

NCC 'GET CONNECTED 2026'

Organization Section: NCC/ BCLA

Poster Abstracts

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Comparison of refraction data and visual acuity with and without cyclopentolate

Ilka Kobelt, Philipp Hessler, Stephan Degle

Affiliation: CV Optistudent Runner up

Purpose: Cycloplegic refraction represents the gold standard in assessing refractive error in children. Internationally, not all eye care providers are authorized to use cycloplegics. Therefore, the necessity of cycloplegic eye drops for determining refraction was evaluated. This investigation compared refraction and visual acuity obtained under cycloplegic and non-cycloplegic condition in a Caucasian population.

Method: One eye of 73 participants, aged 6-29 years, was examined under cycloplegic (CC) and non-cycloplegic condition (NCC) using autorefraction (AR), subjective refraction (SR) and visual acuity was tested. Participants were subdivided into three refractive groups (emmetropia: $-0.50 \text{ D} < \text{SE} < +1.00 \text{ D}$, myopia: $\text{SE} \leq -0.50 \text{ D}$, hyperopia: $\text{SE} \geq +1.00 \text{ D}$).

Results: When comparing AR CC and SR NCC, deviations in SE were largest in hyperopes ($\Delta \text{SE} = 0.74 \pm 0.57 \text{ D}$; 95% CI: $0.5 - 0.97 \text{ D}$) compared to emmetropes ($\Delta \text{SE} = 0.37 \pm 0.21 \text{ D}$; 95% CI: $0.24 - 0.45 \text{ D}$) and myopes ($\Delta \text{SE} = 0.25 \pm 0.32 \text{ D}$; 95% CI: $0.12 - 0.38 \text{ D}$). When comparing SR CC and SR NCC, deviations in SE were largest in hyperopes ($\Delta \text{SE} = 0.54 \pm 0.43 \text{ D}$; 95% CI: $0.36 - 0.71 \text{ D}$) compared to emmetropes ($\Delta \text{SE} = 0.23 \pm 0.26 \text{ D}$; 95% CI: $0.10 - 0.35 \text{ D}$) and myopes ($\Delta \text{SE} = 0.12 \pm 0.17 \text{ D}$; 95% CI: $0.04 - 0.18 \text{ D}$).

Conclusions:

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