

Stereoacuity and its determinants in 7-year-old children: the Lhasa Childhood Eye Study

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Abstract

Purpose

To explore the distribution of stereoacuity and to examine its determinants in school-age children in Tibetan plateau, Southwest China.

Methods

This is the cross-sectional part of a school-based cohort study of 7-year-old children in Lhasa, Tibet Autonomous Region, Southwest China. Children in first year of primary school were invited to undergo a comprehensive examination, including height, weight, visual acuity, cycloplegic autorefractometry (1% cyclopentolate), anterior segment, cover and uncover test, and stereoacuity (Titmus Stereo Test).

Results

A total of 1833 eligible subjects were included, with a mean age of 6.82 ± 0.46 years. Mean stereoacuity was 1.78 ± 0.21 in log units (median: 60 arcsec). Children with stereoacuity equal to 40 arcsec and stereoacuity worse than 100 arcsec accounted for 29.24% and 8.18% of the cohort, respectively. Tibetan ethnicity (OR = 1.98; 95%CI, 1.30–3.03), astigmatism (OR = 1.65; 95%CI, 1.26–2.17), strabismus (OR = 2.92; 95%CI, 1.38–6.18), and amblyopia (OR = 3.77; 95%CI, 1.14–12.49) were risk factors for normal stereoacuity (≤ 40 arcsec). Shorter height, younger age, strabismus, and worse BCVA ($P < 0.05$ for all) were both related to lower stereoacuity in Spearman correlation analysis and associated with lower stereoacuity in multivariate regression analysis.

Conclusion

Stereoacuity maturation does not appear fully completed in 7-year-old children, while few children present stereoacuity worse than 100 arcsec (8.18%). Lower stereoacuity was associated with younger age, shorter height, strabismus, and lower best-corrected visual acuity.

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