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[\[PDF \(2840K\)\]](#) [\[References\]](#)**Effect of Ceramic Coating by Aerosol Deposition on Abrasion Resistance of a Resin Composite Material**

[Yohsuke TAIRA](#)<sup>1)</sup>, [Hironori HATONO](#)<sup>2)</sup>, [Masahiro MIZUKANE](#)<sup>2)</sup>, [Masahiro TOKITA](#)<sup>2)</sup>  
and [Mitsuru ATSUTA](#)<sup>1)</sup>

1) Division of Applied Prosthodontics, Nagasaki University Graduate School of Biomedical Sciences

2) TOTO Ltd.,

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**Abstract:**

Aerosol deposition (AD coating) is a novel technique to coat solid substances with a ceramic film. The purpose of the present study was to investigate the effect of AD coating on abrasion resistance of a resin composite material. A 5- $\mu$ m-thick aluminum oxide layer was created on the polymerized resin composite. The specimen was cyclically abraded using a toothbrush abrasion simulator for 100,000 cycles. Abraded surface was then measured with a profilometer to determine the average roughness (Ra) and maximum roughness (Rmax). It was found that abrasion cycling increased the Ra value of the No-AD-coating group, but decreased the Ra and Rmax values of the AD coating group. Moreover, the AD coating group showed significantly smaller Ra and Rmax values after 100,000 abrasion cycles as compared to the No-coating control group. Microscopic observation supported these findings. In conclusion, the resistance of the resin composite against toothbrush abrasion was improved by AD coating.

**Key words:**

[Abrasion resistance](#), [Surface modification](#), [Resin composite](#)

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