

SUPPLEMENTARY MATERIALS

fMRI data quality is dependent upon participant motion during scan sessions⁹⁵. Thus, motion can potentially impact the quality of pRF parameters and any group-differences in retinotopic data between adults and children could be influenced by group-differences in data quality. To assess participant within-scan motion, we computed the number frames for which movement exceeded a motion threshold of 0.5mm. For each participant, this tally was summed across all four EPI scans. The median tally for adults was 1 frame and the median tally for children was 10.5 frames (Fig. S1A).

We then evaluated whether participant motion affected the variance explained (R^2) of the pRF solutions in V1, V2, and V3. For each participant, and each ROI, we correlated the tally of frames for which motion exceeded threshold with an ROI's median variance explained. There was no correlation between motion and variance explained for adults ($p > .05$; Fig. S1B) or children ($p > .05$; Fig. S1C) in V1, V2, or V3, indicating that participant motion did not influence the overall quality in their pRF data in these maps.

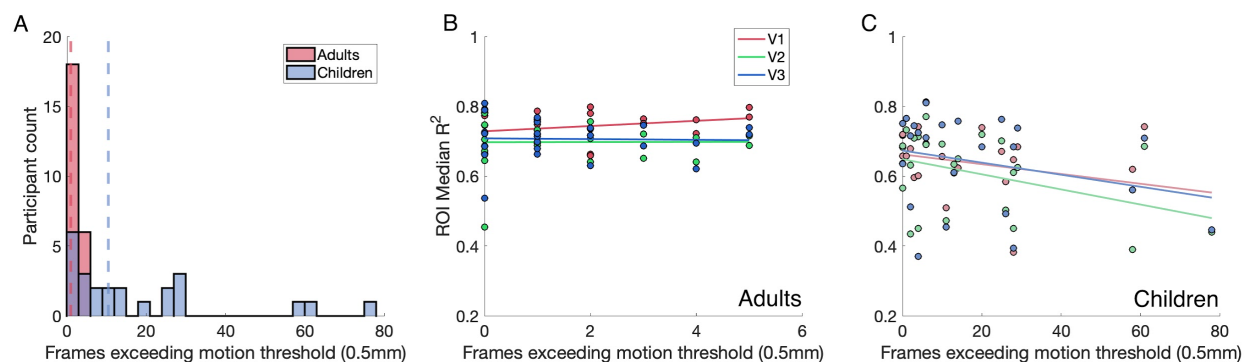


Fig. S1. Histograms of (A) the tally of frames in which motion exceeded threshold (0.5 mm) for adults (red) and children (blue). The dashed red and blue lines reflect the group median for adults and children, respectively. (B and C) show across participant correlations between median R^2 for V1 (red), V2 (green) and V3 (blue) and the tally of frames for which motion exceeded the threshold. The line of best fit for each ROI is plotted in the respective color.

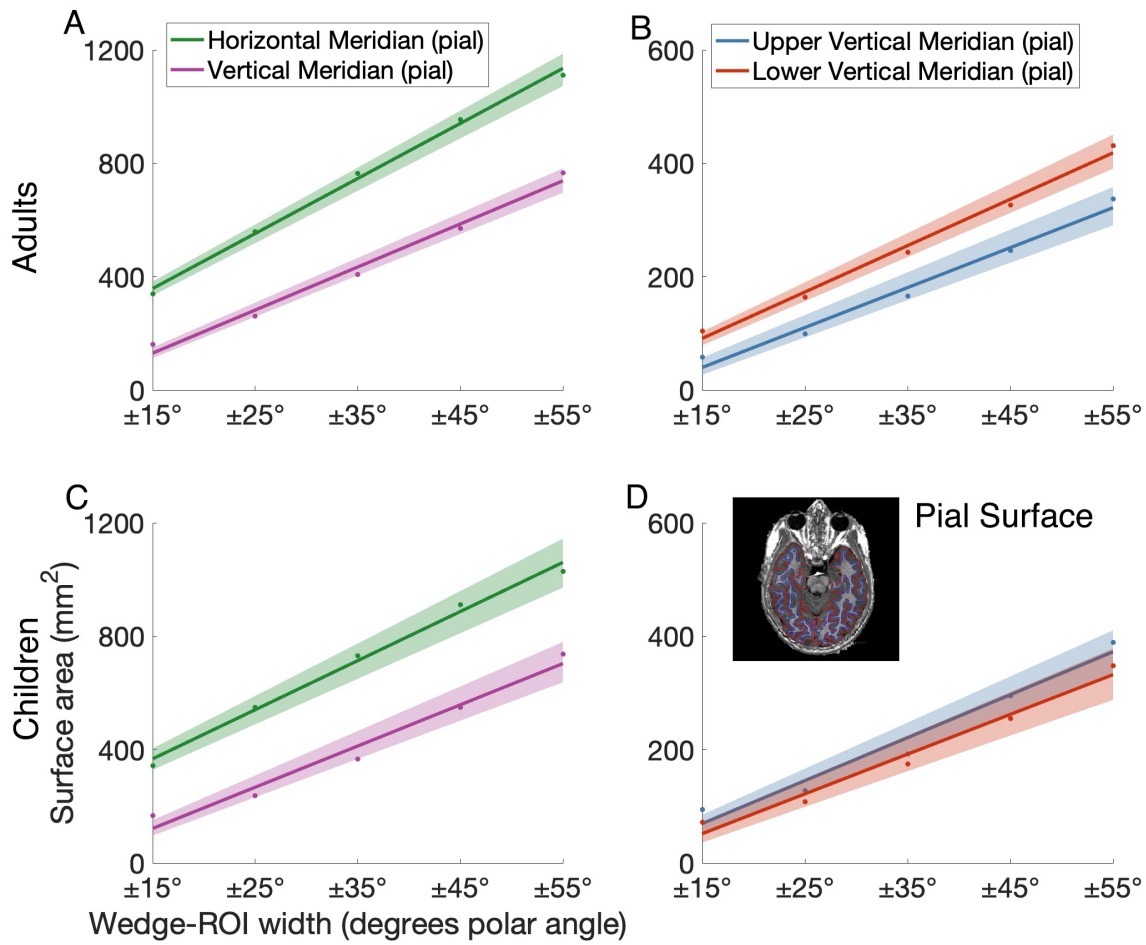


Fig. S2. (A and B) V1 pial surface area (mm²) measurements for wedges centered on the horizontal and vertical meridians, plotted as a function of wedge-width, for adults (n=24) and children (n=24). (C and D) V1 pial surface area (mm²) measurements for wedges centered on the upper and lower vertical meridians, plotted as a function of wedge-width, for adults and children. Each line represents the average of 1000 bootstrapped linear fits to the data. The shaded error bar represents the 68% bootstrapped CI of the linear fit to the data. The inset in panel (B) illustrates an example of T1 anatomy scan with the white matter surface traced in blue, and the pial surface traced in red.

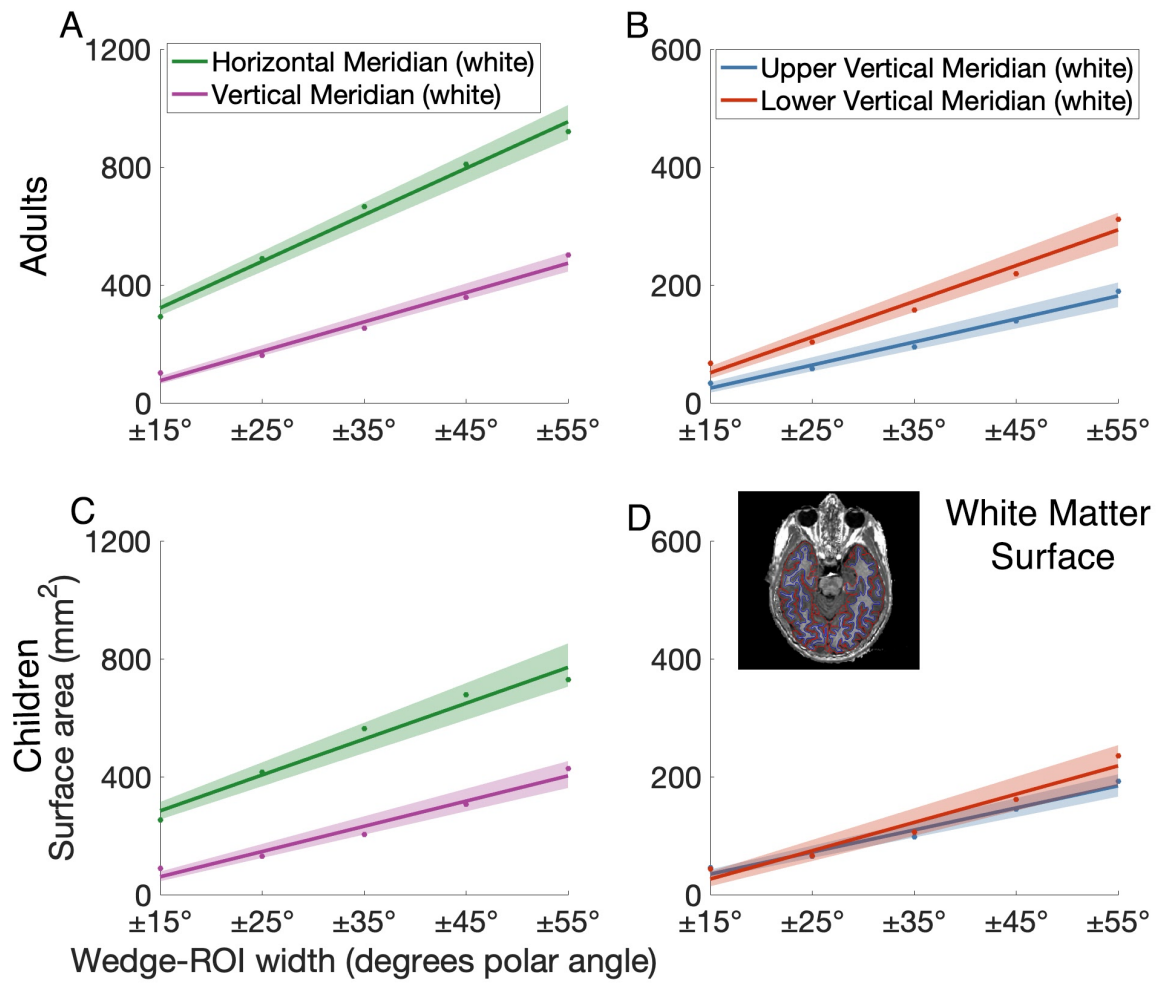


Fig. S3. (A and B) V1 white matter surface area (mm²) measurements for wedges centered on the horizontal and vertical meridians, plotted as a function of wedge-width, for adults (n=24) and children (n=24). (C and D) V1 white matter surface area (mm²) measurements for wedges centered on the upper and lower vertical meridians, plotted as a function of wedge-width, for adults and children. Each line represents the average of 1000 bootstrapped linear fits to the data. The shaded error bar represents the 68% bootstrapped CI of the linear fit to the data. The inset in panel (B) illustrates an example of T1 anatomy scan with the white matter surface traced in blue, and the pial surface traced in red.

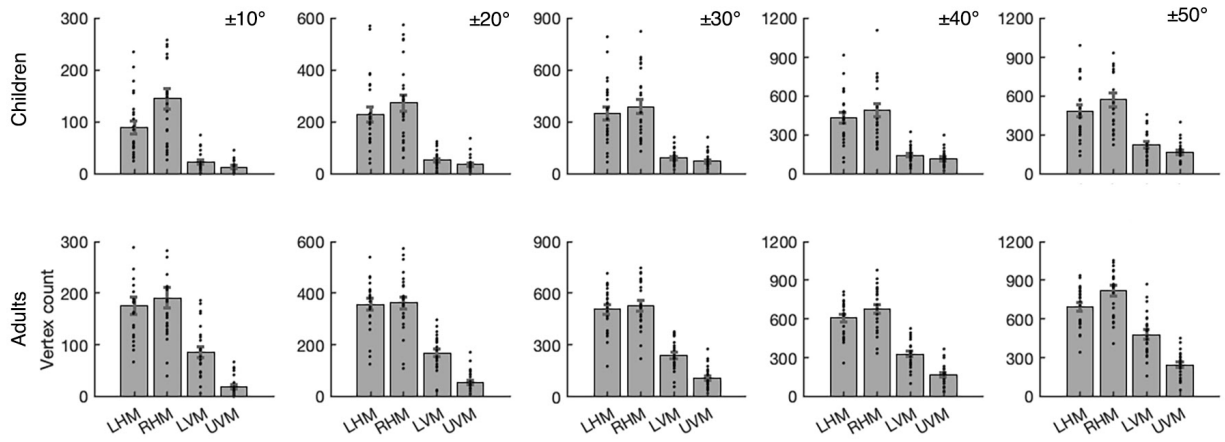


Fig. S4. Number of vertices with pRF polar angle values between 0° and either 10°, 20°, 30°, 40° or 50° of angle from the relevant meridian, for children (n=24) and adults (n=24). The vertices are restricted to 1-7° of eccentricity and an R² greater than 10%. Bars show the means. Black dots represent individual participants. Error bars indicate ±1 standard error of the mean (SEM).

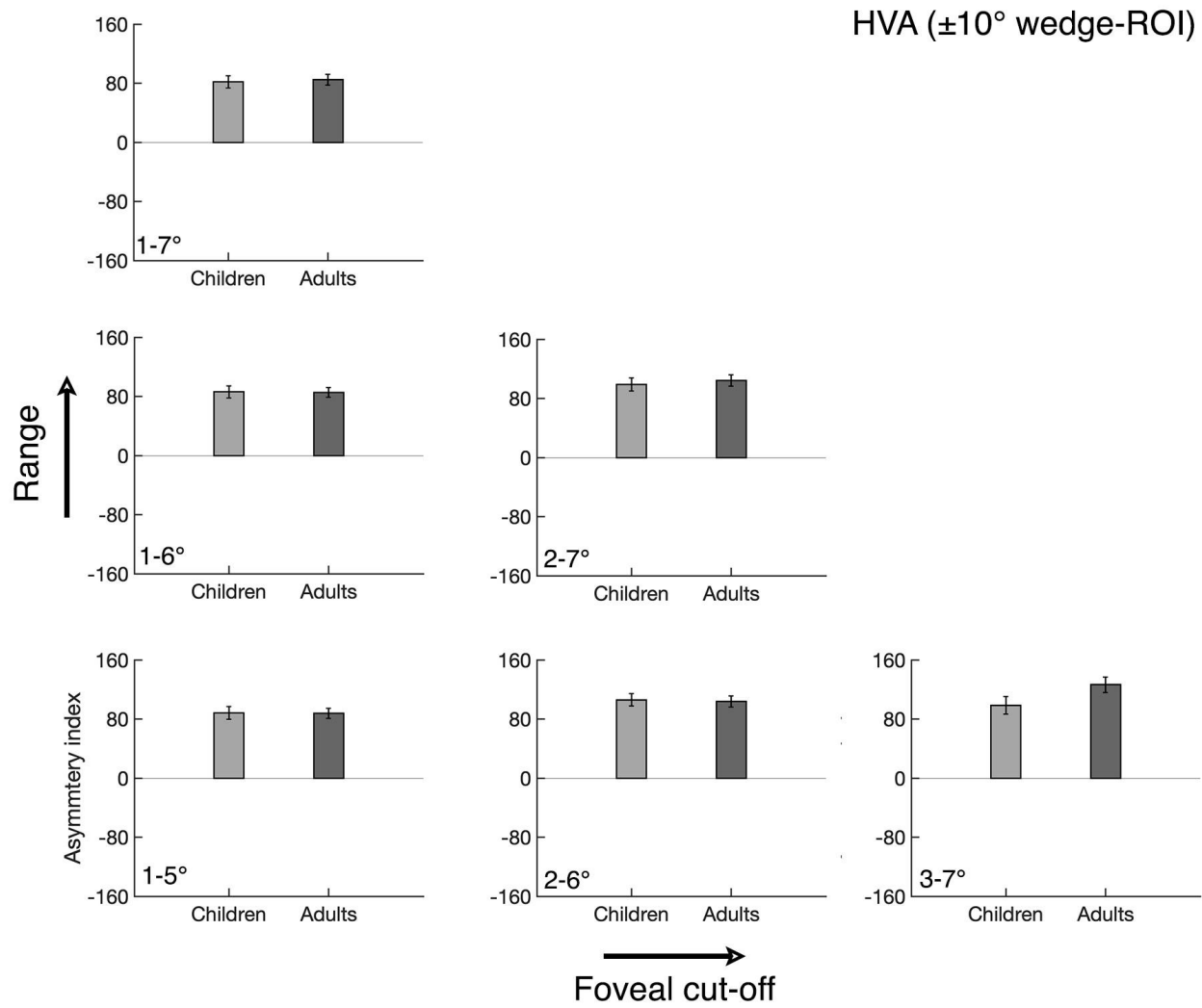


Fig. S5. Cortical HVA measurements from different eccentricity ranges from the $\pm 10^\circ$ wedge-ROIs centered on the four polar angle meridians for children (light gray bars) and adults (dark gray bars). The data are restricted into varying eccentricity ranges. The 1-7° HVA is measured using the full wedge-ROI eccentricity range, as in the main text. Error bars indicate ± 1 standard error of the mean (SEM).

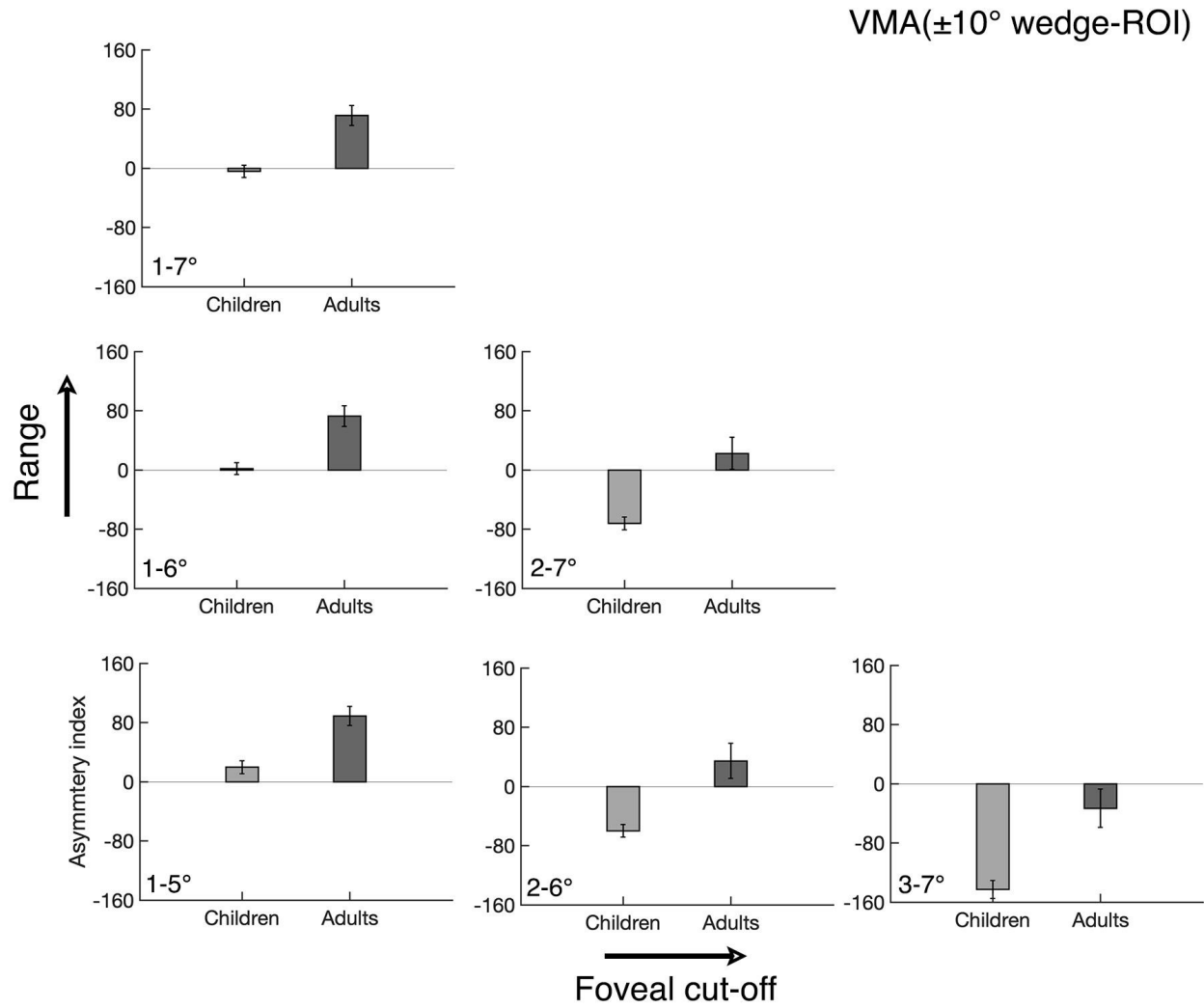


Fig. S7. Cortical VMA measurements from different eccentricity ranges from the $\pm 10^\circ$ wedge-ROIs centered on the four polar angle meridians for children (light gray bars) and adults (dark gray bars). The data are restricted into varying eccentricity ranges. The 1-7° HVA is measured using the full wedge-ROI eccentricity range, as in the main text. Error bars indicate ± 1 standard error of the mean (SEM).

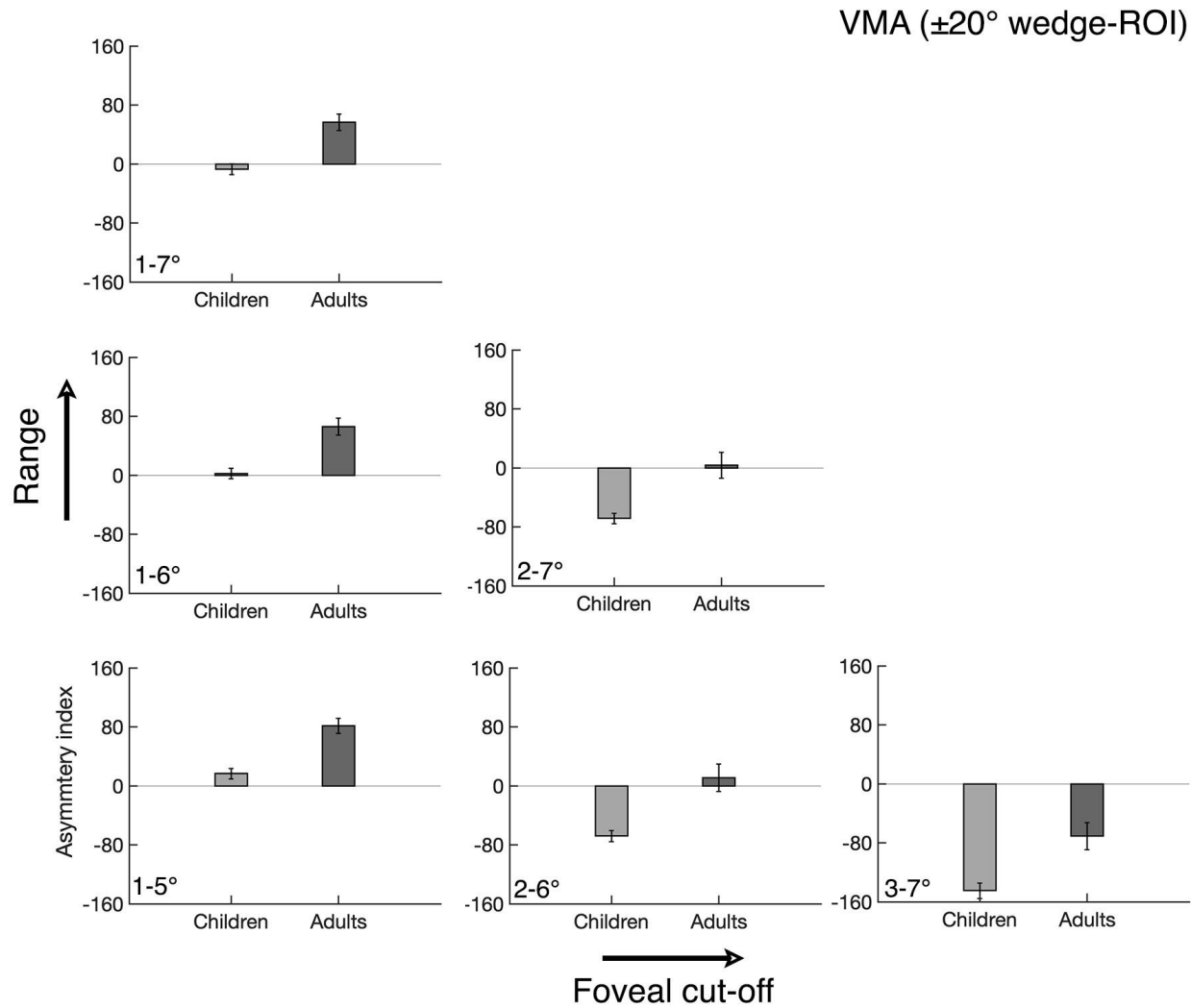


Fig. S8. Cortical VMA measurements from different eccentricity ranges from the $\pm 30^\circ$ wedge-ROIs centered on the four polar angle meridians for children (light gray bars) and adults (dark gray bars). The data are restricted into varying eccentricity ranges. The 1-7° HVA is measured using the full wedge-ROI eccentricity range, as in the main text. Error bars indicate ± 1 standard error of the mean (SEM).