

MS Journal Appendix for MRI methodology

Hardware	
Field strength	3 Tesla
Manufacturer	3T GE Medical System (Milwaukee, WI)
Model	HDxt
Coil type (e.g. head, surface)	head
Number of coil channels	8 channels

Acquisition sequence		
Type (e.g. FLAIR, DIR, DTI, fMRI)	DE FSE	
Acquisition time	6 minutes	
Orientation	Axial slices	
Alignment (e.g. anterior commissure/poster commissure line)	acpc	
Voxel size	0.6x0.9x3mm ³	
TR	3,080 ms	
TE	TE1=127.5ms, TE2=24 ms	
TI	n.a.	
Flip angle	90	
NEX	2	
Field of view	240 mm	
Matrix size	256X384	
Parallel imaging	Yes	
If used, parallel imaging method: (e.g. SENSE, GRAPPA)	ASSET	
Cardiac gating		No
If used, cardiac gating method: (e.g. PPU or ECG)		
Contrast enhancement		No

Acquisition sequence		
If used, provide name of contrast agent, dose and timing of scan post-contrast administration		
Other parameters:		
Acquisition sequence		
Type (e.g. FLAIR, DIR, DTI, fMRI)	3D-T1	
Acquisition time	10 minutes	
Orientation	Sagittal plane	
Alignment (e.g. anterior commissure/poster commissure line)	Interemisferic fissure	
Voxel size	1x1x1.2 mm ³	
TR	6,988 ms	
TE	2,85 ms	
TI	650 ms	
Flip angle	8	
NEX	1	
Field of view	256 mm	
Matrix size	256X256	
Parallel imaging	Yes	
If used, parallel imaging method: (e.g. SENSE, GRAPPA)	ASSET	
Cardiac gating		No
If used, cardiac gating method: (e.g. PPU or ECG)		
Contrast enhancement		No
If used, provide name of contrast agent, dose and timing of scan post-contrast administration		

Acquisition sequence

Other parameters:

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Image analysis methods and outputs**Lesions**

Type (e.g. Gd-enhancing, T2-hyperintense, T1-hypointense)	T2-hyperintense
Analysis method	Lesion Volume
Analysis software	MIPAV software (Medical Image Processing, Analysis and Visualization; version 4.2.2; http://mipav.cit.nih.gov)
Output measure (e.g. count or volume [ml])	Volume [ml]

Tissue volumes

Type (e.g. whole brain, grey matter, white matter, spinal cord)	whole brain, gray matter, white matter
Analysis method	SIENAX
Analysis software	FSL
Output measure (e.g. absolute tissue volume in ml, tissue volume as a fraction of intracranial volume, percentage change in tissue volumes)	Normalized Brain Volume, Normalized White Matter Volume, Normalized Gray Matter Volume

Tissue volumes

Type (e.g. whole brain, grey matter, white matter, spinal cord, normal-appearing grey matter or white matter)	Thalamus
Analysis method	FIRST tool , Vertex analysis
Analysis software	FSL
Output measure	Whole and regional thalamic volume