Supplemental Information

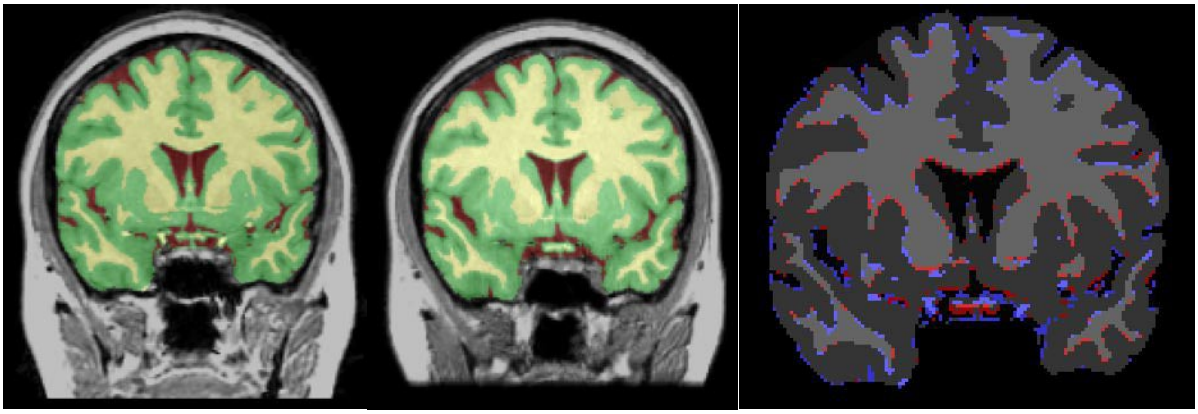

Figure S1. Visual Comparison of MR5 and MR6 Scans with a Difference Image. MR5 (left) and MR6 (center) images are the discrete classified image (yellow = WM, green = GM, red = CSF) overlaid at 25% translucence on their respective T1 images (bias-field corrected, ACPC aligned). Difference image (right): Red regions are positive differences, blue are negative values. This shows a slight superior offset (~1 voxel) of the MR5 relative to the MR6. CSF, cerebrospinal fluid; GM, gray matter; WM, white matter.

Description of scan sequences

For MR5 the T1-weighted scan was acquired using a 3D spoiled recalled gradient echo sequence with the following scan parameters: TE = 5 ms, TR = 24 ms, flip angle = 40°, number of excitations (NEX) = 2, field of view (FOV) = 26 × 19 × 18.6 cm, matrix = 256 × 192 × 124. The PD- and T2-weighted scans were acquired using a fast spin-echo sequence with the following parameters: TE = 28/96 ms for the PD and T2, respectively, TR = 3000 ms, slice thickness/gap = 3.0 mm/0.0 mm, NEX = 1, FOV = 26 cm, matrix = 256 × 192, echo train length (ETL) = 8. For MR6 the T1-weighted scan was acquired with the following parameters: a coronal FLASH sequence with TE = 6 ms, TR = 20 ms, flip angle = 30°, FOV = 260 × 260 × 192 mm, matrix = 256 × 256 × 144, NEX = 2, slice thickness .65 mm, ETL = 5. The T2 images were acquired using a 2D fast spin-echo sequence in the coronal plane with the following parameters: TE = 85

ms, TR = 4800 ms, slice thickness/gap = 1.8/0.0 mm, FOV = 160 × 160 mm, matrix = 256 × 256, NEX = 3, number of echoes = 8, number of slices = 124.

Table S1. Demographic data by scan type and gender

	Clinical and Demographic Characteristics	***N***	**Mean**	**SD**
All Patients	Age at Onset (years)	202	21.97326	5.831076
	Duration of Symptoms Prior to Onset (weeks)	202	60.61194	81.4690043
	Negative Symptom Severity at Intake (max = 20)	202	11.51244	3.653915
	Positive Symptom Severity at Intake (max = 10)	202	6.174129	2.7430872
	Disorganized Symptom Severity at Intake (max = 15)	202	4.890547	2.9896422
	Parental Education	196	13.38462	2.8526113
	Parental Social Class	202	2.945274	0.7361997
By MR Type				
MR5 scans	Age at Onset	162	22.08871	5.5922377
	Duration of Symptoms Prior to Onset (weeks)	162	54.35802	67.1905252
	Negative Symptom Severity at Intake (max = 20)	162	11.58025	3.6927466
	Positive Symptom Severity at Intake (max = 10)	162	6.074074	2.8186503
	Disorganized Symptom Severity at Intake (max = 15)	162	5.049383	3.0150811
	Parental Education	156	13.26923	2.8496659
	Parental Social Class	162	2.975309	0.7218904
MR6 scans	Age at Onset	40	21.49371	6.7943255
	Duration of Symptoms Prior to Onset (weeks)	40	86.58974	122.252913
	Negative Symptom Severity at Intake (max = 20)	40	11.23077	3.5203285
	Positive Symptom Severity at Intake (max = 10)	40	6.589744	2.3920697
	Disorganized Symptom Severity at Intake (max = 15)	40	4.230769	2.8234128

	Parental Education	40	13.84615	2.8542532
	Parental Social Class	40	2.820513	0.7904627
By Gender				
Male patients	Age at Onset	148	21.45164	5.203414
	Duration of Symptoms Prior to Onset (weeks)	148	63.2585	86.692504
	Negative Symptom Severity at Intake (max = 20)	148	11.87755	3.6431545
	Positive Symptom Severity at Intake (max = 10)	148	6.081633	2.8681296
	Disorganized Symptom Severity at Intake (max = 15)	148	4.761905	2.8316541
	Parental Education	141	13.50709	2.8728941
	Parental Social Class	148	2.931973	0.7277274
Female patients	Age at Onset	54	23.39322	7.1353315
	Duration of Symptoms Prior to Onset (weeks)	54	53.40741	65.3482741
	Negative Symptom Severity at Intake (max = 20)	54	10.51852	3.5274703
	Positive Symptom Severity at Intake (max = 10)	54	6.425926	2.3759951
	Disorganized Symptom Severity at Intake (max = 15)	54	5.240741	3.3866285
	Parental Education	54	13.06481	2.8000106
	Parental Social Class	54	2.981482	0.7645628

Table S2. Comparison of occipital lobe brain volume changes between schizophrenia patients and healthy volunteers

Regions of Interest	**B-coefficient (SE) (cc/yr)**		**Age *F*1,621 (*p*)**	**Age x Group Interaction *F*1,621 (*p*)**
	Patients (*N* = 202)	Controls (*N* = 125)		
Occipital GM	-0.08 (0.04)	-0.09 (0.03)	0.0 (.97)	7.7 (.006)
Occipital WM	-0.08 (0.05)	0.07 (0.04)	6.7 (.01)	11.1 (.0009)
Occipital CSF	-0.02 (0.02)	0.03 (0.01)	62.4 (<.0001)	12.7 (.0004)

CSF, cerebrospinal fluid; GM, gray matter; WM, white matter.

Table S3. Comparison of occipital lobe brain volume changes with each successive interscan interval[a] between healthy volunteers and schizophrenia patients

	1st interscan interval		T (*p*)	2nd interscan interval		T (*p*)	3rd interscan interval		T (*p*)
	Controls (*N* = 125)	Patients (*N* = 202)		Controls (*N* = 42)	Patients (*N* = 126)		Controls (*N* = 15)	Patients (*N* = 79)	
Occipital GM	0.62 (2.61)	0.86 (3.07)	0.75 (.46)	-0.10 (1.55)	0.08 (1.52)	0.66 (.51)	-0.06 (1.09)	-0.36 (1.34)	0.82 (.42)
Occipital WM	-0.34 (2.86)	-0.97 (4.06)	1.50 (.13)	0.45 (2.25)	0.61 (2.37)	0.38 (.71)	0.89 (1.73)	-0.14 (2.18)	1.72 (.09)
Occipital CSF	25.9 (75.26)	10.4 (43.60)	2.35 (.02)	3.55 (13.0)	5.22 (14.91)	0.65 (.52)	5.52 (11.90)	12.4 (24.26)	1.08 (.29)

CSF, cerebrospinal fluid; GM, gray matter; WM, white matter.

[a] Mean percent of prior scan per year (SD); 1st interscan interval: (Time 2 scan volume minus Time 1 scan volume) divided by Time 1 scan volume per year (df = 325); 2nd interscan interval: (Time 3 scan volume minus Time 2 scan volume) divided by Time 2 scan volume per year (df = 166); 3rd interscan interval: (Time 4 scan volume minus Time 3 scan volume) divided by Time 3 scan volume per year (df = 92).

Table S4. Correlations between occipital lobe brain volume change and cognitive measures

	Verbal Learning		Attention		Problem Solving		Verbal Fluency		Working Memory		Motor Speed	
	r	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*	*r*	*p*
Occipital GM	-0.13	.07	-0.12	.10	-0.02	.73	0.02	.81	-0.04	.60	-0.02	.80
Occipital WM	0.15	.04	0.13	.06	0.03	.64	-0.04	.60	0.08	.28	-0.03	.68
Occipital CSF	-0.16	.03	-0.13	.07	-0.13	.07	-0.08	.27	-0.20	.007	-0.01	.91

CSF, cerebrospinal fluid; GM, gray matter; WM, white matter.

Table S5. Correlations between occipital lobe brain volume change and symptom dimensions

	Negative		**Psychotic**		**Disorganized**	
	r	*p*	*r*	*p*	*r*	*p*
Occipital GM	0.10	.15	-0.03	.62	0.01	.91
Occipital WM	-0.05	.46	0.04	.58	-0.06	.42
Occipital CSF	0.09	.22	-0.06	.43	-0.02	.77

CSF, cerebrospinal fluid; GM, gray matter; WM, white matter.