Surface treatment effect on the initial force (preload) and remove torque of abutment screw

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The purpose of this study is to evaluate surface treatment effect on the initial force (preload) and remove torque between abutment screw and dental implant. Abutment screws were coated with TiC, TiN, and diamond-like-carbon (DLC). We used a custom made jig combined with a torque gauge and a load cell connected to a computer with LabVIEW Signal Express. The results indicated that the remove torque of all groups were all lower than the applying torque of 30Ncm. The remove torque of abutment screws with different surface conditions would not decay after ten try-in process. The preload (1^{st} and 2^{nd} try-in) of DLC is greater than TiC and TiN groups at 0 min. The preload were similar of TiN, DLC, and control groups at the 1^{st} to the 10^{th} try-in number. The initial preloads of different try-in numbers within each groups were not significant different.