

This abstract is being submitted for consideration as a:

- Poster only
- Paper (oral presentation) only
- Poster or Paper

Abstract type:

- | | |
|--|--------------------------------------|
| <input checked="" type="checkbox"/> Research Study | <input type="checkbox"/> Case Report |
| INCLUDE: | INCLUDE: |
| - Background | - Background |
| - Methodology | - Case Summary |
| - Results | - Discussion |
| - Conclusions | |

TITLE: Visual On-Task Time of 4- and 5-Year-Old Children during Storybook Reading is Related to the Presence of Uncorrected, Moderate Hyperopia

ABSTRACT: (following applicable outline above and limited to 300 words)

Background:

Moderate, uncorrected hyperopia has been shown to be associated with increased accommodative effort, difficulty attending at near, and reduced literacy skills. This study compared visual on-task time between emmetropic and hyperopic 4- and 5-year-old children during storybook reading using eye tracking.

Methods:

A subset of children in the Vision In Preschoolers – Hyperopia In Preschoolers Study also participated in an ancillary study of eye movement testing. Children with hyperopia $\leq 1.00D$ and myopia, astigmatism, and anisometropia all $< 1.00D$ were classified as emmetropic; children with $+3.00$ to $+6.00D$ (inclusive), $\leq -1.50D$ of astigmatism, and $\leq 1.00D$ of anisometropia (based on cycloplegic refraction) were classified as hyperopic. All children were given a comprehensive eye exam to rule out amblyopia, strabismus, and ocular health concerns. The ASL Eye Track 5000 and/or ISCAN ETL 100 scene-camera system(s) were used for eye tracking. Each child's eye movements were measured while books were read aloud to the child from a timed PowerPoint presentation. Recordings were processed using MPEG Streamclip and DVDVideoSoft software and analyzed for presence and location of eye fixations. Fixations were determined to be "on task" if the child fixated on the text or a picture in the story; fixations elsewhere were considered "off task."

Results:

Fifty-five eligible children (33 emmetropes and 22 hyperopes) provided analyzable data. The emmetropic children spent 76 % (SE= $\pm 5\%$) of their time in on-task fixations versus 56% (SE= $\pm 7\%$) for the hyperopes. After adjusting for age, gender, and parent education, hyperopic children demonstrated 18% less visual on-task time (p=0.04).

Conclusions:

Uncorrected, moderately hyperopic 4- and 5-year-old children showed significantly lower visual on-task time during storybook reading than their emmetropic peers.