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group) at 4, 8, and 12 weeks after implant placement. Bone formation and tissue reactions were measured by micro-CT and histomorphometry. The study was approved by the institutional Animal Ethics committee.

**Results:** Bone volume in sites treated with both collagen membranes was significantly greater than controls at 12 weeks. However, the BCM displayed comparatively more bone formation at the early time point of 4 weeks than the CCM. Further, histological assessment of sites treated with the bioactive membrane revealed that mature cortical bone formation occurred as early as 8 weeks, which was likely due to the minimal inflammatory reaction observed and retention of the bioactive barrier structure.

**Conclusions:** The new bioactive collagen membrane induces early mature bone formation in a canine model of dental GBR.

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**Sub-topic 3.5: Materials**

26.09.2021, 14:30 - 14:45 AEST

**FC21**

**Effect of Curing Modes on Depth-of-Cure in Bulk-Fill Composite**

Zainab Haji *, Robia Ghafoor

Aga Khan University Hospital, Sindh, Pakistan

**Aim or Purpose:** LED unit has different curing modes with variable intensities that influence polymerization of composite restorative material. Bulk-Fill composites claim more depth of cure compared to conventional composites. However, they have conflicting reports on their success. Hence, the purpose of this study is to explore the curing mode that could result in maximum depth cure in Bulk Fill restorative material.

**Materials and Methods:** Thirty-three cylindrical composite specimens with dimension of 8mm length and 4mm diameter were made in preformed Teflon mold/frame by polymerization with LED using one of the three modes: Group1 constant mode; Group 2 pulse and Group 3 ramped mode. Once polymerized, each specimen was extruded from the mould and using the ISO 4049 scrapping method, uncured resin was removed. Specimen lengths were measured with a Vernier caliper. Each specimen was measured thrice and the mean was taken for the depth-of-cure. The data was subjected to ANOVA and Tukey’s post hoc analysis.

**Results:** The pulse, constant and ramped modes resulted in depth of cure of SDR BulkFill composite of $2.88 \pm 0.27\text{mm}$, $2.92 \pm 0.29\text{mm}$ and $3.18 \pm 0.26\text{mm}$, respectively. The difference in depth of cure between pulse and ramped curing mode was statistically significant on post-hoc analysis ($p$-value=0.04).

**Conclusion:** Maximum depth of cure of SDR BulkFill composite was achieved by ramped cure mode of LED unit followed by Constant and Pulse modes.

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26.09.2021, 14:45 - 15:00 AEST

**FC22**

**Microleakage comparison in temporary restorative materials in complex endodontic cavity**

Karshma Devi *, Farhan Raza Khan

The Aga Khan University Hospital, Karachi, Pakistan

**Aim or Purpose:** To compare the mean microleakage (in millimeters) around two temporary restorative materials (zinc-oxide based versus light-cure resin based) at tooth-temporary restoration and temporary-permanent restoration interfaces, within the complex endodontic access cavities in the extracted human teeth.

**Materials and Methods:** Thirty teeth randomly allocated into 2 experimental groups in this in-vitro experimental study. Teeth in each group had conventional class II cavities prepared and restored with the composite filling. After 14 days of aging in saline, complex endodontic access