Comparison of screw loosening, rotation, and deflection among three implant designs

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A common problem associated with single tooth implant restorations is abutment screw loosening. Manufacturers of implants have attempted to overcome this problem by incorporating anti-rotational design characteristics into their systems. Micro-movement and torque levels required to loosen abutment screws for straight and angled anti-rotational screw-retained abutment/implant combinations from three different manufacturers were examined in this in vitro investigation. A custom-built machine was used and each sample was subjected to compressive horizontal reciprocal movements over a 25-degree incline for a simulated 1-month period. Data were generated that showed movements of the crown/abutment complex during force application. The amount of torque necessary to loosen the abutment screws before and after testing was also recorded and compared for each system. The results indicated no significant differences (p < 0.05) among all the straight and angled abutments for the variables studied. (J PROSTHET DENT 1995;74:270-8.)