Table S1. Clinical characteristics of study participants.
Blue denotes anisometropic patients, while red denotes strabismic and mixed patients. The shaded regions are the monocular group; unshaded are binocular group.

SID	Age	Gender	Classification	Training Type	Refractive Error	Visual Acuity (Bailey/Lovie)	Ocular Alignment (distance)	Stereoacuity Circles/Preschool or animals (arc sec)	Fixation
A1[+]	9	M	Aniso	Mono	R: +4.75/-3.00 X 180 L: +0.75/-0.50 X 180	20/32 20/20-1	Ortho	70/100	central
A2	11	F	Aniso	Mono	R: +3.25 L: Plano	20/63-2 20/20+2	Ortho	70/200	central
A3	9	F	Aniso	Mono	R: +5.50/-1.50 X 15 L: Plano	20/50 20/20	Ortho	140	central
A4[+]	11	F	Aniso	Mono	R: Plano L: +5.50/-2.00 X 178	20/16-1 20/63+1	Ortho	40/100	central
A5	7	M	Aniso	Mono	R: +3.00 L: +4.50	20/25+1 20/50	Ortho	25/200	central
A6	15	F	Aniso	Mono	R: +1.50/-1.75 X 178 L: +3.25/-1.75 X 172	20/15 20/80	2^Δ EP	200/Failed	central
A8	7	F	Aniso	Binoc	R: +5.0/-5.00 X 185 L: +0.50/-0.50 X 182	20/60 20/20	Ortho	200	central
A9	17	M	Aniso	Binoc	R: +2.00 L: Plano	20/50+2 20/20-1	Ortho	100/400	central
A10	10	M	Aniso	Binoc	R: +0.25 L: +3.00	20/20-1 20/40-2	Ortho	20/60	central
A11	9	M	Aniso	Binoc	R: +5.25 L: +1.25	20/50-1 20/20	Ortho	200/Failed	central
A12	11	M	Aniso	Binoc	R: +5.25/-125 X 10 L: Plano	20/40-2 20/20	10^Δ XP @Near	50	central
A13	13	M	Aniso	Binoc	R: +3.00/-1.25 X 180 L: Plano	20/40-2 20/16	Ortho	40/100	central
S1[+]	8	F	Mixed	Mono	R: +3.75 L: +1.75	20/100-1 20/25-1	6^Δ R. ET	Failed/Failed	RE: Unsteady $1 - 2^\Delta$ Nasal.
S2	9	F	Mixed	Mono	R: +1.75 L: +7.75	20/20 20/40-2	6^Δ L. XT @ Near	25/Failed	central

S3	11	M	Mixed	Mono	R: +3.00/-1.25 X 170 L: +1.25/-1.00 X 180	20/100 20/25	10^Δ R. ET; 6- 8 $^\Delta$ R. Hypo	Failed/Failed	RE: Unsteady, 2^ΔSup/Temp.
S4[+]	8	M	Mixed	Mono	R: +5.00 L: +3.00	20/100+2 20/25-1	4^Δ R. ET	100/Failed	RE:2^Δ Temp.
S5	9		Mixed	Mono	R: +4.25/-0.50 X 120 L: Plano	20/80-1 20/16-1	R. XT 2^Δ @ dist; 18 Δ @ Near	200/800	RE: Unsteady central
S6	7	M	Strab	Binoc	R: +4. 50/-1.00 X 180 L: +4.00/-0.25 X 180	20/40 20/25	10^Δ R. ET	100	RE: Unsteady central
S7**	17	F	Mixed	Binoc	R: -5.25/-1.75X160 L: +0.75/-2.25 X 20	20/200-2 20/30-2	4^Δ R. ET	200	RE:2^Δ Nasal
S8[+]	7	M	Strab	Binoc	R: +3.25/-0.75 X 175 L: +3.25/-0.50 X 180	20/50+2 20/25-1	6^Δ R. ET	Failed/Failed	RE: Unsteady, 1^ΔSup/Nasal
S9[+]	7	M	Mixed	Binoc	R: +5.00 L: +7.00/-0.50 X 012	20/20-2 20/100-2	4^Δ L. XT @ dist; 8^Δ @ Near	200/800	LE: 3^Δ Nasal.

ET – esotropia; XT – exotropia; Hypo – hypotropia.

*A7 was dropped from analysis because participant wore different Rx corrections for pre/post assessments.

** S7 was excluded from the main analyses (Growth model and MANOVA) due to missing MNRead data at all time points, but was included in the descriptive statistics.

[+] Patched in the last 6 months

Supplementary Results:

Table S2. Normalized Growth model change scores. Blue denotes anisometropic patients (Aniso), while red denotes strabismic and mixed patients shaded regions are the monocular group; unshaded are the binocular group.

Subject ID	Classification	Training Type	Visual Acuity Change score (z)	Stereo Acuity Change score (z)	MN Read Change score (z)
A1	Aniso	Mono	0.790	0.187	0.637
A2	Aniso	Mono	-0.249	0.391	1.186
A3	Aniso	Mono	0.608	-0.560	1.619
A4	Aniso	Mono	0.047	0.769	0.900
A5	Aniso	Mono	1.328	-0.495	-0.564
A6	Aniso	Mono	-0.295	0.158	-0.349
A8	Aniso	Binoc	0.759	-0.806	2.181
A9	Aniso	Binoc	1.118	1.079	1.216
A10	Aniso	Binoc	1.036	-0.354	0.310
A11	Aniso	Binoc	-1.730	-2.843	-0.746
A12	Aniso	Binoc	0.437	1.271	0.309
A13	Aniso	Binoc	0.509	1.060	-0.083
S1	Mixed	Mono	-1.360	-0.033	-0.746
S2	Mixed	Mono	0.906	1.126	0.441
S3	Mixed	Mono	-0.742	1.071	-0.746
S4	Mixed	Mono	-0.710	-0.491	-1.027
S5	Mixed	Mono	0.011	-0.792	-1.408
S6	Strab	Binoc	0.126	0.674	-0.746
S8	Strab	Binoc	0.680	-0.438	-0.680
S9	Mixed	Binoc	-0.860	-0.971	-0.347

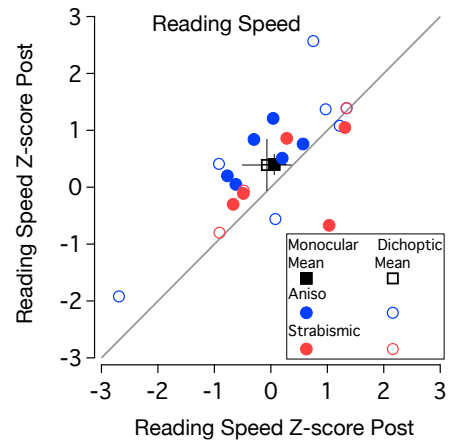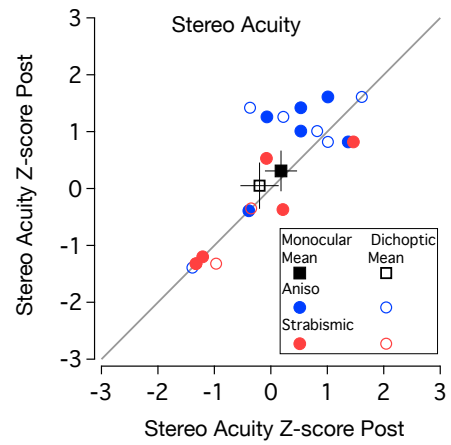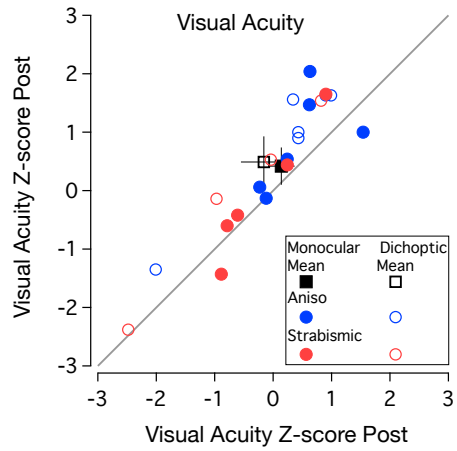S7 was excluded from this analysis because of missing MNRead data.

Visual Acuity

Visual Acuity Z-score Post

Visual Acuity Z-score Post

Monocular Mean | Dichoptic Mean
Aniso
Strabismic

Stereo Acuity

Stereo Acuity Z-score Post

Stereo Acuity Z-score Post

Monocular Mean | Dichoptic Mean
Aniso
Strabismic

Reading Speed

Reading Speed Z-score Post

Reading Speed Z-score Post

Monocular Mean | Dichoptic Mean
Aniso
Strabismic

Fig. S1: Z-Scores Pre vs. Post training for Visual acuity (Top), stereo acuity (middle) and Reading Speed (Bottom). Points above the gray 1:1 line in[dicate] improvement.
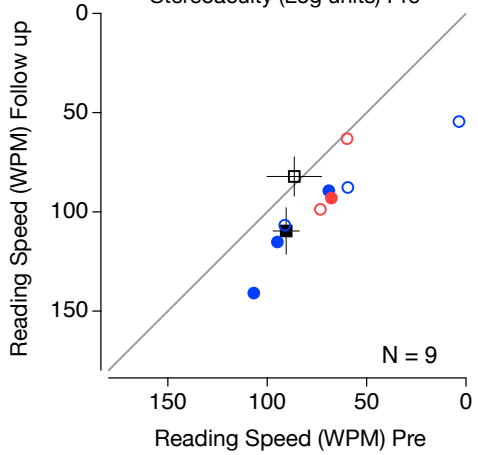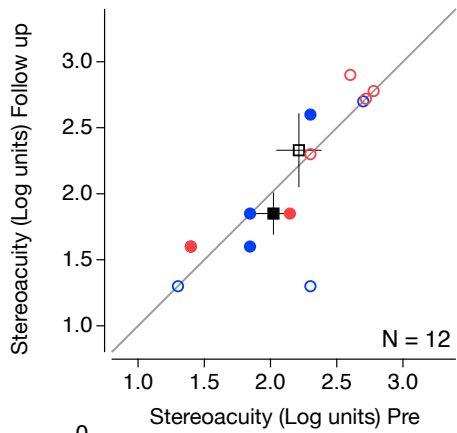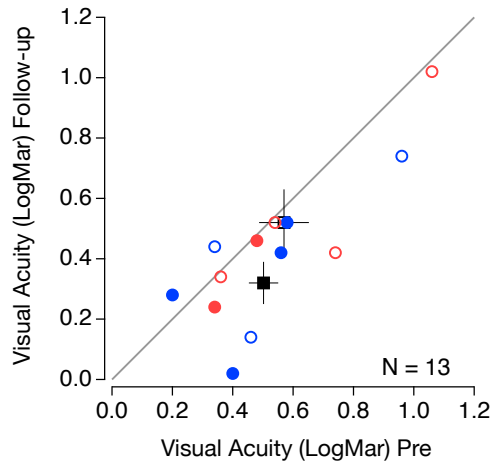
Fig. S2 Pretraining vs. Follow-up performance for Visual acuity (Top), stereo acuity (middle) and Reading Speed (Bottom). Note that in this figure, p[...] below the gray 1:1 line indicate improvement.

Game related measurements

All children started on the introductory game level and advanced in difficulty level individually, once they scored approximately 10-15 points p

minute session. All children reached a minimum of level 2 and a maximum of level 5 over the course of the 20 hours of training. We hypothesized th

proficiency may have served as a proxy for overall engagement with the game. However, while older children were more likely to reach higher gam

(R^2=0.39, p=0.002), skill level was not related to the degree of improvement in visual acuity (R^2=0.01, p=0.68), stereoacuity (R^2=0.00, p=0.97), or rea

measures (WPM: R^2=0.05, p=0.34; CPS: R^2=0.07, p=0.30).

Training Intensity Differences

Participants in both groups completed 20 hours of training. However, there were differences in the number of weeks it took participants to co

their designated training dose. Participants in the dichoptic group completed their training faster compared to the monocular training group (10.1+

compared to 16.6+5.1 weeks on average; $F(1,16)$=9.1, p<0.01). There was no significant difference between anisometropic and strabismic participa

number of weeks in training ($F(1,16)$=1.3, p=.27), nor a significant interaction between training group and amblyopia type ($F(1,16)$=.28, p=.61). In ac

across both treatment groups, change in VA was not correlated with number of weeks in training (R^2=0.07, p=0.26), stereo (R^2=0.15, p=0.08). Simil

reading metrics were not correlated with number of weeks in training (WPM: R^2=0.18, p=0.06; CPS: R^2=0.00, p=0.95). Other training measures, suc

variability in training schedule (standard deviation of training duration per day, stdev) or the number of missed sessions (ms) while enrolled in the s

did not significantly correlate with change in any of the visual assessments, including: VA (stdev: R^2=0.01, p=0.68; ms: R^2=0.00, p=0.87), stereo (stde

R^2=0.00, p=0.84; ms: R^2=0.02, p=0.50), or reading (WPM stdev: R^2=0.00, p=0.91; WPM ms: R^2=0.04, p=0.46; CPS stdev: R^2=0.13, p=0.15; CPS ms: R^2=

p=0.94).