ON-LINE APPENDIX

CT Histogram (Composite Model for all 3 Scanners)

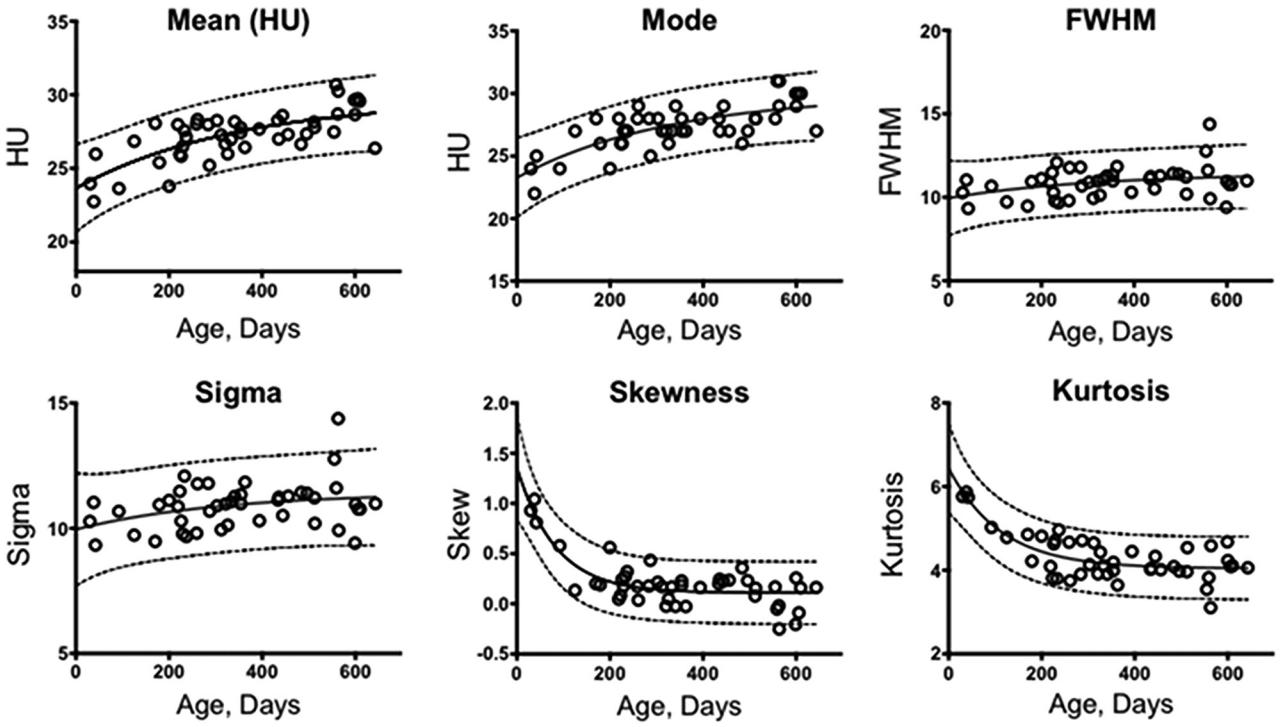
For each parameter of the CT histogram, we first fitted a basic polynomial regression model of age, in which the degree was determined by the shape of the curve. Then we added sex and scanner ID and refitted the model. Model fitting results indicated that a second-degree polynomial of age with additional scanner ID performed the best for mean, mode, FWHM, and kurtosis; first degree of age with scanner ID performed best for σ; and first degree of log (age) with scanner ID performed best for skewness. Cross-validation (LOOCV) results on scaled dependent variables indicated that our models had good predictive power in CT histogram data because the RMSE from LOOCV was close to the RMSE from the polynomial model.

On-line Table: Model fitting and cross-validation results for scaled CT histogram for all 3 scanners[a]

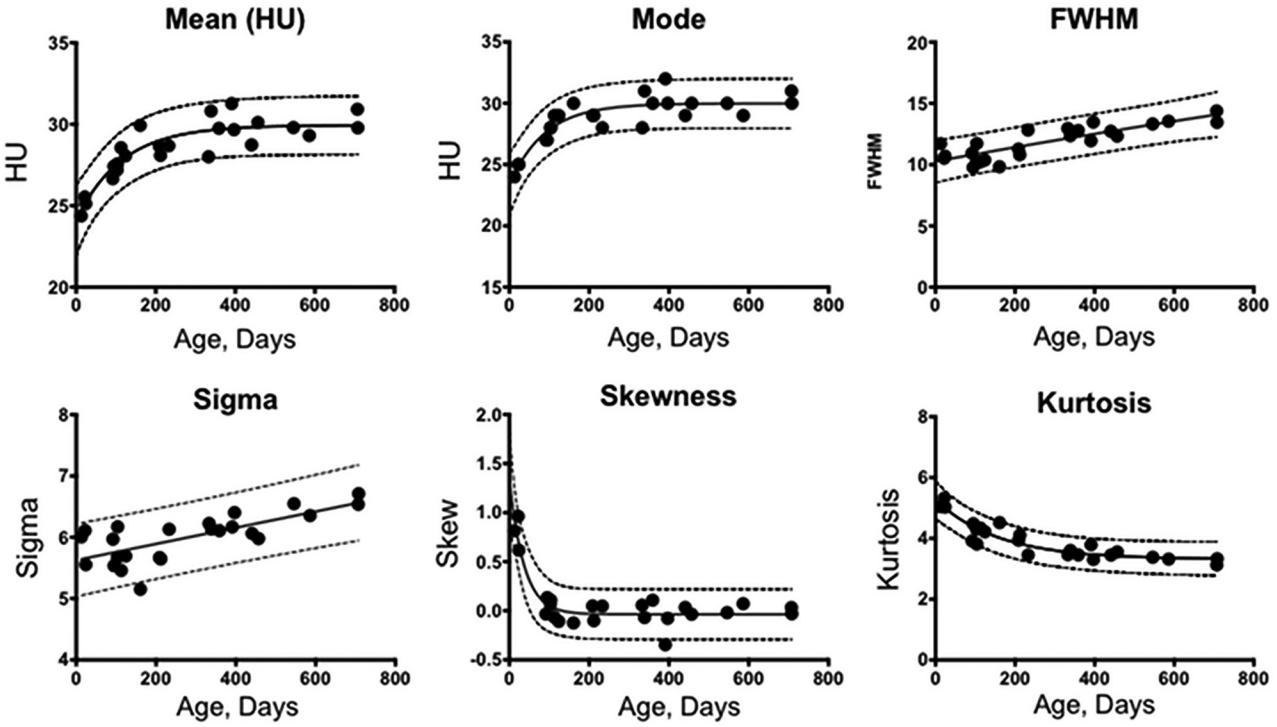
				CT Histogram		
	Mean (k = 2)	Mode (k = 2)	FWHM (k = 1)	Skewness (log [age]), (k = 1)	Kurtosis (k = 2)	σ (k = 1)
Polynomial (age, k) + scanner						
R^2	0.71	0.70	0.50	0.59	0.67	0.42
RMSE	1.01	1.09	1.01	0.17	0.36	0.34
β_0	26.7	26.8	12.7	1.0	4.5	5.7
β_1	15.1	15.8	4.4	−0.15	−4.2	1.2
β_2	−6.6	−7.6	–		2.3	–
γ_1	2.3	2.4	2.1	−0.23	−0.92	0.64
γ_2	2.0	2.1	1.2	−0.19	−0.62	0.36
Cross-validation (LOOCV)						
RMSE	1.05	1.14	1.04	0.18	0.37	0.33
RMSE increase	4.0%	4.3%	3.3%	4.0%	4.3%	3.4%

Note:— k indicates order/degree of the polynomial..

[a] $Response = \beta_0 + \beta_1 \times Age + \beta_2 \times Age^2 + \gamma_1 Scanner2 + \gamma_1 Scanner3$. Note scanner 1 is the reference.



ON-LINE FIG 1. Total brain histogram analysis, scanner 1 ($n = 45$).



ON-LINE FIG 2. Total brain histogram analysis, scanner 3 ($n = 24$). Differences in scan platform do not impact the trends seen in each metric of the histogram analysis.