Supplementary Materials

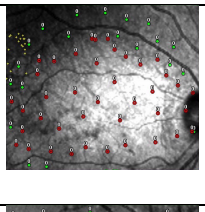
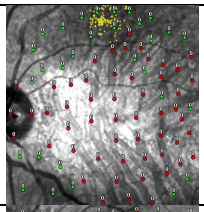
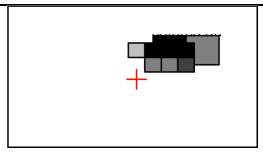
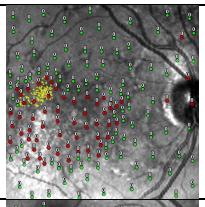
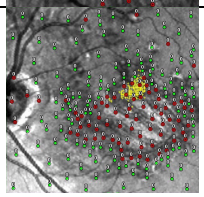
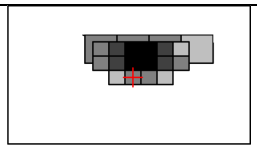
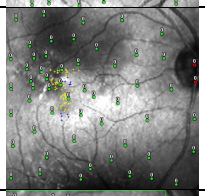
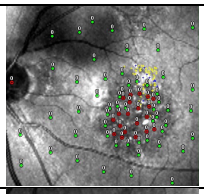
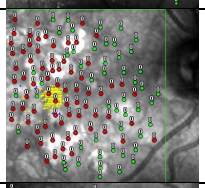
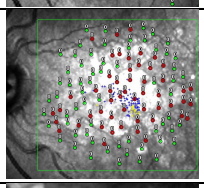
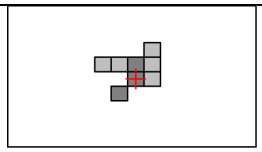
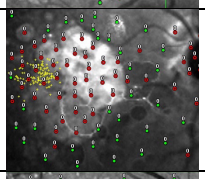
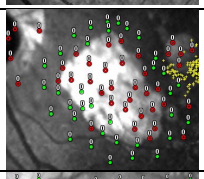
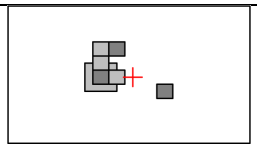
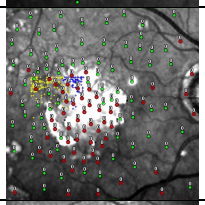
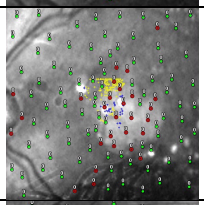
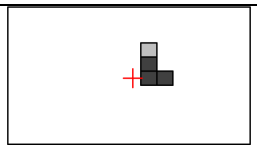
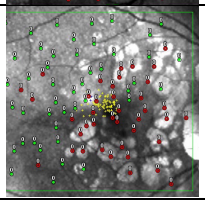
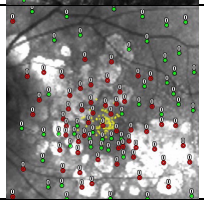
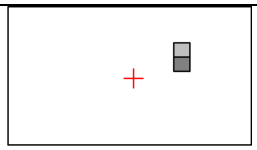
Participant	R Eye Scotoma	L Eye Scotoma	Binocular Scotoma Estimate (90 cm)	Scotoma Area (D, pixels)	Scotoma Overlap (B/D)
P1				355.0	0.67
P2				105.8	0.78
P3			---	0.0	---
P4				132.0	0.22
P5				100.0	0.61
P6				43.0	0.41
P7				503.0	0.26

Table S1: **CFL Participants' Perimetry.** Columns 2 & 3: Individual monocular perimetry maps for each CFL participant in the SLO (note: maps are up-down reversed relative to the visual field). Yellow dot clusters indicate fixation locus, green dots: detected flashes, red dots: missed flashes. Optic disc is shown for reference. Column 4: estimates of the binocular scotoma in the visual field based on binocular mapping using the eye tracker (Janssen & Verghese, JOV, in press). Red cross: fixation, gray squares: binocular scotoma, shade indicates degree of vision loss. D: dominant, B: binocular.

Gain. In our analysis, we chose to use the slope of the linear fit to participants' eye position during the last 150 ms of the trial to estimate gain. To confirm that there was no decelaration or predictive artifact, we compared this values to those computed using a traditional, derivative-based velocity estimate during the period of longest continuous velocity (Shanidze et al. 2016) in each trial. We found comparable gain values (Figure S1, paired t-test: t(697) = 1.574, p = 0.116). Although the previous analysis yielded similar pursuit gains, we chose to use the last 150 ms-based analysis to ensure gain values for the two eyes were computed for the same period of time and the same target position.

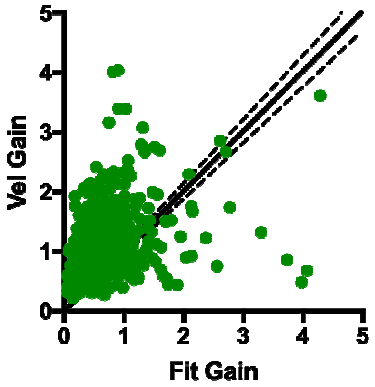


Figure S1. Comparison of gain estimation. Black line was fit to the data using a robust fit and has the equation *VelGain = 1.006*FitGain* (dashed lines mark 95% confidence intervals), where VelGain are the values computed using approach in Shanidze et al. 2016 and FitGain are corresponding trial values computed with a linear fit during the last 150 ms of the trial.

Inter-eye Correlation. To assess inter-ocular coordination during smooth pursuit, we first computed the maximum correlation coefficient and the corresponding lag value. We found that for the majority of trials maximum correlation coefficient occurred at 0 lag. For the remaining trials, lag values were often very small, and did not always match for the vertical and horizontal components. As a result, we subsequently decided to compute and use the Pearson correlation coefficient as the coordination metric.

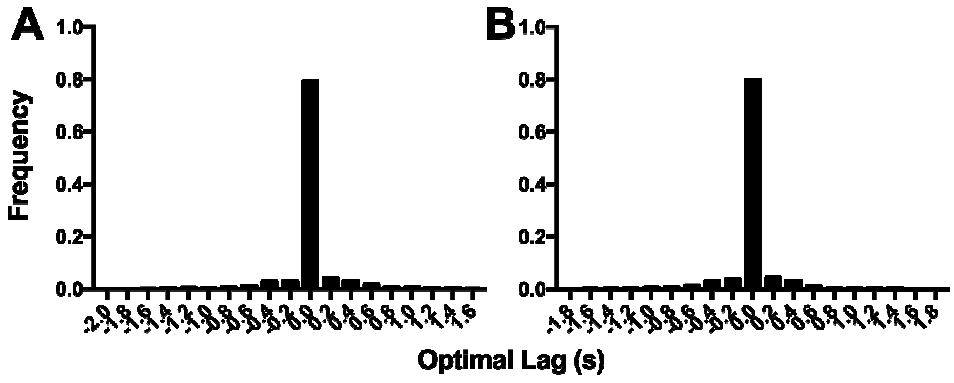


Figure S2. Frequency distribution of optimal lags for cross-correlations performed on the data in the manuscript. Lags calculated separately for the horizontal (A) and vertical (B) components of eye motion.

Smooth pursuit is more variable in central field loss.

Binocular coordination during smooth pursuit is impaired in central field loss.

Stereoacuity and interocular contrast sensitivity ratio predict impaired coordination.