**Introduction:** Amblyopic children read slowly and make more forward saccades during binocular reading compared with nonamblyopic strabismic and control children (Kelly et al, 2015). Binocular inhibition - better performance during fellow eye viewing than binocular viewing - is related to slow reading in age-related macular degeneration and to contrast sensitivity loss in amblyopia. Here, we investigated whether binocular inihibition slows reading in amblyopia (ie, slower reading for binocular vs fellow eye viewing).
**Methods:** 41 children age 7-12 years treated for strabismus, anisometropia, or both (24 amblyopic [0.2-1.2 logMAR], 17 nonamblyopic) were enrolled. Children silently read grade-appropriate paragraphs during binocular (BV) and fellow eye viewing (FEV) while fitted with the ReadAlyzer. Reading rate (words/min) and number of forward saccades (per 100 words) were recorded. Visual acuity (VA) and stereoacuity were obtained.
**Results:** Consistent with our previous study, amblyopic children read more slowly and made more forward saccades than nonamblyopic children during BV ($P$s $< 0.05$). Nonetheless, no differences were found between BV and FEV for amblyopic children (reading rate: BV, mean $\pm$ SD $= 160 \pm 57$ vs FEV, $154 \pm 63$ words/min, $P = 0.50$; Saccades: $107 \pm 35$ vs. $109 \pm 46$ per 100 words, $P = 0.75$). Reading rate was not related to etiology, amblyopic eye VA, or stereoacuity.
**Discussion:** Binocular reading did not differ from fellow eye reading in amblyopic children; binocular inhibition is unlikely to play a role in their slow reading.
**Conclusions:** Slow reading in amblyopic children is not due to inhibition of the fellow eye by the amblyopic eye. We are currently exploring other potential factors contributing to slow binocular reading, including fixation instability and abnormal saccadic eye movements.

**027 Novel digital therapeutic improves visual acuity and encourages high adherence in amblyopic children.** Aaron M. Miller, Lisa I. Bohra, Christie L. Morse, Louis C. Blumenfeld, Noha S. Ekdawi, Ann U. Stout, Scott Xiao, David G. Hunter, Eric Gaier, Malcolm L. Mazow
**Introduction:** Current amblyopia treatments can be limited in effectiveness due to low adherence over long treatment periods (33-54%)[1] and monocular viewing conditions. We tested the clinical effectiveness and adherence of Luminopia One—a virtual reality system that applies binocular therapeutic modifications to television shows or movies chosen by the patient.
**Methods:** This single-arm, multi-center study enrolled children aged 4-12 with anisometropic, strabismic, or mixed amblyopia at 10 centers to use Luminopia One at-home for 1 hour/day, 6 days/week for 12 weeks. Best-corrected visual acuity (BCVA) and stereoacuity (Randot) were assessed at each visit. A group of participants (n $=$ 20) was excluded from this analysis due to improper software calibration.
**Results:** Of the 55 enrolled participants (mean age $7.1 \pm 2.3$ years), 53 had stable BCVA at enrollment and 46 had prior treatment beyond glasses (eg, patching, atropine). Thirty-one participants have completed 12 weeks of treatment with mean adherence 84% of prescribed dose. Mean amblyopic eye BCVA improved 0.20 logMAR (2 lines; 95% CI 0.14-0.25, $P < 0.0001$) after 12 weeks from baseline of 0.47 logMAR. Mean stereoacuity improved 0.30 log arcsec (1 octave step; 95% CI, 0.00-0.59, $P = 0.047$). Infrequent mild blurry vision (n $=$ 3), headache (n $=$ 3), and double vision (n $=$ 1) were reported and resolved without additional treatment.
**Discussion:** Patients demonstrated clinically and statistically significant improvements in visual acuity and stereoacuity, maintaining high adherence over 12 weeks.
**Conclusions:** Luminopia One shows promise as an engaging and potentially effective at-home amblyopia treatment.

**028 Reliability of telemedicine for real-time pediatric ophthalmology consultations.** Sudha Nallasamy, Josephine Coffey-Sandoval, Carly Stewart, Mark W. Reid, Thomas C. Lee
**Introduction:** Geographic and socioeconomic disparities in access to care impede timely diagnosis and treatment of pediatric ophthalmic conditions. Telemedicine may address these disparities, but its technological and diagnostic reliability are uncertain.
**Methods:** This prospective, noninferiority study included 349 examinations of 210 patients aged 0-17 years (median, 6 years). Examinations were conducted by an optometrist using Pivothead glasses, a digital slit lamp, and a digital indirect ophthalmoscope, and streamed via Polycom codec to an ophthalmologist, who recorded diagnoses, measurements, and management plans. Following each telemedicine examination, the ophthalmologist verified the results in-person.
**Results:** Sixty-two percent of patients were primarily diagnosed with strabismus (n $= 130$); other common primary diagnoses included nasolacrimal duct obstruction (n $= 8$) and glaucoma (n $= 7$). No primary diagnoses were changed (although two nonprimary diagnoses were), and no management plans (including surgical plans) were changed following in-person examination. In strabismus patients, almost perfect agreement was observed for angle measurements (ICCs $= 0.97$-$1.00$) and disease categorization ($\kappa = 0.94$-$1.00$). Almost all patients who consented for surgery (54/55) did so during the telemedicine examination, masked to receiving an in-person exam. Most families felt comfortable with the quality of the telemedicine examination (99%), and indicated they would participate in another one in the future (97%).
**Discussion:** The ophthalmologist was able to make accurate diagnoses, plans, and measurements via telemedicine, in contrast to previous studies with older technology.
**Conclusions:** Pediatric ophthalmic conditions can be reliably diagnosed and monitored by ophthalmologists via telemedicine. Care delivery for underserved populations can be improved by collaboration between optometrists and ophthalmologists using video-conferencing technology.

**029 A prospective outcomes study of pediatric optic neuritis.** Stacy L. Pineles, Michael X. Repka, Elizabeth L. Lazar, Grant T. Liu, Amy T. Waldman, Mark S. Borchert, Sangeeta Khanna, Gena Heidary, Jennifer S. Graves, Veeral S. Shah, Mark J. Kupersmith, Raymond T. Kraker, David K. Wallace
**Introduction:** We are aware of no prospective data on visual outcomes in children with optic neuritis (ON).
**Methods:** In a nonrandomized observational study, we prospectively enrolled 3- to <16-year-olds with a clinical diagnosis of acute ON (onset within 2 weeks) and at least one of the following: visual acuity (VA) deficit $\geq$0.2 logMAR below age-based norms in the affected eye, diminished color vision, abnormal visual field, or optic disk swelling. The primary outcome was percentage of study eyes within age-normal VA range after 6 months.
**Results:** Fifty-four eyes of 44 participants age 3-15 years were enrolled; 41% were female. Regarding type of ON and central nervous system associations: 14 participants had unilateral isolated ON, 10 had bilateral isolated ON, 8 had acute disseminated