced by artificial saliva contamination. However, sandblasting or phosphoric acid cleaning can recover bonding effectiveness by 75-85%.

Annotations

> ⚠ Warning
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> ANYTHING OUT OF %begin%…%end% BLOCK WILL BE CLEARED WHEN UPDATE

Zotero-Notes

本研究探讨了人工唾液污染对CAD/CAM树脂块与树脂水泥的微拉伸粘结强度（μTBS）影响，并评估了去污方法。实验使用KATANA AVENCIA块，样本量为每组24个。结果显示，P–Co组μTBS最高，N–Co组显著降低（P＜0.001）。所有组别在长期水存储后粘结强度下降，N–Co组SEM观察到污染层，接触角显著小于其他组（P＜0.001）。Sb和AT组的μTBS有所回升，但未恢复至P–Co组水平（P＜0.001）。Sb组表面粗糙度增加。研究结论是人工唾液污染显著降低CAD/CAM树脂块与粘接剂的长期耐久性，但喷砂或磷酸清洗可恢复75–85%的粘接效果。

Notes

> ⚡ Danger

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