



## INTRODUCTION

Implant dentistry. Some factors which convince dentists to choose cement-retained crowns over screw-retained crowns include but are not limited to their superior esthetics, lower cost, favorable occlusal surface, passive fit, fewer components, and lower complication rate.<sup>1</sup> Some of the disadvantages of cement-retained implant crowns are the difficulty in removing the excess cement which may compromise peri-implant tissue and the obstacle of retrievability.<sup>2</sup>

Finding the optimal luting agent which allows for the retrievability of the dental implant while providing adequate retention is a challenge faced by dentists today. According to Almeahandi et al, the characteristics for an ideal cement should include biocompatibility, adequate mechanical characteristics, promotion of tissue health, adequate marginal seal, dissolution resistance, radiopacity, excellent esthetics, and cost effectiveness. This poster will focus on the retention of different luting agents used for cement-retained implant crowns.

## METHODS & MATERIAL

Six categories of luting agents were analyzed for the purposes of this poster: resin base cements, resin modified glass ionomers, glass ionomer cement, zinc polycarboxylate, zinc phosphate, and zinc oxide temporary cement.

Cemented implant crowns were subject to conditions aimed at reproducing an intraoral environment such as thermocycling, compressive load cycling, and artificial saliva immersion.<sup>3</sup> After this conditioning, the retention of the cement-retained implant crowns were tested by a universal testing machine.<sup>3</sup>



Luted metal coping during pull out test using universal testing machine<sup>1</sup>

## DISCUSSION

Of the reviewed luting agents, resin-based cements exhibit the greatest retention while the zinc oxide temporary cements demonstrate the least amount of retention.<sup>4</sup> The overall findings are listed in the results, however some studies showed conflicting values. The differences may be due to factors such as abutment material, abutment height and taper, crown material, and different surface treatments applied.<sup>5</sup> The advent of purposely designed implant cements such as Premier<sup>®</sup> Implant Cement, a resin urethane based cement, have been introduced with the objective of achieving ideal retention in implant crowns. These cements have exhibited retention values less than that of resin cement, resin-modified glass ionomer cement, and glass ionomer cement.<sup>6</sup> They do however have greater retention values than temporary cements.<sup>2</sup> This suggests that the use of cements specifically designed for implant prostheses can provide the option of implant crown removal without compromising the structure of the abutment underneath.

## RESULTS

The consensus of luting agents analyzed from highest retention to lowest are resin base cements, zinc polycarboxylate, resin-modified glass ionomer, glass ionomer, zinc phosphate, and finally zinc oxide temporary cement.<sup>4</sup>

## CONCLUSION

The interpretation of success in cement-retained implant prostheses varies from study to study. In practice, success is established by the vision of the clinician and by the needs of the patient. Dental cement selection should be based on the prognosis of crown retention as well as the experience and skills of the clinician.



References