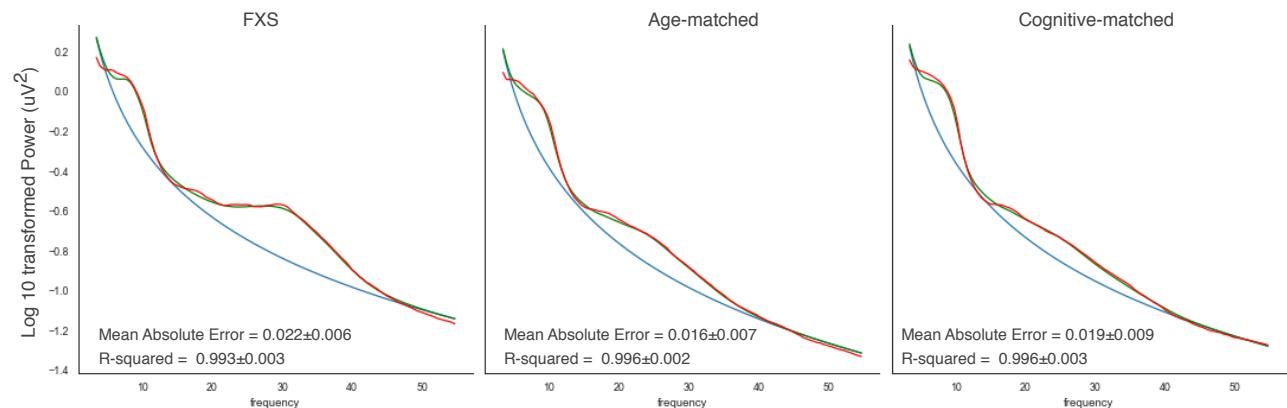
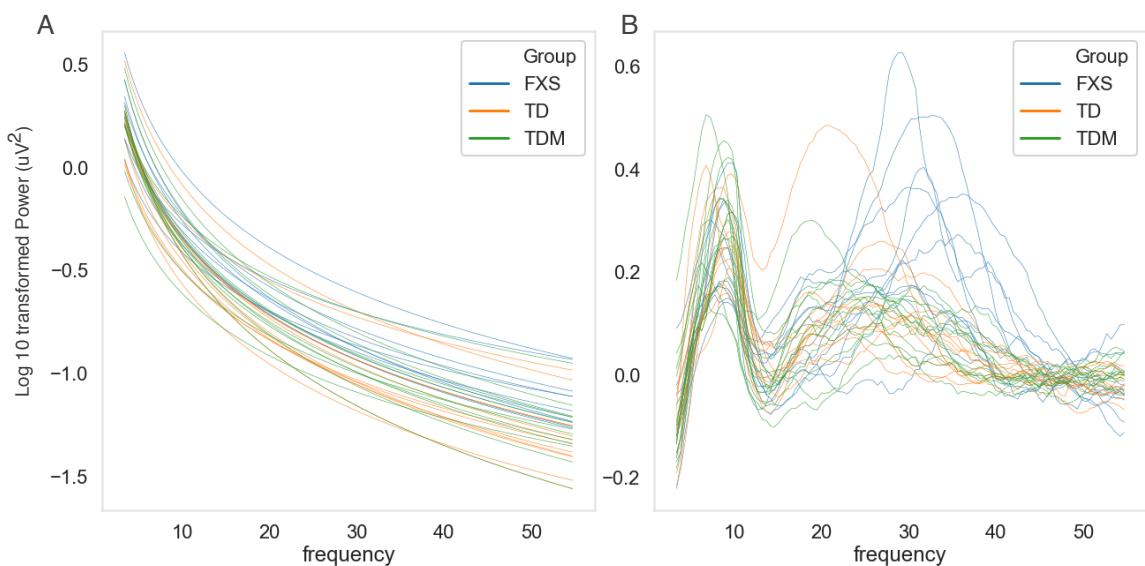


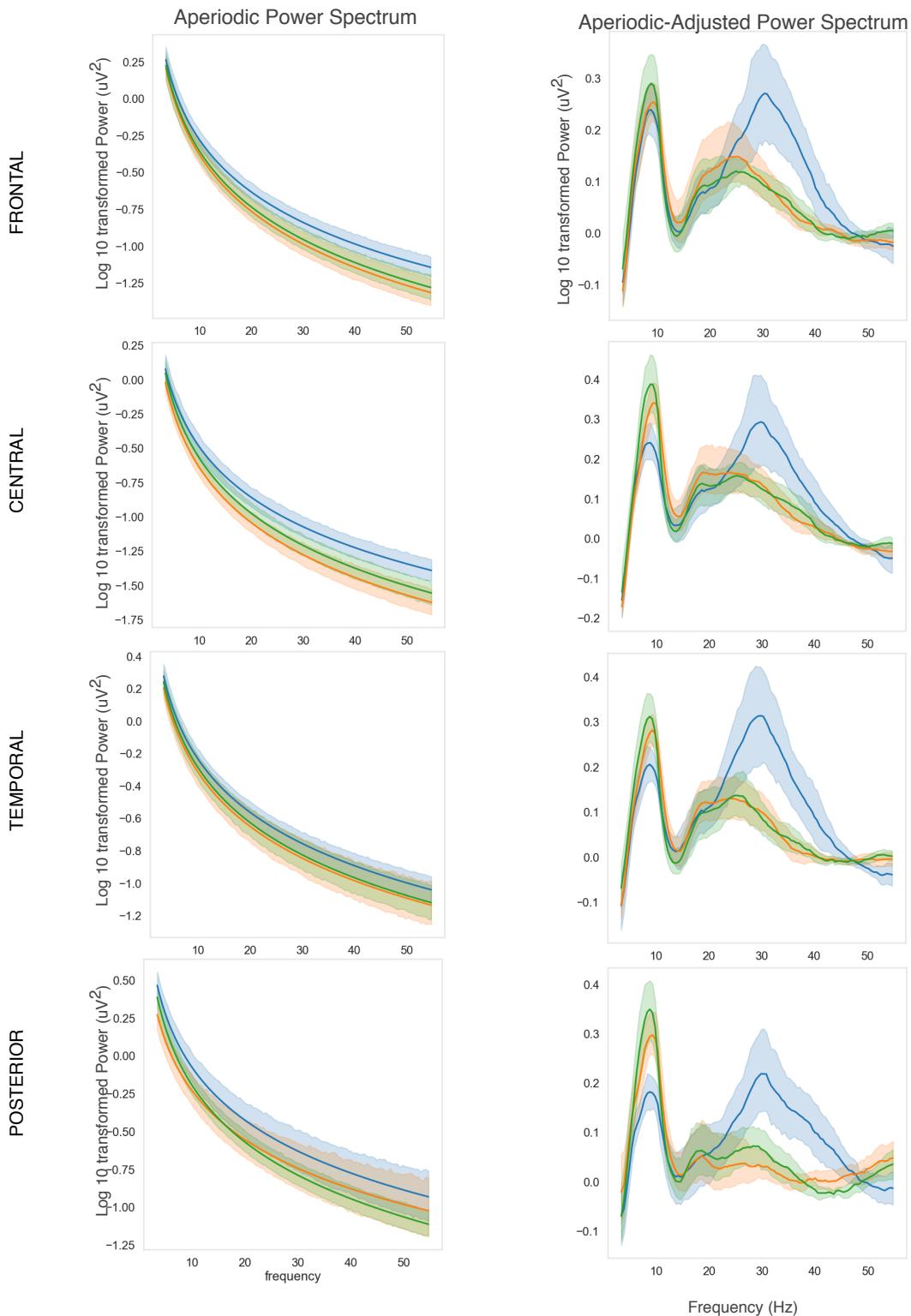
Supplemental Figure 1. FOOOF parameterization of power spectra. FOOOF estimated aperiodic (blue) and periodic (red) components are shown for each group. Actual averaged power spectra shown in green.



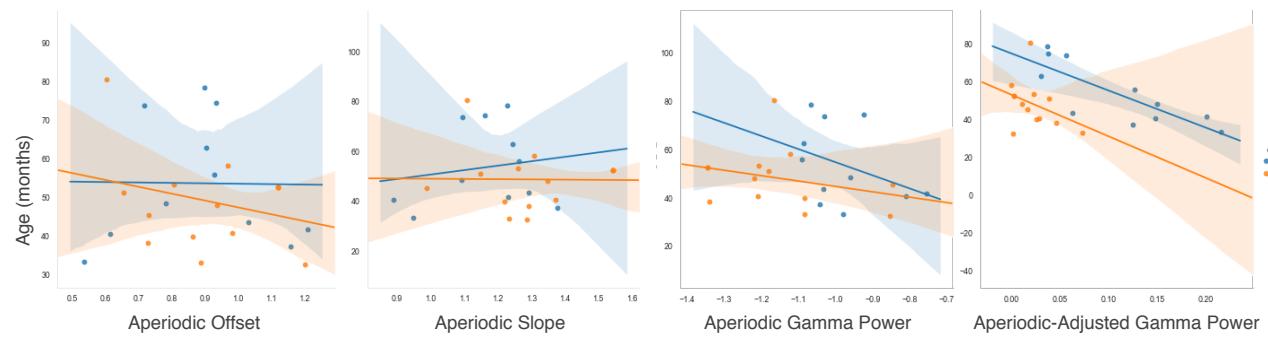
Supplemental Figure 2. Individual Plots of (A) Aperiodic and (B) Aperiodic-Adjusted power spectra.



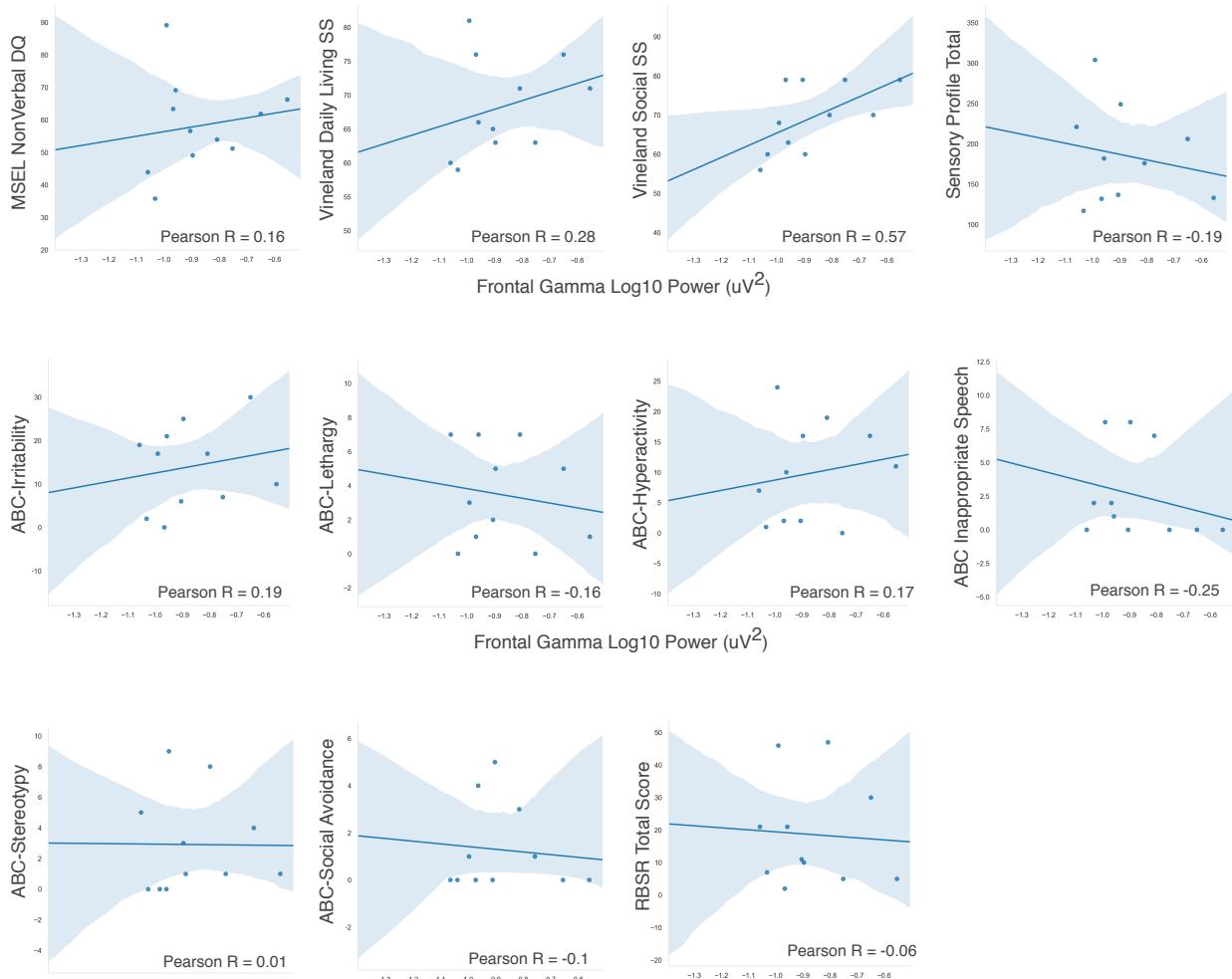
Supplemental Figure 3. Plots of Aperiodic and Aperiodic-Adjusted power spectra for all regions of interest



Supplemental Figure 4. Association of Age and power spectra measures



Supplemental Figure 5. Correlation graphs of additional clinical measures



Supplemental Table 1. Aperiodic-adjusted power spectra clusters

Region of Interest	FXS vs Age-Matched		FXS vs Cognitive-Matched	
	Frequency Range (Hz)	Cluster p-value	Frequency Range (Hz)	Cluster p-value
Frontal	28.8-41.0	0.003	25.9-43.0	0.005
Central	6.8-10.3	0.11	5.4-8.8	0.137
Central	26.4-38.1	0.016	25.9-36.1	0.04
Central	-	-	50.8-52.7	0.36
Temporal	6.8-9.8	0.13	5.4-8.3	0.18
Temporal	23.4-43.0	0.002	24.4-43.0	0.001
Temporal	48.3-53.2	0.14	47.4-53.2	0.04
Posterior	4.9-9.3	0.08	4.4-8.8	0.07
Posterior	22.9-43.0	0.002	24.4-45.4	0.02
Posterior	49.3-53.2	0.16	50.8-52.2	0.32