Supplemental Tables

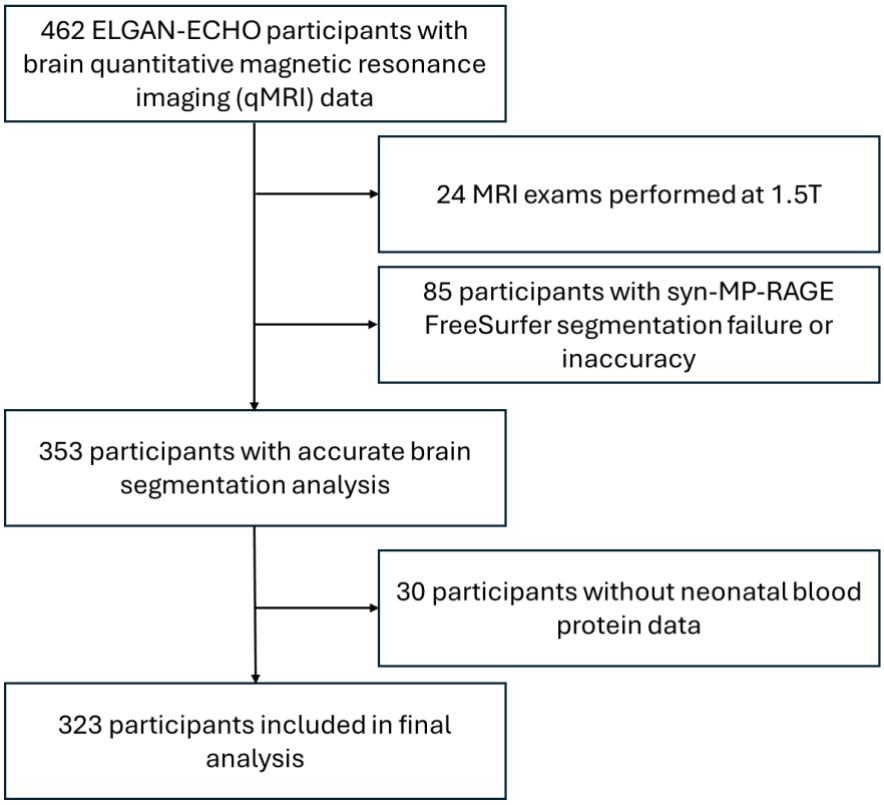
Supplemental Table 1. Inflammation-related proteins associated with structural and functional neurologic outcomes in the ELGAN cohort.

Protein	Protein Name	Associated Outcome	Neurodevelopment Association in ELGAN
IL-6	Interleukin (IL) -6	Ventriculomegaly (when in the NICU) and microcephaly at age 2 years; latent profile analysis of cognition; indicator of brain damage	Leviton et al. 2016; O'Shea et al. 2013; Korzeniewski et al. 2018; Leviton et al. 2018
TNF-α	Tumor necrosis factor-alpha	Mental Development Index of the Bayley-II < 55 at age 2 years	Leviton et al. 2016; O'Shea et al. 2013; Korzeniewski et al. 2018
ICAM -1	Intercellular adhesion molecule -1	Ventriculomegaly (when in the NICU) and microcephaly at age 2 years; indicator of brain damage; Mental Development Index of the Bayley-II < 55 and Psychomotor Development Index < 55 at age 2	Leviton et al. 2016; O'Shea et al. 2013; Korzeniewski et al. 2018; Leviton et al. 2018
IL -8	Interleukin (IL) -8	Ventriculomegaly (when in the NICU) and microcephaly at age 2 years; indicator of brain damage	Leviton et al. 2016; Korzeniewski et al. 2018; Leviton et al. 2018
SAA	Serum amyloid A	Mental Development Index of the Bayley-II < 55 at age 2 years	O'Shea et al. 2013; Korzeniewski et al. 2018
CRP	C-reactive protein	Ventriculomegaly (when in the NICU) and microcephaly at age 2 years; Mental Development Index of the Bayley-II < 55 at age 2 years	O'Shea et al. 2013; Korzeniewski et al. 2018

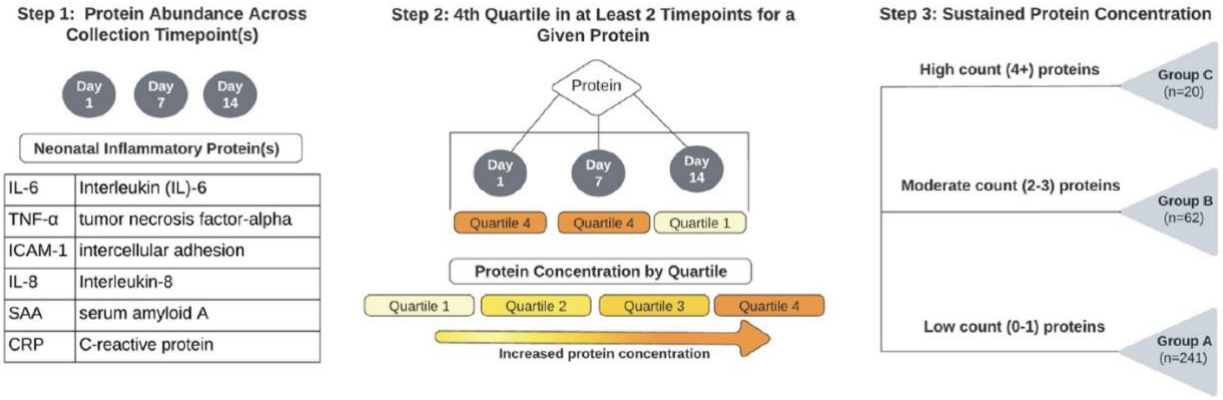
Supplemental Table 2. Adjusted Brain Volumes (cm^3) in ELGAN Adolescents (N=323), overall and stratified by sex. Mean brain volume proportions adjusted for each participant's brain region relative to total brain volume. Statistically significant p-values, ($p \leq 0.05$), are shown in bold.

Brain Region	Overall (N=323)	Female (N=156)	Male (N=167)	P-value
Cerebral cortex	46.2 (1.84)	46.4 (1.82)	46.0 (1.83)	**0.04**
Cerebral white matter	34.3 (2.05)	34.1 (2.19)	34.6 (1.90)	**0.03**
Cerebellum cortex	10.1 (1.22)	10.1 (1.27)	10.1 (1.19)	0.91
Cerebellum white matter	1.98 (0.28)	2.03 (0.30)	1.93 (0.26)	**0.001**
Corpus callosum	0.27 (0.05)	0.28 (0.04)	0.26 (0.05)	**<0.001**
Brainstem	1.68 (0.18)	1.69 (0.20)	1.66 (0.17)	0.15
Lateral ventricle	1.92 (1.24)	1.88 (1.17)	1.95 (1.30)	0.62
Ventral diencephalon	0.65 (0.06)	0.66 (0.06)	0.65 (0.05)	0.06
Thalamus	1.28 (0.10)	1.29 (0.10)	1.27 (0.10)	0.10
Putamen	0.94 (0.14)	0.93 (0.16)	0.95 (0.12)	0.32
Hippocampus	0.70 (0.07)	0.71 (0.07)	0.70 (0.07)	0.61
Caudate	0.64 (0.08)	0.65 (0.07)	0.63 (0.08)	**0.02**
Pallidum	0.28 (0.05)	0.28 (0.05)	0.27 (0.04)	0.25
Amygdala	0.27 (0.04)	0.27 (0.04)	0.28 (0.04)	**0.01**
Accumbens	0.12 (0.03)	0.12 (0.03)	0.12 (0.02)	0.92

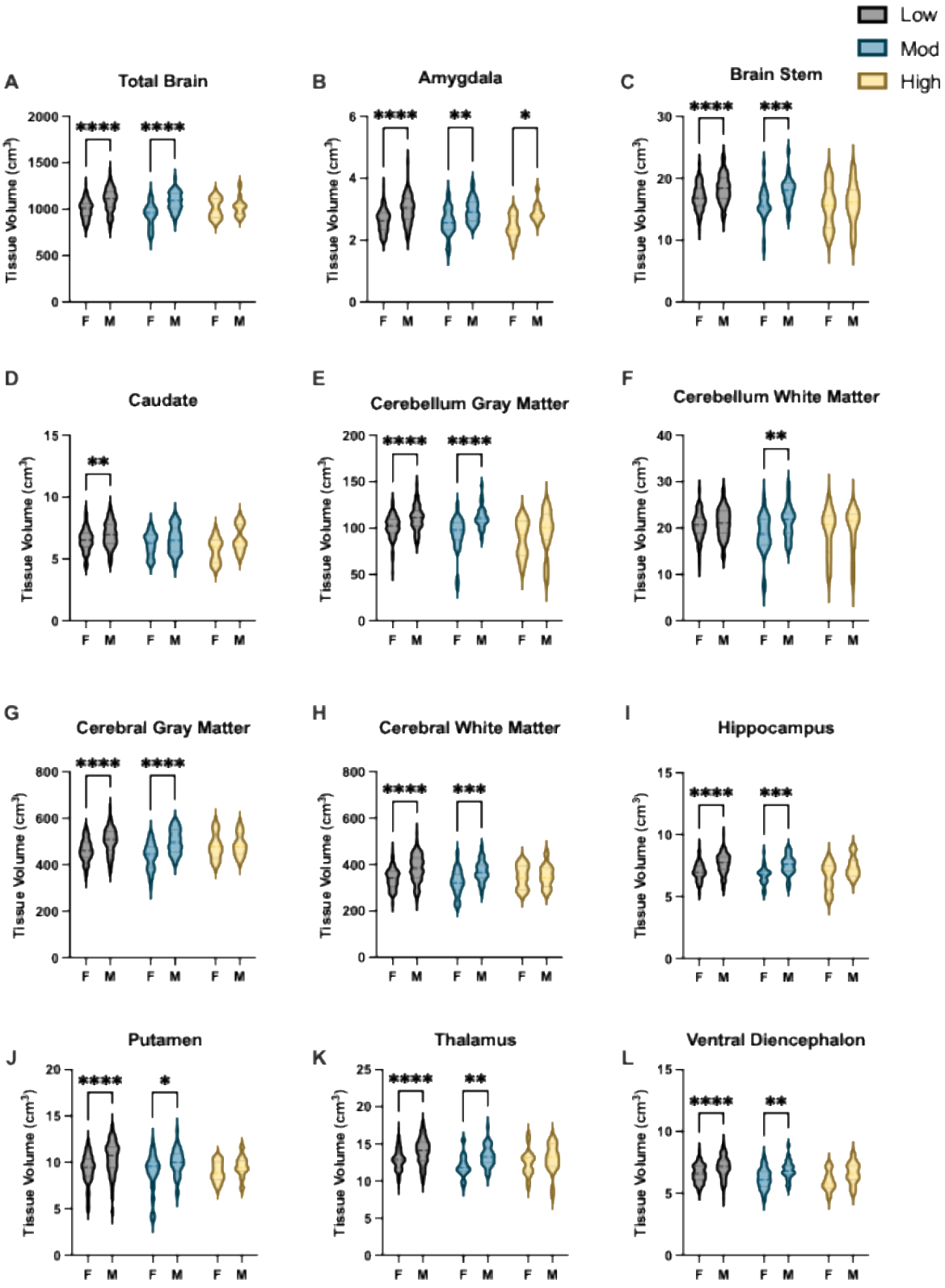
Supplemental Figures



Supplemental Figure 1. Flowchart of participant selection from each of the 6 participating study sites. ELGAN-ECHO: Extremely Low Gestational Age Newborns–Environmental Influences on Child Health Outcomes, TSE: turbo spin echo.



Supplemental Figure 2. Diagram of neonatal inflammation categorization. Neonates were classified into inflammation categories as low, moderate, or high.



Supplemental Figure 3. Sex-specific associations between neonatal inflammation and brain volume. Mean brain volume (cm^3) of the total brain and specific brain regions in 15-year-old ELGANs, categorized by level of inflammation (low, moderate (mod) and high) and stratified by sex (F=female; M=male). Statistical significance denoted by * $p \leq 0.05$, ** $p \leq 0.005$, *** $p \leq 0.0005$, ****$p \leq 0.00005$