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Effect of illumination over positive fusional vergence when using VDU as target

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Statement of the Problem: The VDU related eye fatigue is showing an increasing pattern in all over the world. Out of many factors contributed to VDU related eye fatigue, illumination is one the major factor. Researchers have shown that, values of accommodation focused beyond the convergence at brighter illumination but both are same in darker illumination. Several ergonomic studies have shown, viewing distance and angle are not only the factor that can influence the convergence level among VDU user but also the illumination.

Purpose of the Study: To find out the changes in the positive fusional vergence at near, under different room illuminations while using VDU as a target.

Methodology & Theoretical Orientation: A cross-sectional study was performed by using convenience sampling method. Subjects with a best corrected visual acuity of 6/6 and N6 were included in the study. Subjects having any ocular pathology, presbyopia, eye movement disorder, binocular vision anomaly, systemic illness and contact lens wearers were excluded. Amount of positive fusional vergence at near were measured by using a base out prism under three different room illuminations (7 Lux, 19 Lux, 33 Lux). Blur, break and recovery were recorded and data were analyzed by using a repeated measure Friedman Test to investigate the changes in positive fusional vergence at near under different room illuminations.

Findings: Positive fusional vergence for near has changed significantly in three different levels of room illumination ($p=0.012$, $p=0.003$ and $p=0.006$ for blur, break and recovery respectively). However, positive fusional vergence between gender was not significant ($p>0.05$).

Conclusion & Significance: A significant difference in positive fusional vergence has been observed for near under different level of room illuminations.

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