

# Peripheral refraction in myopic children wearing orthokeratology and gas-permeable lenses.

[Optom Vis Sci.](#) 2011 Apr;88(4):476-82 [Kang P, Swarbrick H.](#)

## Source:

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## Abstract

### PURPOSE:

To investigate changes in peripheral refraction after orthokeratology (OK) and rigid gas-permeable (GP) lens wear in progressing myopic children and to compare these peripheral defocus changes with reported changes in adults wearing OK.

### METHODS:

Sixteen myopic children subjects were fitted with an OK lens in one eye for overnight wear and a GP lens in the other eye for daily wear. Central and peripheral refraction were measured at baseline and then after 3 mo of lens wear.

### RESULTS:

At baseline, myopic children showed relative peripheral hyperopia compared with central refraction at and beyond 20° in the temporal visual field (VF) and 30° in the nasal VF. Three months of OK lens wear produced hyperopic shifts in refraction between 30° in the temporal VF and 20° in the nasal VF. Peripheral refraction was similar to center at all positions in the temporal VF while remaining significantly myopic at all locations in the nasal VF. No change in either central or peripheral refraction was found after 3 mo in the eye assigned for GP lens wear.

### CONCLUSIONS:

OK significantly reduced myopia in the central 20° VF in myopic children, converting relative peripheral hyperopia measured at baseline to relative peripheral myopia. These changes in children are similar to changes reported in myopic adults wearing OK lenses. No change in either central or peripheral refraction was found after 3 mo of daily GP lens wear. OK lenses can be used to induce myopic defocus in the periphery in myopic children and may thus provide a potential mechanism for myopia control.

PMID:

21317669

[PubMed - in process]