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Impact of smartphone usage on children's horizontal fusional amplitudes

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Introduction: Cell phone usage has increased in pediatric patients and little research has been done on its effects on patients' fusional vergence amplitudes. We aim to study the impact of smartphone usage on healthy pediatric patients' fusional vergence amplitudes and report findings that may lead to future eye problems.

Methods: This is a prospective randomized study. We are currently recruiting healthy patients between the ages of 8-17 years old with no ocular problems. Data collected include refractive error, ocular alignment in the distance and at near, divergence amplitudes at near and in distance, convergence amplitudes at near and in distance, near point of convergence, and near point of accommodation. Patients' measurements are taken before and after 30 minutes of cell phone usage and 30 minutes of TV monitor usage, which is used as a control. Once all patient data has been collected, the differences will be compared using t test, or Rank test if normality assumption does not hold.

Results: One experimental trail run has been conducted, which yielded complications in regard to patient cooperation. Recruitment and scheduling have been difficult, which has prevented us to having significant results as of now. We anticipate data collection to span over the next year due to the nature of design and predict increases in fusional amplitudes after cell phone usage for our results.

Conclusion: We believe that the anticipated results will help curtail cell phone usage in pediatric patients. More research should be expanded on the long-term effects of cell phone usage since our study only focuses on short term fusional amplitude effects. Patient cooperation has been a main limitation in our project, and we plan on solving it by conducting future runs in the morning in order to reduce fatigue.