Discussion

The survival probability decreased at 200 N (100,00 cycles) for all groups—although very slightly for group IMC. This result was unexpected given that the implants were of similar dimensions. It is possible that the IMC configuration shields the abutment and screw from higher load levels. Further, the IMC design has a four-sided internal configuration that provides improved fit and thus decreases micromovements between parts.[4] This increased fit is remarkably important because the moment of inertia in bending is proportional to the inverse of the cube of the diameter of the part; thus, even small changes in fit will result in exponential variations in the system's bending resistance. Future studies evaluating this issue are warranted.

The failure mode in the IMC group was screw fracture at the third thread region. This may be due to the increased cross-sectional area of the connection in this group. In other groups, the screw head region was critical in terms of endurance of the prosthetic components, likely due to the shift in geometry along its length.[5] In this study, cycles were accelerated for reliability analysis, which precluded an extrapolation of years of clinical usage.

Conclusions

The survival probability was not significantly different among the implant systems at a load of 150 N. At a load of 200 N, the survival probabilities decreased significantly, except for in the group with internal modified square connections.

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Literature Abstract

Long-term stability of early implant placement with contour augmentation

The authors reported outcomes of early implant placement with simultaneous contour augmentation for a maxillary anterior single-tooth. Twenty patients were selected and followed for 6 years. Details of case selection and surgical and restorative procedures have been reported in previous publications (at 1 and 3 years). Special emphasis was placed on assessing the stability of the facial mucosa. Results showed that all implants were firmly integrated during the 6-year study period. Good stability of peri-implant soft tissues with a mean facial keratinized mucosa of more than 4 mm and pleasing esthetic outcomes were achieved. Cone beam computed tomography demonstrated that all 20 implants had a detectable facial bone wall. The authors suggested using histomorphometric analysis to show what percentage of this facial wall is bone versus remaining graft material. It was concluded that early implant placement with simultaneous contour augmentation offers high predictability for successful esthetic outcomes and good long-term stability of the established facial bone wall.

Buser D, Chappuis V, Kuchler U, Bornstein MM, Wittneben JG, Buser R, Cavusoglu Y, Belser UC. *J Dent Res* 2013;92(suppl 12):176S–182S. **References:** 32. **Reprints and Email:** daniel.buser@zmk.unibe.ch—*Huong Nguyen, Ann Arbor, Michigan, USA*