

Stability Of Angulated Multi-Unit Abutments In Implant-Supported Fixed Dental Prostheses

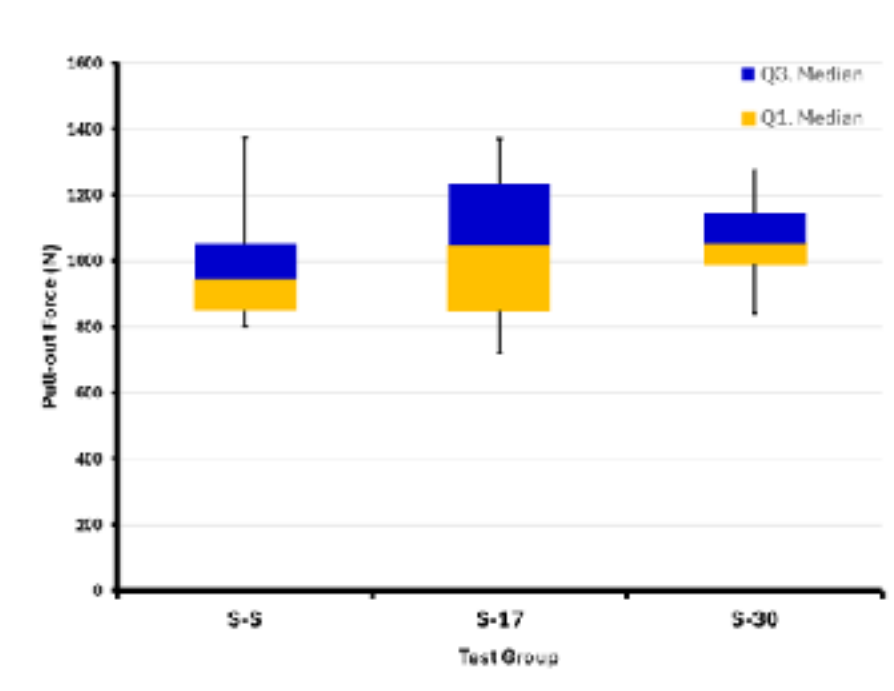
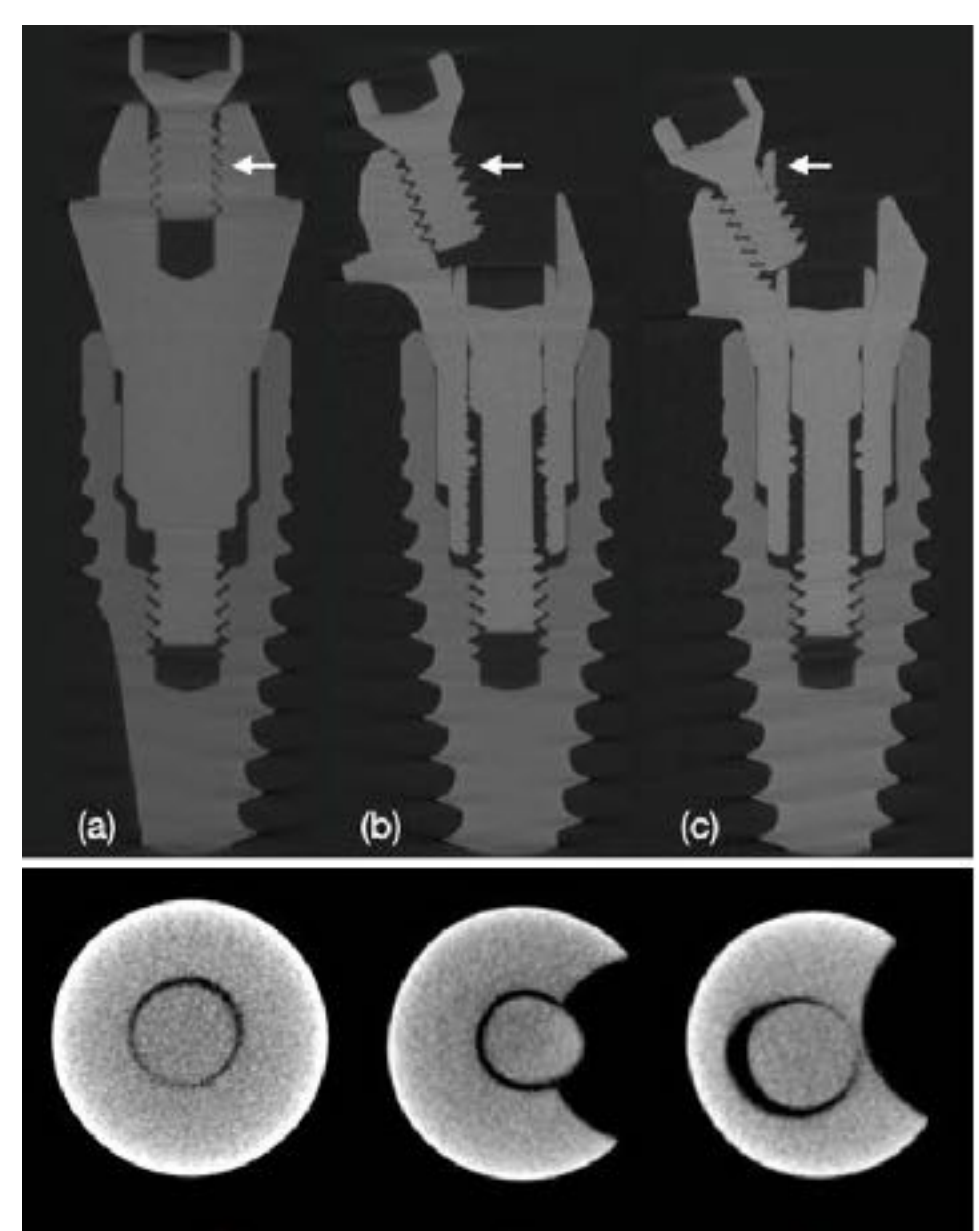


Mevadee Pibulniyom* DDS; Marwan Fattouhi, DDS, MS;
Sieu Yien Chiam, DDS, MS; Van Ramos, DDS; Kwok-Hung Chung, DDS, PhD
Graduate Prosthodontics, University of Washington School of Dentistry

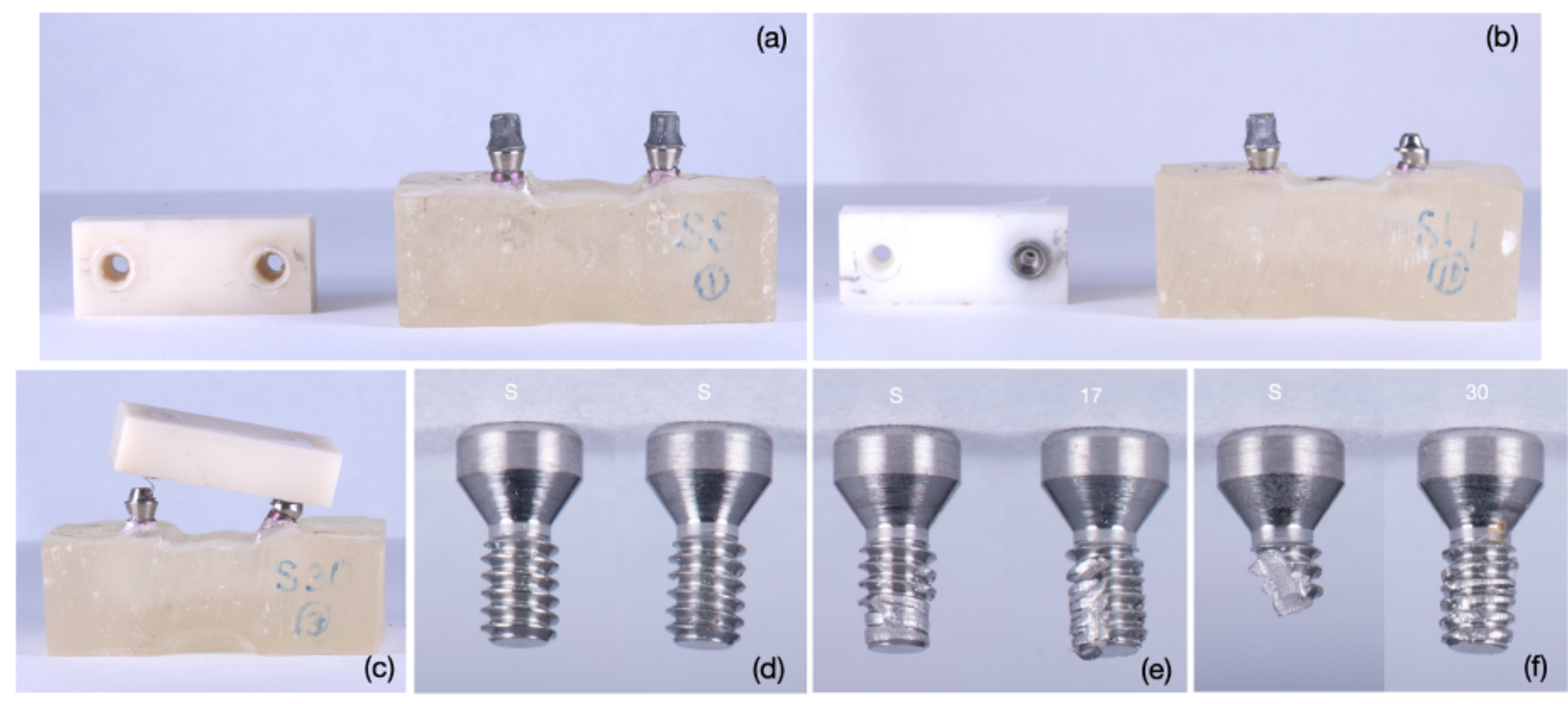
PURPOSE

To investigate the stability of angulated multi-unit abutments (MUAs) in implant-supported fixed dental prostheses (ISFDPs) using reverse torque test and pull-out test.

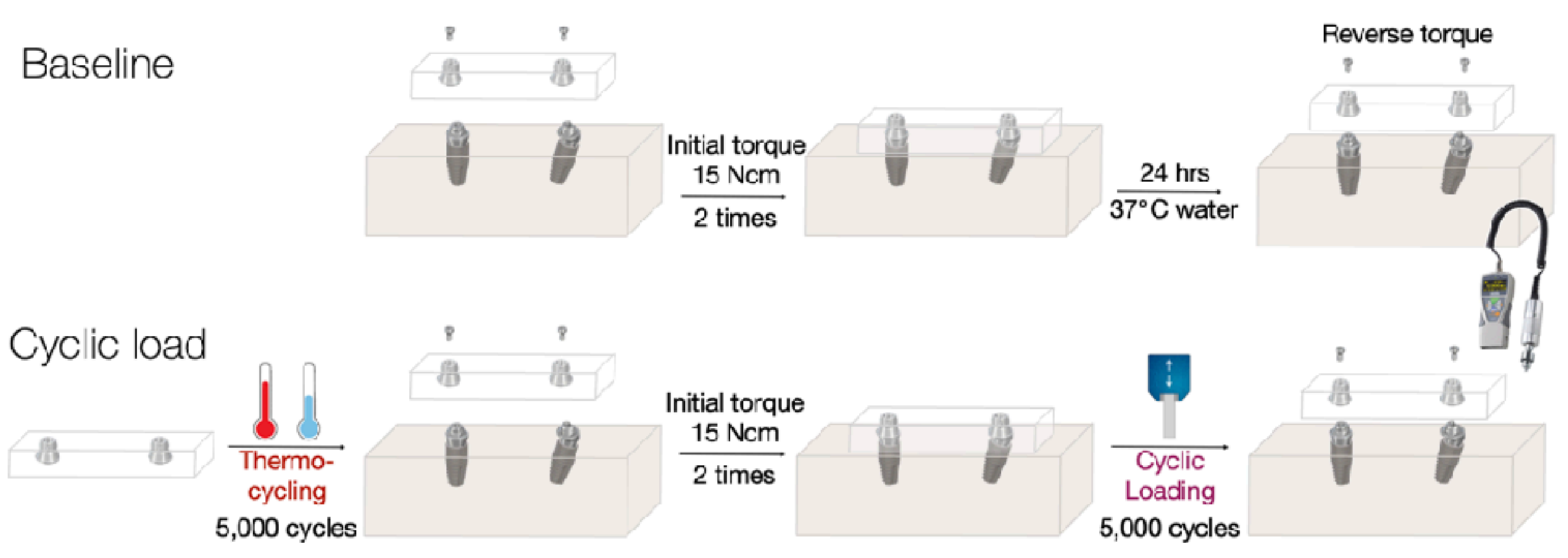
The interface between the prosthetic screw and the internal wall of MUAs varies among straight or 0-, 17-, and 30- degree



Failure Mode	Group S-S	Group S-17	Group S-30
Debonding of Coping	5 (50%)	0	0
Screw Deformation	3 (30%)	8 (80%)	10 (100%)
Debonding of Coping + Screw Deformation	2 (20%)	2 (20%)	0



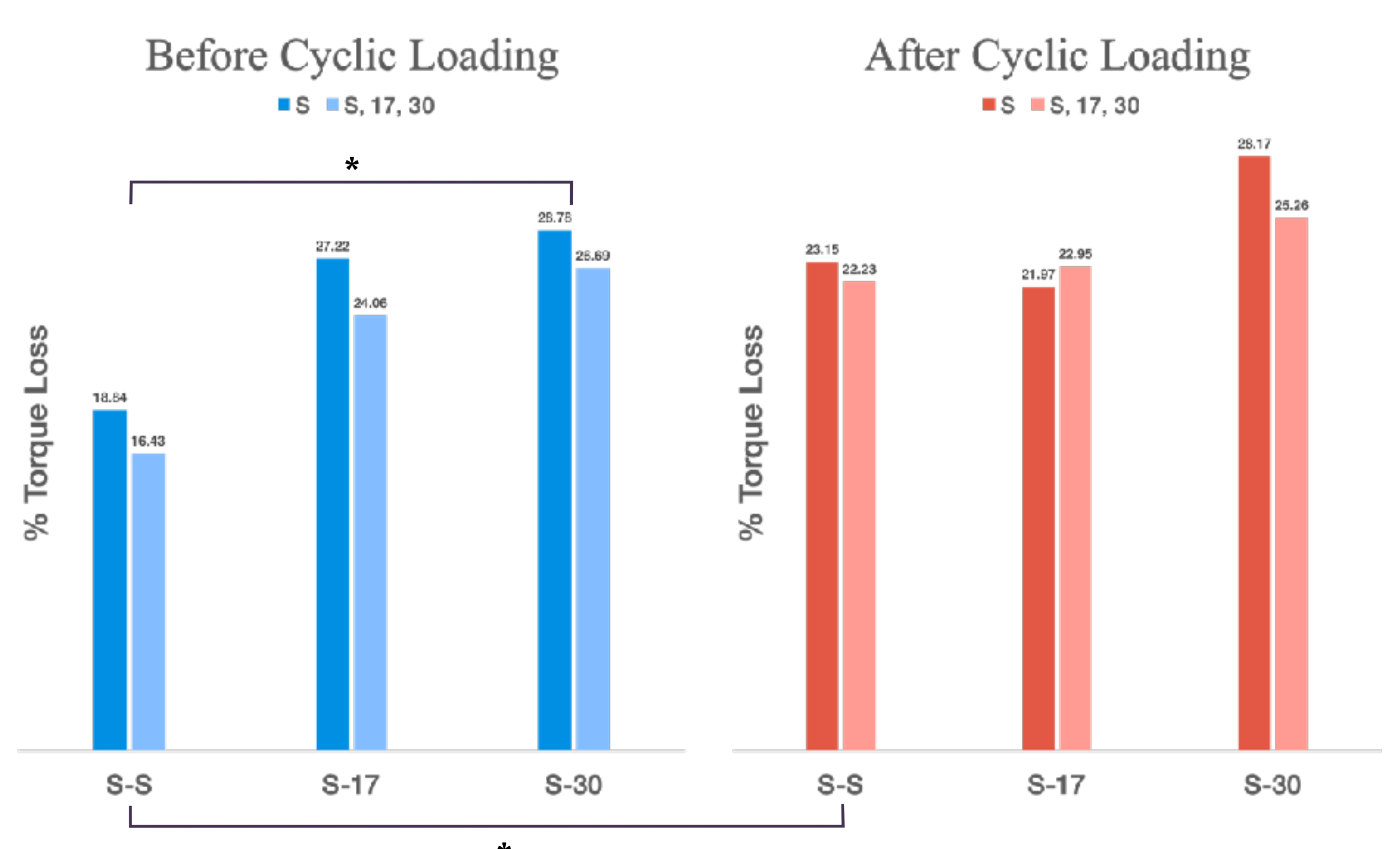
MATERIALS AND METHODS



- 30 Acrylic blocks. Three groups: S-S, S-17, S-30
- Electric torque gauge: reversed torque value
- Pull-out test using Instron machine

RESULTS

- Initial percent torque value loss = 16.43-28.78%
- Final percent torque value loss = 21.97-28.17%



• * = significant difference (p-value < 0.05)

DISCUSSION

- Percent torque value loss in this study was consistent with previous literature.
- Group S-30 showed significantly higher percent torque loss than Group S-S.
- Mastication treatment resulted in higher torque loss in Group S-S only. Active engagement of the prosthetic screws might occur in Group S-17 and S-30.
- The weakest interface of straight MUA is the cement interface, whereas in angulated MUA, the prosthetic screw is the weakest interface.
- Bending was frequently observed in the prosthetic screws of angulated MUAs after the pull-out test

CONCLUSION

- Prosthetic screw loosening occurred at similar rates across all tested groups after masticatory simulation treatment.
- No significant differences were found in pull-out force values among the different groups.
- Screw deformation was observed predominantly in 30° angulated implant with a 30° MUA.

REFERENCES

