

Protocol: adult_upperExtremities_HAND MRA 10-22-19

3-Plane Loc	PATIENT POSITION		IMAGING PARAMETERS		3-Plane Loc
	Patient Entry	Head First	Imaging Mode	2D	
	Patient Position	Prone	Pulse Sequence	Gradient Echo	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	Seq, Fast	
	Plane	3-PLANE	SCAN RANGE		
	Series Description	3-Plane Loc	FOV	20.0	
	SCAN TIMING		Slice Thickness	5.0	
	Number of Echoes	1	Slice Spacing	2.0	
	IMAGE ENHANCE		ACQ TIMING		
	Filter Choice	None	Freq	256	
	GATING/TRIGGER		Phase	128	
	Auto Trigger Type	Off	Freq DIR	Unswap	
	MULTI-PHASE		NEX	1.00	
	Seperate Series	0	Phase FOV	1.00	
	Mask Phase	0	Auto Shim	Auto	
	Mask Pause	0	Phase Correction	No	
	DIFFUSION		FMRI		
	Recon All Images	On	PSD Trigger	Internal	
	CONTRAST		View Order	Bottom/Up	
	Contrast Yes/No	No	# of Repetitions REST	0	
			# of Repetitions ACTIVE	0	
			SAT		
			Tag Type	None	
			TRICKS		
		Pause On/Off	On		
		Auto Subtract	0		
		Auto SCIC	Off		

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3-Plane Loc	PATIENT POSITION		IMAGING PARAMETERS		3-Plane Loc
	Patient Entry	Head First	Imaging Mode	2D	
	Patient Position	Prone	Pulse Sequence	Gradient Echo	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	Seq, Fast	
	Plane	3-PLANE	SCAN RANGE		
	Series Description	3-Plane Loc	FOV	20.0	
	SCAN TIMING		Slice Thickness	5.0	
	Number of Echoes	1	Slice Spacing	2.0	
	IMAGE ENHANCE		ACQ TIMING		
	Filter Choice	None	Freq	256	
	GATING/TRIGGER		Phase	128	
	Auto Trigger Type	Off	Freq DIR	Unswap	
	MULTI-PHASE		NEX	1.00	
	Seperate Series	0	Phase FOV	1.00	
	Mask Phase	0	Auto Shim	Auto	
	Mask Pause	0	Phase Correction	No	
	DIFFUSION		FMRI		
	Recon All Images	On	PSD Trigger	Internal	
	CONTRAST		View Order	Bottom/Up	
	Contrast Yes/No	No	# of Repetitions REST	0	
			# of Repetitions ACTIVE	0	
			SAT		
			Tag Type	None	
			TRICKS		
			Pause On/Off	On	
		Auto Subtract	0		
		Auto SCIC	Off		

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Calibration	PATIENT POSITION		IMAGING PARAMETERS		Calibration
	Patient Entry	Head First	Imaging Mode	3D	
	Patient Position	Prone	Pulse Sequence	SPGR	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	EDR, Fast, ZIP2, Calib	
	Plane	AXIAL	SCAN RANGE		
	Series Description	Calibration	FOV	30.0	
	SCAN TIMING		Slice Thickness	9.4	
	Number of Echoes	1	ACQ TIMING		
	IMAGE ENHANCE		Freq DIR	A/P	
	Filter Choice	None	Auto Shim	Auto	
	GATING/TRIGGER		Phase Correction	No	
	Auto Trigger Type	Off	FMRI		
	MULTI-PHASE		PSD Trigger	Internal	
	Seperate Series	0	View Order	Bottom/Up	
	Mask Phase	0	# of Repetitions REST	0	
	Mask Pause	0	# of Repetitions ACTIVE	0	
	DIFFUSION		SAT		
	Recon All Images	On	Tag Type	None	
	CONTRAST		TRICKS		
	Contrast Yes/No	No	Pause On/Off	On	
			Auto Subtract	0	
			Auto SCIC	Off	

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Cor T1 loc	PATIENT POSITION		IMAGING PARAMETERS		Cor T1 loc
	Patient Entry	Head First	Imaging Mode	2D	
	Patient Position	Prone	Pulse Sequence	FSE-XL	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	NPW, EDR, TRF, Fast	
	Plane	OBLIQUE	SCAN RANGE		
	Series Description	Cor T1 loc	FOV	20.0	
	SCAN TIMING		Slice Thickness	3.0	
	Flip Angle	160	Slice Spacing	0.0	
	TE	Min Full	ACQ TIMING		
	Number of Echoes	1	Freq	352	
	TR	486.0	Phase	224	
	Echo Train Length	3	Freq DIR	S/I	
	Receiver Bandwidth	35.71	Fat Shift DIR	Normal (I)	
	IMAGE ENHANCE		NEX	3.00	
	Filter Choice	None	Auto Shim	Auto	
	GATING/TRIGGER		Phase Correction	Yes	
	Auto Trigger Type	Off	USER CVS		
	FMRI		User CV8	2.00	
	PSD Trigger	Internal	User CV9	1.00	
	View Order	Bottom/Up	User CV22	1.00	
	# of Repetitions REST	0	TR Min	350.0	
	# of Repetitions ACTIVE	0	TR Max	800.0	
	SAT		MULTI-PHASE		
	Tag Type	None	Seperate Series	0	
	TRICKS		Mask Phase	0	
Pause On/Off	On	Mask Pause	0		
Auto Subtract	0	DIFFUSION			
Auto SCIC	Off	Recon All Images	On		
		CONTRAST			
		Contrast Yes/No	No		

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COR STIR	PATIENT POSITION		IMAGING PARAMETERS		COR STIR
	Patient Entry	Head First	Imaging Mode	2D	
	Patient Position	Prone	Pulse Sequence	FSE-XL	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	Seq, EDR, TRF, Fast, ZIP512, FR, IrP	
	Plane	OBLIQUE	SCAN RANGE		
	Series Description	COR STIR	FOV	20.0	
	SCAN TIMING		Slice Thickness	3.0	
	Flip Angle	160	Slice Spacing	0.0	
	TE	41.0	ACQ TIMING		
	Number of Echoes	1	Freq	320	
	TR	3376.0	Phase	192	
	TI	140	Freq DIR	S/I	
	Echo Train Length	11	Fat Shift DIR	Normal (I)	
	Receiver Bandwidth	35.71	NEX	3.00	
	IMAGE ENHANCE		Phase FOV	1.00	
	Filter Choice	None	Auto Shim	Auto	
	GATING/TRIGGER		Phase Correction	Yes	
	Auto Trigger Type	Off	USER CVS		
	FMRI		User CV8	1.00	
	PSD Trigger	Internal	User CV21	1.00	
View Order	Bottom/Up	TR Min	2500.0		
# of Repetitions REST	0	TR Max	8000.0		
# of Repetitions ACTIVE	0	MULTI-PHASE			
SAT		Seperate Series	0		
Tag Type	None	Mask Phase	0		
TRICKS		Mask Pause	0		
Pause On/Off	On	DIFFUSION			
Auto Subtract	0	Recon All Images	On		
Auto SCIC	Off	CONTRAST			
		Contrast Yes/No	No		

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Ax 2D TOF FSPGR ART	PATIENT POSITION		IMAGING PARAMETERS		Ax 2D TOF FSPGR ART
	Patient Entry	Head First	Imaging Mode	2D	
	Patient Position	Prone	Pulse Sequence	Vasc TOF SPGR	
	Coil Configuration	GEM Flex Medium Array	Imaging Options	FC, Seq, EDR, Fast	
	Plane	OBLIQUE	SCAN RANGE		
	Series Description	Ax 2D TOF FSPGR ART	FOV	20.0	
	SCAN TIMING		Slice Thickness	1.5	
	Flip Angle	80	Slice Spacing	-0.5	
	TE	Minimum	ACQ TIMING		
	Number of Echoes	1	Freq	256	
	TR	20.0	Phase	128	
	Receiver Bandwidth	31.25	Freq DIR	R/L	
	IMAGE ENHANCE		NEX	1.00	
	Filter Choice	None	# of Acq. Before Pause	0	
	GATING/TRIGGER		Phase FOV	0.60	
	Auto Trigger Type	Off	Auto Shim	Auto	
	FMRI		Phase Correction	No	
	PSD Trigger	Internal	USER CVS		
	View Order	Bottom/Up	User CV4	10.00	
	# of Repetitions REST	0	MULTI-PHASE		
	# of Repetitions ACTIVE	0	Seperate Series	0	
	SAT		Mask Phase	0	
	SAT Location	S	Mask Pause	0	
	Tag Type	None	VASCULAR		
	DIFUSION		# of Collapse Images	Off	
	Recon All Images	On	# of Projection Images	19	
	CONTRAST		TRICKS		
	Contrast Yes/No	No	Pause On/Off	On	
		Auto Subtract	0		
		Auto SCIC	Off		

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Ax 2D TOF FSPGR venous	PATIENT POSITION		IMAGING PARAMETERS	
	Patient Entry	Head First	Imaging Mode	2D
	Patient Position	Prone	Pulse Sequence	Vasc TOF SPGR
	Coil Configuration	GEM Flex Medium Array	Imaging Options	FC, Seq, EDR, Fast
	Plane	OBLIQUE	SCAN RANGE	
	Series Description	Ax 2D TOF FSPGR venous	FOV	20.0
	SCAN TIMING		Slice Thickness	1.5
	Flip Angle	80	Slice Spacing	-0.5
	TE	Minimum	ACQ TIMING	
	Number of Echoes	1	Freq	256
	TR	20.0	Phase	128
	Receiver Bandwidth	31.25	Freq DIR	R/L
	IMAGE ENHANCE		NEX	1.00
	Filter Choice	None	# of Acq. Before Pause	0
	GATING/TRIGGER		Phase FOV	0.50
	Auto Trigger Type	Off	Auto Shim	Auto
	FMRI		Phase Correction	No
	PSD Trigger	Internal	USER CVS	
	View Order	Bottom/Up	User CV4	10.00
	# of Repetitions REST	0	MULTI-PHASE	
	# of Repetitions ACTIVE	0	Seperate Series	0
	SAT		Mask Phase	0
	SAT Location	I	Mask Pause	0
	Tag Type	None	VASCULAR	
	DIFUSION		# of Collapse Images	Off
	Recon All Images	On	# of Projection Images	19
	CONTRAST		TRICKS	
	Contrast Yes/No	No	Pause On/Off	On
		Auto Subtract	0	
		Auto SCIC	Off	

Ax 2D TOF FSPGR venous

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3D TRICKS	PATIENT POSITION		IMAGING PARAMETERS	
	Patient Entry	Head First	Imaging Mode	3D
	Patient Position	Prone	Pulse Sequence	TRICKS
	Coil Configuration	GEM Flex Medium Array	Imaging Options	Fast, ZIP2, Asset
	Plane	OBLIQUE	SCAN RANGE	
	Series Description	3D TRICKS	FOV	24.0
	SCAN TIMING		Slice Thickness	2.0
	Flip Angle	30	ACQ TIMING	
	TE	Min Full	Freq	384
	Number of Echoes	6	Phase	256
	Receiver Bandwidth	31.25	Freq DIR	S/I
	IMAGE ENHANCE		NEX	1.00
	Filter Choice	None	Phase FOV	0.90
	GATING/TRIGGER		Auto Shim	Auto
	Auto Trigger Type	Off	Phase Correction	No
	FMRI		USER CVS	
	PSD Trigger	Internal	User CV6	2.00
	View Order	Bottom/Up	MULTI-PHASE	
	# of Repetitions REST	0	Seperate Series	0
	# of Repetitions ACTIVE	0	Mask Phase	0
	SAT		Mask Pause	0
	Tag Type	None	DIFFUSION	
	TRICKS		Recon All Images	On
	Output Temporal Phases	15	CONTRAST	
	Delay Time after Mask	Minimum	Contrast Yes/No	Yes
Pause On/Off	On			
Auto Subtract	0			
Auto SCIC	Off			
OTHERS				
Protocol Notes	Make sure Phase is L-R. Freq S-I 15 sec delay before scanning injected TRICKS.			

3D TRICKS