

Supplemental Digital Content 1. The equations used to plot the curves for T1 values (ms)

	T1	SD of 1st coefficient	SD of 2nd coefficient	SD of 3rd coefficient	Adjusted R ² (R ²)
Cortical GM					
Frontal GM	$0.231 \times \text{age}^2 - 20.6 \times \text{age} + 1650$	0.029	3.1	73	0.50 (0.51)
Parietal GM	$0.235 \times \text{age}^2 - 20.6 \times \text{age} + 1650$	0.038	3.5	85	0.46 (0.47)
Temporal GM	$0.236 \times \text{age}^2 - 20.3 \times \text{age} + 1690$	0.033	3.5	83	0.49 (0.50)
Occipital GM	$0.221 \times \text{age}^2 - 19.0 \times \text{age} + 1620$	0.035	3.7	88	0.43 (0.44)
Insula	$0.315 \times \text{age}^2 - 28.1 \times \text{age} + 1810$	0.043	4.5	109	0.45 (0.46)
WM					
Frontal WM	$0.0663 \times \text{age}^2 - 4.87 \times \text{age} + 818$	0.0093	0.98	23	0.67 (0.68)
Parietal WM	$0.0514 \times \text{age}^2 - 3.75 \times \text{age} + 801$	0.0084	0.88	21	0.61 (0.62)
Temporal WM	$0.0704 \times \text{age}^2 - 5.50 \times \text{age} + 828$	0.0098	1.03	25	0.62 (0.63)
Occipital WM	$0.0399 \times \text{age}^2 - 2.90 \times \text{age} + 818$	0.0080	0.84	20	0.51 (0.52)
Genu	$0.0504 \times \text{age}^2 - 3.58 \times \text{age} + 703$	0.0082	0.86	21	0.64 (0.65)
Splenium	$0.0371 \times \text{age}^2 - 2.81 \times \text{age} + 726$	0.0080	0.83	20	0.44 (0.45)
Internal Capsule	$0.0591 \times \text{age}^2 - 4.43 \times \text{age} + 800$	0.0087	0.91	22	0.64 (0.64)
Middle Cerebellar Peduncle	$0.0186 \times \text{age}^2 - 1.24 \times \text{age} + 826$	0.0091	0.96	23	0.18 (0.20)
Subcortical GM					
Caudate	$0.100 \times \text{age}^2 - 9.32 \times \text{age} + 1250$	0.013	1.33	32	0.44 (0.45)
Putamen	$0.0587 \times \text{age}^2 - 5.03 \times \text{age} + 1100$	0.0115	1.21	29	0.34 (0.35)
Thalamus	$0.0446 \times \text{age}^2 - 3.52 \times \text{age} + 979$	0.0100	1.04	25	0.37 (0.38)

Abbreviations: GM, gray matter; SD; standard deviation; WM, white matter. Note—The 1st coefficient is for age²; the 2nd coefficient is for age; and the 3rd coefficient is the Y-intercept. The adjusted R² is a modified version of R² that has been adjusted for the number of independent variables in the model.

Supplemental Digital Content 2. The equations used to plot the curves for T2 values (ms)

	T2	SD of 1st coefficient	SD of 2nd coefficient	SD of 3rd coefficient	Adjusted R ² (R ²)
Cortical GM					
Frontal GM	$0.0122 \times \text{age}^2 - 1.11 \times \text{age} + 96.8$	0.0016	0.17	4.0	0.45 (0.46)
Parietal GM	$0.0131 \times \text{age}^2 - 1.17 \times \text{age} + 95.9$	0.0018	0.19	4.6	0.46 (0.47)
Temporal GM	$0.0128 \times \text{age}^2 - 1.16 \times \text{age} + 100$	0.0017	0.18	4	0.45 (0.46)
Occipital GM	$0.0124 \times \text{age}^2 - 1.10 \times \text{age} + 92.5$	0.0018	0.19	4.5	0.44 (0.45)
Insula	$0.0263 \times \text{age}^2 - 2.42 \times \text{age} + 125$	0.0041	0.43	10	0.35 (0.36)
WM					
Frontal WM	$0.0034 \times \text{age}^2 - 2.53 \times \text{age} + 68.9$	0.0006	0.06	1.4	0.58 (0.59)
Parietal WM	$0.0024 \times \text{age}^2 - 0.185 \times \text{age} + 70.2$	0.0005	0.053	1.3	0.42 (0.43)
Temporal WM	$0.0039 \times \text{age}^2 - 0.333 \times \text{age} + 70.1$	0.0006	0.059	1.4	0.49 (0.50)
Occipital WM	$0.0016 \times \text{age}^2 - 0.134 \times \text{age} + 70.5$	0.0005	0.048	1.1	0.20 (0.21)
Genu	$0.0032 \times \text{age}^2 - 0.223 \times \text{age} + 63.0$	0.0006	0.061	1.5	0.61 (0.61)
Splenium	$0.0016 \times \text{age}^2 - 0.118 \times \text{age} + 66.6$	0.0005	0.053	1.3	0.27 (0.28)
Internal Capsule	$0.0033 \times \text{age}^2 - 0.275 \times \text{age} + 67.7$	0.0005	0.057	1.4	0.47 (0.48)
Middle Cerebellar Peduncle	$0.0010 \times \text{age}^2 - 0.076 \times \text{age} + 70.4$	0.0005	0.049	1.2	0.16 (0.18)
Subcortical GM					
Caudate	$0.0070 \times \text{age}^2 - 0.629 \times \text{age} + 76.6$	0.0010	0.106	2.5	0.42 (0.43)
Putamen	$0.0043 \times \text{age}^2 - 0.446 \times \text{age} + 68.1$	0.0009	0.097	2.3	0.15 (0.16)
Thalamus	$0.0037 \times \text{age}^2 - 0.257 \times \text{age} + 66.4$	0.0006	0.059	1.4	0.69 (0.70)

Abbreviations: GM, gray matter; SD; standard deviation; WM, white matter. Note—The 1st coefficient is for age²; the 2nd coefficient is for age; and the 3rd coefficient is the Y-intercept. The adjusted R² is a modified version of R² that has been adjusted for the number of independent variables in the model.

Supplemental Digital Content 3. The equations used to plot the curves for PD values (pu)

	PD	SD of 1st coefficient	SD of 2nd coefficient	SD of 3rd coefficient	Adjusted R ² (R ²)
Cortical GM					
Frontal GM	$0.0023 \times \text{age}^2 - 0.256 \times \text{age} + 88.0$	0.0003	0.032	0.8	0.38 (0.39)
Parietal GM	$0.0013 \times \text{age}^2 - 0.155 \times \text{age} + 86.7$	0.0003	0.031	0.8	0.28 (0.29)
Temporal GM	$0.0013 \times \text{age}^2 - 0.135 \times \text{age} + 87.4$	0.0003	0.027	0.7	0.17 (0.18)
Occipital GM	$0.00073 \times \text{age}^2 - 0.093 \times \text{age} + 85.3$	0.0003	0.033	0.8	0.12 (0.45)
Insula	$0.00056 \times \text{age}^2 - 0.057 \times \text{age} + 84.4$	0.0003	0.030	0.7	0.017 (0.034)
WM					
Frontal WM	$0.0022 \times \text{age}^2 - 0.144 \times \text{age} + 66.4$	0.0004	0.042	1.0	0.63 (0.64)
Parietal WM	$0.0016 \times \text{age}^2 - 0.104 \times \text{age} + 65.7$	0.0004	0.038	0.9	0.54 (0.55)
Temporal WM	$0.0023 \times \text{age}^2 - 0.166 \times \text{age} + 66.8$	0.0004	0.045	1.1	0.55 (0.56)
Occipital WM	$0.0015 \times \text{age}^2 - 0.102 \times \text{age} + 66.3$	0.0003	0.035	0.8	0.49 (0.50)
Genu	$0.0017 \times \text{age}^2 - 0.115 \times \text{age} + 61.4$	0.0004	0.049	1.2	0.43 (0.44)
Splenium	$0.0013 \times \text{age}^2 - 0.107 \times \text{age} + 62.5$	0.0004	0.044	1.1	0.22 (0.23)
Internal Capsule	$0.0015 \times \text{age}^2 - 0.108 \times \text{age} + 65.2$	0.0004	0.045	1.1	0.38 (0.39)
Middle Cerebellar Peduncle	$0.00034 \times \text{age}^2 - 0.028 \times \text{age} + 67.8$	0.0004	0.044	1.1	-0.003 (0.015)
Subcortical GM					
Caudate	$0.0022 \times \text{age}^2 - 0.247 \times \text{age} + 85.6$	0.0006	0.061	1.5	0.137 (0.152)
Putamen	$0.0016 \times \text{age}^2 - 0.154 \times \text{age} + 82.8$	0.0005	0.050	1.2	0.100 (0.116)
Thalamus	$0.00066 \times \text{age}^2 - 0.065 \times \text{age} + 75.8$	0.0004	0.045	1.1	0.005 (0.02)

Abbreviations: GM, gray matter; SD; standard deviation; WM, white matter. Note—The 1st coefficient is for age²; the 2nd coefficient is for age; and the 3rd coefficient is the Y-intercept. The adjusted R² is a modified version of R² that has been adjusted for the number of independent variables in the model.

Supplemental Digital Content 4. The equations used to plot the curves for MVF values (%)

	MVF	SD of 1st coefficient	SD of 2nd coefficient	SD of 3rd coefficient	Adjusted R ² (R ²)
Cortical GM					
Frontal GM	$-0.0031 \times \text{age}^2 + 0.283 \times \text{age} + 2.3$	0.0003	0.039	0.9	0.49 (0.50)
Parietal GM	$-0.0020 \times \text{age}^2 + 0.179 \times \text{age} + 3.5$	0.0003	0.034	0.8	0.36 (0.37)
Temporal GM	$-0.0015 \times \text{age}^2 + 0.118 \times \text{age} + 4.3$	0.0003	0.003	0.7	0.44 (0.45)
Occipital GM	$-0.00048 \times \text{age}^2 + 0.036 \times \text{age} + 6.2$	0.0003	0.037	0.9	0.057 (0.074)
Insula	$-0.0024 \times \text{age}^2 + 0.195 \times \text{age} + 3.0$	0.0003	0.032	0.8	0.60 (0.61)
WM					
Frontal WM	$-0.0032 \times \text{age}^2 + 0.215 \times \text{age} + 29.1$	0.0006	0.064	1.5	0.63 (0.63)
Parietal WM	$-0.0023 \times \text{age}^2 + 0.154 \times \text{age} + 30.2$	0.0005	0.056	1.4	0.53 (0.54)
Temporal WM	$-0.0035 \times \text{age}^2 + 0.253 \times \text{age} + 28.4$	0.0006	0.066	1.6	0.56 (0.57)
Occipital WM	$-0.0022 \times \text{age}^2 + 0.151 \times \text{age} + 29.4$	0.0005	0.053	1.3	0.48 (0.49)
Genu	$-0.0028 \times \text{age}^2 + 0.187 \times \text{age} + 36.3$	0.0007	0.073	1.8	0.46 (0.47)
Splenium	$-0.0022 \times \text{age}^2 + 0.175 \times \text{age} + 34.9$	0.0006	0.066	1.6	0.26 (0.27)
Internal Capsule	$-0.0025 \times \text{age}^2 + 0.176 \times \text{age} + 30.8$	0.0006	0.067	1.6	0.39 (0.40)
Middle Cerebellar Peduncle	$-0.00038 \times \text{age}^2 + 0.031 \times \text{age} + 27.5$	0.0006	0.065	1.6	-0.008 (0.01)
Subcortical GM					
Caudate	$-0.0030 \times \text{age}^2 + 0.322 \times \text{age} + 3.0$	0.0007	0.072	1.7	0.14 (0.16)
Putamen	$-0.0018 \times \text{age}^2 + 0.179 \times \text{age} + 6.6$	0.0006	0.058	1.4	0.07 (0.08)
Thalamus	$-0.0010 \times \text{age}^2 + 0.083 \times \text{age} + 16.2$	0.0006	0.065	1.6	0.003 (0.05)

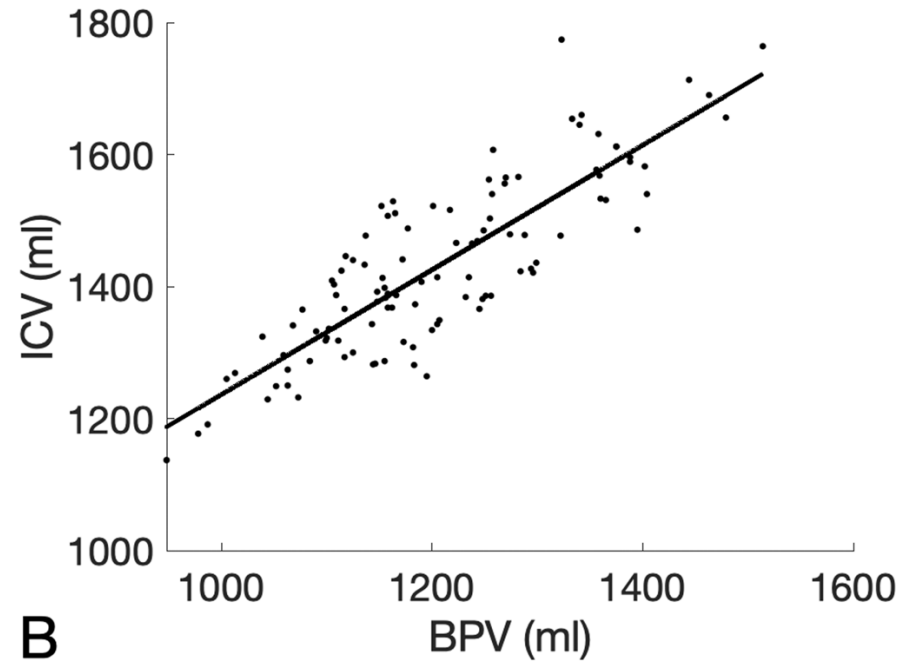
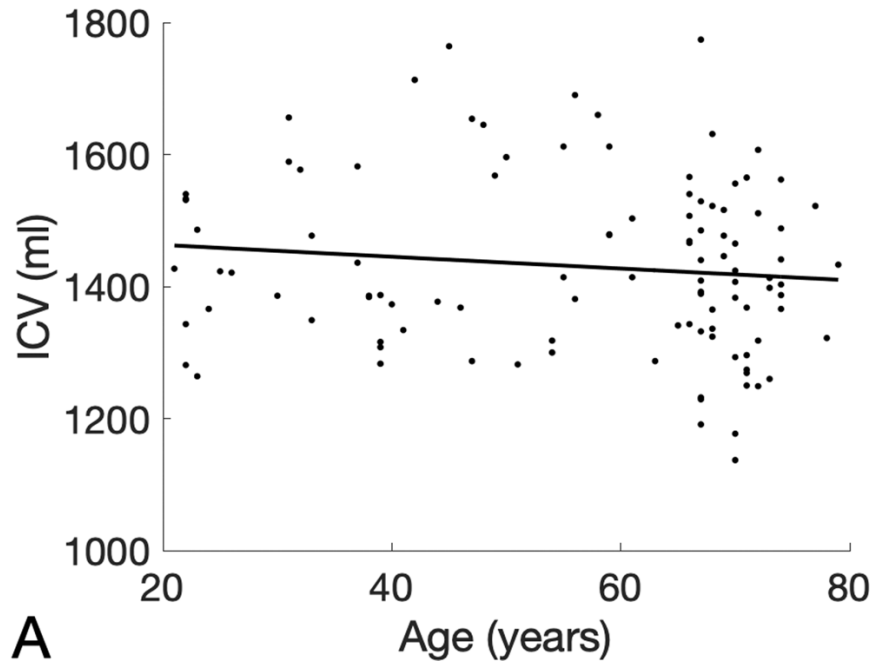
Abbreviations: GM, gray matter; SD; standard deviation; WM, white matter. Note—The 1st coefficient is for age²; the 2nd coefficient is for age; and the 3rd coefficient is the Y-intercept. The adjusted R² is a modified version of R² that has been adjusted for the number of independent variables in the model.

Supplemental Digital Content 5. The AIC of linear and quadratic approximations for T1, T2, PD, and MVF

	T1		T2		PD		MVF	
	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic	Linear	Quadratic
Cortical GM								
Frontal GM	1396	1345	730	681	353	306	405	349
Parietal GM	1419	1378	757	713	317	300	351	317
Temporal GM	1417	1374	746	700	292	270	316	291
Occipital GM	1422	1387	750	710	318	312	338	336
Insula	1480	1436	933	897	294	290	353	303
WM								
Frontal WM	1127	1085	482	450	395	369	488	462
Parietal WM	1094	1060	442	422	360	341	453	435
Temporal WM	1140	1097	484	443	411	385	498	470
Occipital WM	1073	1050	408	396	345	327	439	421
Genu	1088	1054	481	453	416	403	508	493
Splenium	1069	1049	428	418	388	378	483	471
Internal Capsule	1109	1069	470	437	394	381	488	473
Middle Cerebellar Peduncle	1085	1081	406	401	379	378	466.1	465.7
Subcortical GM								
Caudate	1206	1155	619	578	466	452	507	489
Putamen	1157	1133	579	559	416	405	452	442
Thalamus	1119	1100	483	446	387	385	468	466

Abbreviations: GM, gray matter; WM, white matter. Note—The lower AIC value between linear and quadratic approximations are shown in bold type.

Supplemental Digital Content 6. (A) scatterplot of the ICV in relation to age along with a regression line. There is no significant correlation between ICV and age. (B) scatterplot of ICV in relation to BPV age along with a regression line. ICV and BPV have a strong positive correlation. ICV, intracranial volume; BPV, brain parenchymal volume



Supplemental Digital Content 7. The equations used to plot the curves for BPF, GMF, WMF, and MyF (%)

	Volume fractions	SD of 1st coefficient	SD of 2nd coefficient	SD of 3rd coefficient	Adjusted R ² (R ²)
BPF					
Male	$-0.0022 \times \text{age}^2 - 0.020 \times \text{age} + 91.7$	0.0014	0.148	3.4	0.71 (0.72)
Female	$-0.0023 \times \text{age}^2 + 0.039 \times \text{age} + 91.1$	0.0010	0.105	2.6	0.73 (0.74)
GMF					
Male	$0.0027 \times \text{age}^2 - 0.421 \times \text{age} + 61.2$	0.0012	0.125	2.9	0.56 (0.58)
Female	$0.0020 \times \text{age}^2 - 0.312 \times \text{age} + 59.2$	0.0009	0.098	2.4	0.47 (0.49)
WMF					
Male	$-0.0048 \times \text{age}^2 + 0.386 \times \text{age} + 29.4$	0.0010	0.094	2.3	0.58 (0.59)
Female	$-0.0044 \times \text{age}^2 + 0.358 \times \text{age} + 30.9$	0.0009	0.095	2.3	0.57 (0.59)
MyF					
Male	$-0.0017 \times \text{age}^2 + 0.133 \times \text{age} + 10.0$	0.0004	0.041	1.0	0.58 (0.60)
Female	$-0.0019 \times \text{age}^2 + 0.153 \times \text{age} + 9.5$	0.0003	0.037	0.9	0.60 (0.62)

Abbreviations: BPF, brain parenchymal fraction; GMF, gray matter fraction; MyF; myelin fraction; SD; standard deviation; WMF, white matter fraction. Note—The 1st coefficient is for age²; the 2nd coefficient is for age; and the 3rd coefficient is the Y-intercept. The adjusted R² is a modified version of R² that has been adjusted for the number of independent variables in the model.

Supplemental Digital Content 8. The AIC of linear and quadratic approximations for BPF, GMV, WMF, and MyF

	Linear	Quadratic
BPF		
Male	263	261
Female	279	273
GMF		
Male	248	243
Female	270	265
WMF		
Male	239	217
Female	283	261
MyF		
Male	142	125
Female	170	145

Abbreviations: BPF, brain parenchymal fraction; GMF, gray matter fraction; MyF; myelin fraction; WMF, white matter fraction. Note—The lower AIC value between linear and quadratic approximations are shown in bold type.