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**Lens and peripheral retinal relationships during vitrectomy: Comparison of 23, 25, and 27-gauge vitrectomy and curved endolaser probes**

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**Purpose:**
To compare relationships between the crystalline lens and vitrectomy instruments of different gauges.

**Methods:**
Eight fresh phakic cadaver eyes were utilized after fixation. For each eye a 27-gauge, 25-gauge, and 23-gauge valved trochar were sequentially placed in the superotemporal quadrant 4mm posterior to the limbus. For each gauge, measurements of intraocular relationships were taken using vitrectomy and curved endolaser probes. Statistical analyses were conducted using the Kruskal-Wallis and Wilcoxon tests.

**Results:**
There were no significant differences in maneuverability relative to the lens between instruments of different gauge size. The average distance from instrument to lens at the geometric center of the globe was 5.5 mm. In all eyes, vitrectomy and endolaser probes of any gauge could access the peripheral retina on both sides of the sclerotomy in the adjacent 3-4 clock hours to the sclerotomy without touching the lens. The instruments could be advanced without lens touch to contact the retina at least within 23 mm of the ora serrata 180 degrees away from the insertion site.

**Conclusions:**
Vitrectomy and curved endolaser probes achieved similar maneuverability relative to the lens regardless of gauge. This study confirms that small-gauge vitrectomy instruments have considerable access to the peripheral retina in phakic eyes.