

Protocol: adult_upperExtremities_MSK FINGERS/HAND

PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	Spin Echo
Coil Configuration	GEM Flex Small Array	Imaging Options	NPW, Seq, EDR, Fast, SS
Plane	3-PLANE	SCAN RANGE	
Series Description	3 Plane Localizer	FOV	36.0
SCAN TIMING		Slice Thickness	5.0
TE	71.2	Slice Spacing	5.0
Number of Echoes	1	ACQ TIMING	
TR	Minimum	Freq	384
Receiver Bandwidth	62.50	Phase	224
IMAGE ENHANCE		Freq DIR	Unswap
Filter Choice	None	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	1.00
Auto Trigger Type	Off	Auto Shim	Auto
FMRI		Phase Correction	No
PSD Trigger	Internal	USER CVS	
View Order	Bottom/Up	User CV2	240.00
# of Repetitions REST	0	User CV13	1.00
# 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	
OTHERS		Contrast Yes/No	No
Protocol Notes	FOVS TO INCLUDE BASES OF THE METACARPALS SAG IMAGES SHOULD INCLUDE 2 CONSECUTIVE FINGERS FOR COMPARISON PURPOSES UNLES A hAND mri IS ORDERED IN WHICH CASE SAG CAN EXTEND THROUGH WHOLE HAND FINGERS MUST BE STRAIGHT AS POSSIBLE		

3 Plane Localizer

3 Plane Localizer

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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 Small Array	Imaging Options	EDR, Fast, ZIP2, Calib	
	Plane	AXIAL	SCAN RANGE		
	Series Description	Calibration	FOV	30.0	
	SCAN TIMING		Slice Thickness	10.0	
	Number of Echoes	1	ACQ TIMING		
	IMAGE ENHANCE		Freq DIR	R/L	
	Filter Choice	None	Auto Shim	Auto	
	GATING/TRIGGER		Phase Correction	No	
	Auto Trigger Type	Off	FMRI		
	MULTI-PHASE		PSD Trigger	Internal	
	Seperate Series	0	Slice Order	Interleaved	
	Mask Phase	0	View Order	Bottom/Up	
	Mask Pause	0	# of Repetitions REST	0	
	DIFFUSION		# of Repetitions ACTIVE	0	
	Recon All Images	On	SAT		
	CONTRAST		Tag Type	None	
	Contrast Yes/No	No	TRICKS		
		Pause On/Off	On		
		Auto Subtract	0		
		Auto SCIC	Off		

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Ax T1 FSE	PATIENT POSITION		IMAGING PARAMETERS	
	Patient Entry	Head First	Imaging Mode	2D
	Patient Position	Prone	Pulse Sequence	FSE-XL
	Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast
	Plane	OBLIQUE	SCAN RANGE	
	Series Description	Ax T1 FSE	FOV	12.0
	SCAN TIMING		Slice Thickness	2.5
	Flip Angle	111	Slice Spacing	0.5
	TE	Min Full	ACQ TIMING	
	Number of Echoes	1	Freq	352
	TR	730.0	Phase	224
	Echo Train Length	3	Freq DIR	R/L
	Receiver Bandwidth	50.00	Fat Shift DIR	Normal (L)
	IMAGE ENHANCE		NEX	2.00
	Filter Choice	A	# of Acq. Before Pause	0
	GATING/TRIGGER		Phase FOV	0.80
	Auto Trigger Type	Off	Auto Shim	Auto
	FMRI		Phase Correction	Yes
	PSD Trigger	Internal	Flow Direction Compensation	Slice
	View Order	Bottom/Up	USER CVS	
	# of Repetitions REST	0	User CV8	1.00
	# of Repetitions ACTIVE	0	User CV22	1.00
	SAT		TR Min	400.0
	Tag Type	None	TR Max	850.0
	TRICKS		MULTI-PHASE	
	Pause On/Off	On	Seperate Series	0
	Auto Subtract	0	Mask Phase	0
	Auto SCIC	2	Mask Pause	0
		DIFFUSION		
		Recon All Images	On	
		CONTRAST		
		Contrast Yes/No	No	

Ax T1 FSE

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	EDR, TRF, Fast, FR
Plane	AXIAL	SCAN RANGE	
Series Description	axial PD F/S	FOV	12.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	30.0	ACQ TIMING	
Number of Echoes	1	Freq	320
TR	1800.0	Phase	320
Echo Train Length	8	Freq DIR	A/P
Receiver Bandwidth	35.71	Fat Shift DIR	Normal (A)
IMAGE ENHANCE		NEX	2.00
Filter Choice	A	Phase FOV	1.00
GATING/TRIGGER		Auto Shim	Auto
Auto Trigger Type	Off	Phase Correction	Yes
FMRI		USER CVS	
PSD Trigger	Internal	User CV8	1.00
View Order	Bottom/Up	User CV19	1.00
# of Repetitions REST	0	User CV22	1.00
# of Repetitions ACTIVE	0	TR Min	1800.0
SAT		TR Max	11000.0
Tag Type	None	MULTI-PHASE	
Fat/Water Saturation	Fat Classic	Seperate Series	0
TRICKS		Mask Phase	0
Pause On/Off	On	Mask Pause	0
Auto Subtract	0	DIFFUSION	
Auto SCIC	2	Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

axial PD F/S

axial PD F/S

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COR 3D MERGE	PATIENT POSITION		IMAGING PARAMETERS		COR 3D MERGE
	Patient Entry	Head First	Imaging Mode	3D	
	Patient Position	Prone	Pulse Sequence	MERGE	
	Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, Fast, ZIP512, ZIP2	
	Plane	OBLIQUE	SCAN RANGE		
	Series Description	COR 3D MERGE	FOV	10.0	
	SCAN TIMING		Slice Thickness	2.0	
	Flip Angle	5	Location per Slab	24	
	TE	Min Full	Overlap Locations	0	
	Number of Echoes	3	ACQ TIMING		
	TR	Minimum	Freq	256	
	Receiver Bandwidth	41.67	Phase	256	
	IMAGE ENHANCE		Freq DIR	S/I	
	Filter Choice	A	Phase FOV	1.00	
	GATING/TRIGGER		Auto Shim	Auto	
	Auto Trigger Type	Off	Phase Correction	No	
	MULTI-PHASE		FMRI		
	Seperate Series	0	PSD Trigger	Internal	
	Mask Phase	0	View Order	Bottom/Up	
	Mask Pause	0	# of Repetitions REST	0	
DIFFUSION		# of Repetitions ACTIVE	0		
Recon All Images	On	SAT			
CONTRAST		Tag Type	None		
Contrast Yes/No	No	TRICKS			
		Pause On/Off	On		
		Auto Subtract	0		
		Auto SCIC	2		

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast
Plane	OBLIQUE	SCAN RANGE	
Series Description	COR T1 FSE	FOV	12.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	Min Full	ACQ TIMING	
Number of Echoes	1	Freq	352
TR	467.0	Phase	224
Echo Train Length	3	Freq DIR	S/I
Receiver Bandwidth	50.00	Fat Shift DIR	Normal (I)
IMAGE ENHANCE		NEX	2.00
Filter Choice	A	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	1.00
Auto Trigger Type	Off	Auto Shim	Auto
FMRI		Phase Correction	Yes
PSD Trigger	Internal	Flow Direction Compensation	Freq
View Order	Bottom/Up	USER CVS	
# of Repetitions REST	0	User CV8	1.00
# of Repetitions ACTIVE	0	User CV22	1.00
SAT		TR Min	400.0
Tag Type	None	TR Max	850.0
TRICKS		MULTI-PHASE	
Pause On/Off	On	Seperate Series	0
Auto Subtract	0	Mask Phase	0
Auto SCIC	2	Mask Pause	0
		DIFFUSION	
		Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

COR T1 FSE

COR T1 FSE

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CORONAL PD F/S	PATIENT POSITION		IMAGING PARAMETERS	
	Patient Entry	Head First	Imaging Mode	2D
	Patient Position	Prone	Pulse Sequence	FSE-XL
	Coil Configuration	GEM Flex Small Array	Imaging Options	EDR, TRF, Fast, FR
	Plane	AXIAL	SCAN RANGE	
	Series Description	CORONAL PD F/S	FOV	12.0
	SCAN TIMING		Slice Thickness	2.5
	Flip Angle	111	Slice Spacing	0.5
	TE	30.0	ACQ TIMING	
	Number of Echoes	1	Freq	320
	TR	1800.0	Phase	320
	Echo Train Length	8	Freq DIR	A/P
	Receiver Bandwidth	35.71	Fat Shift DIR	Normal (A)
	IMAGE ENHANCE		NEX	2.00
	Filter Choice	A	Phase FOV	1.00
	GATING/TRIGGER		Auto Shim	Auto
	Auto Trigger Type	Off	Phase Correction	Yes
	FMRI		USER CVS	
	PSD Trigger	Internal	User CV8	1.00
	View Order	Bottom/Up	User CV19	1.00
# of Repetitions REST	0	User CV22	1.00	
# of Repetitions ACTIVE	0	TR Min	1800.0	
SAT		TR Max	11000.0	
Tag Type	None	MULTI-PHASE		
Fat/Water Saturation	Fat Classic	Seperate Series	0	
TRICKS		Mask Phase	0	
Pause On/Off	On	Mask Pause	0	
Auto Subtract	0	DIFFUSION		
Auto SCIC	2	Recon All Images	On	
		CONTRAST		
		Contrast Yes/No	No	

CORONAL PD F/S

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	EDR, TRF, Fast, FR
Plane	AXIAL	SCAN RANGE	
Series Description	SAG PD F/S	FOV	12.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	30.0	ACQ TIMING	
Number of Echoes	1	Freq	320
TR	1800.0	Phase	320
Echo Train Length	8	Freq DIR	A/P
Receiver Bandwidth	35.71	Fat Shift DIR	Normal (A)
IMAGE ENHANCE		NEX	2.00
Filter Choice	A	Phase FOV	1.00
GATING/TRIGGER		Auto Shim	Auto
Auto Trigger Type	Off	Phase Correction	Yes
FMRI		USER CVS	
PSD Trigger	Internal	User CV8	1.00
View Order	Bottom/Up	User CV19	1.00
# of Repetitions REST	0	User CV22	1.00
# of Repetitions ACTIVE	0	TR Min	1800.0
SAT		TR Max	11000.0
Tag Type	None	MULTI-PHASE	
Fat/Water Saturation	Fat Classic	Seperate Series	0
TRICKS		Mask Phase	0
Pause On/Off	On	Mask Pause	0
Auto Subtract	0	DIFFUSION	
Auto SCIC	2	Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

SAG PD F/S

SAG PD F/S

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast
Plane	OBLIQUE	SCAN RANGE	
Series Description	Ax T1 FSE	FOV	10.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	Min Full	ACQ TIMING	
Number of Echoes	1	Freq	352
TR	463.0	Phase	224
Echo Train Length	3	Freq DIR	R/L
Receiver Bandwidth	50.00	Fat Shift DIR	Normal (L)
IMAGE ENHANCE		NEX	2.00
Filter Choice	A	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	0.80
Auto Trigger Type	Off	Auto Shim	Auto
FMRI		Phase Correction	Yes
PSD Trigger	Internal	Flow Direction Compensation	Slice
View Order	Bottom/Up	USER CVS	
# of Repetitions REST	0	User CV8	1.00
# of Repetitions ACTIVE	0	User CV22	1.00
SAT		TR Min	400.0
Tag Type	None	TR Max	850.0
TRICKS		MULTI-PHASE	
Pause On/Off	On	Seperate Series	0
Auto Subtract	0	Mask Phase	0
Auto SCIC	2	Mask Pause	0
		DIFFUSION	
		Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

Ax T1 FSE

Ax T1 FSE

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	Seq, EDR, TRF, Fast, IrP
Plane	OBLIQUE	PSD Name	fse-xl
Series Description	SAG STIR	SCAN RANGE	
SCAN TIMING		FOV	12.0
Flip Angle	111	Slice Thickness	2.5
TE	50.0	Slice Spacing	0.5
Number of Echoes	1	ACQ TIMING	
TR	4422.0	Freq	320
TI	170	Phase	224
Echo Train Length	11	Freq DIR	S/I
Receiver Bandwidth	31.25	Fat Shift DIR	Normal (I)
IMAGE ENHANCE		NEX	2.00
Filter Choice	None	Phase FOV	1.00
GATING/TRIGGER		Auto Shim	Auto
Auto Trigger Type	Off	Phase Correction	Yes
FMRI		USER CVS	
PSD Trigger	Internal	User CV7	1.00
View Order	Bottom/Up	User CV8	1.00
# of Repetitions REST	0	User CV22	1.00
# of Repetitions ACTIVE	0	TR Min	2000.0
SAT		TR Max	15000.0
SAT Location	S	MULTI-PHASE	
SAT Location	I	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

SAG STIR

SAG STIR

Protocol: adult_upperExtremities_MSK FINGERS/HAND

PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	Spin Echo
Coil Configuration	48Ch Head Coil	Imaging Options	Seq, EDR, TRF, Fast, SS, ARC
Plane	3-PLANE	SCAN RANGE	
Series Description	*MASS*	FOV	30.0
SCAN TIMING		Slice Thickness	10.0
TE	80.0	Slice Spacing	5.0
Number of Echoes	1	ACQ TIMING	
TR	1000.0	Freq	256
Receiver Bandwidth	83.33	Phase	128
IMAGE ENHANCE		Freq DIR	Unswap
Filter Choice	None	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	1.00
Auto Trigger Type	Off	Auto Shim	Auto
MULTI-PHASE		Phase Correction	No
Seperate Series	0	FMRI	
Mask Phase	0	PSD Trigger	Internal
Mask Pause	0	View Order	Bottom/Up
DIFFUSION		# of Repetitions REST	0
Recon All Images	On	# of Repetitions ACTIVE	0
CONTRAST		SAT	
Contrast Yes/No	No	Tag Type	None
		TRICKS	
		Pause On/Off	On
		Auto Subtract	0
		Auto SCIC	Off
		OTHERS	
		Protocol Notes	<p><i>Important Tip: Improve Head SAR performance will be seen with during a brain exam if the SSFSE localizer calculation is lower than 3.2 W/kg Keep the TR at 1000 msec in order to lower SAR estimations</i></p>

MASS

MASS

WB-SAR: 0.68 Head-SAR: 2.0

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PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast, ARC
Plane	OBLIQUE	SCAN RANGE	
Series Description	AX T1 FSE F/S PRE AND POST	FOV	12.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	Min Full	ACQ TIMING	
Number of Echoes	1	Freq	320
TR	845.0	Phase	192
Echo Train Length	3	Freq DIR	R/L
Receiver Bandwidth	50.00	Fat Shift DIR	Normal (L)
IMAGE ENHANCE		NEX	3.00
Filter Choice	A	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	0.80
Auto Trigger Type	Off	Auto Shim	Auto
FMRI		Phase Correction	Yes
PSD Trigger	Internal	Flow Direction Compensation	Slice
View Order	Bottom/Up	USER CVS	
# of Repetitions REST	0	User CV8	1.00
# of Repetitions ACTIVE	0	User CV19	1.00
SAT		User CV22	1.00
Tag Type	None	TR Min	400.0
Fat/Water Saturation	Fat Classic	TR Max	850.0
TRICKS		MULTI-PHASE	
Pause On/Off	On	Seperate Series	0
Auto Subtract	0	Mask Phase	0
Auto SCIC	2	Mask Pause	0
		DIFFUSION	
		Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

AX T1 FSE F/S PRE AND POST

AX T1 FSE F/S PRE AND POST

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SAG T1 FSE F/S PRE AND POST	PATIENT POSITION		IMAGING PARAMETERS	
	Patient Entry	Head First	Imaging Mode	2D
	Patient Position	Prone	Pulse Sequence	FSE-XL
	Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast, ARC
	Plane	OBLIQUE	SCAN RANGE	
	Series Description	SAG T1 FSE F/S PRE AND POST	FOV	12.0
	SCAN TIMING		Slice Thickness	2.5
	Flip Angle	111	Slice Spacing	0.5
	TE	Min Full	ACQ TIMING	
	Number of Echoes	1	Freq	320
	TR	845.0	Phase	192
	Echo Train Length	3	Freq DIR	R/L
	Receiver Bandwidth	50.00	Fat Shift DIR	Normal (L)
	IMAGE ENHANCE		NEX	3.00
	Filter Choice	A	# of Acq. Before Pause	0
	GATING/TRIGGER		Phase FOV	0.80
	Auto Trigger Type	Off	Auto Shim	Auto
	FMRI		Phase Correction	Yes
	PSD Trigger	Internal	Flow Direction Compensation	Slice
	View Order	Bottom/Up	USER CVS	
	# of Repetitions REST	0	User CV8	1.00
	# of Repetitions ACTIVE	0	User CV19	1.00
	SAT		User CV22	1.00
	Tag Type	None	TR Min	400.0
	Fat/Water Saturation	Fat Classic	TR Max	850.0
TRICKS		MULTI-PHASE		
Pause On/Off	On	Seperate Series	0	
Auto Subtract	0	Mask Phase	0	
Auto SCIC	2	Mask Pause	0	
		DIFFUSION		
		Recon All Images	On	
		CONTRAST		
		Contrast Yes/No	No	

SAG T1 FSE F/S PRE AND POST

Protocol: adult_upperExtremities_MSK FINGERS/HAND

PATIENT POSITION		IMAGING PARAMETERS	
Patient Entry	Head First	Imaging Mode	2D
Patient Position	Prone	Pulse Sequence	FSE-XL
Coil Configuration	GEM Flex Small Array	Imaging Options	FC, EDR, TRF, Fast
Plane	OBLIQUE	SCAN RANGE	
Series Description	COR T1 FSE POST	FOV	12.0
SCAN TIMING		Slice Thickness	2.5
Flip Angle	111	Slice Spacing	0.5
TE	Min Full	ACQ TIMING	
Number of Echoes	1	Freq	352
TR	467.0	Phase	224
Echo Train Length	3	Freq DIR	S/I
Receiver Bandwidth	50.00	Fat Shift DIR	Normal (I)
IMAGE ENHANCE		NEX	2.00
Filter Choice	A	# of Acq. Before Pause	0
GATING/TRIGGER		Phase FOV	1.00
Auto Trigger Type	Off	Auto Shim	Auto
FMRI		Phase Correction	Yes
PSD Trigger	Internal	Flow Direction Compensation	Freq
View Order	Bottom/Up	USER CVS	
# of Repetitions REST	0	User CV8	1.00
# of Repetitions ACTIVE	0	User CV22	1.00
SAT		TR Min	400.0
Tag Type	None	TR Max	850.0
TRICKS		MULTI-PHASE	
Pause On/Off	On	Seperate Series	0
Auto Subtract	0	Mask Phase	0
Auto SCIC	2	Mask Pause	0
		DIFFUSION	
		Recon All Images	On
		CONTRAST	
		Contrast Yes/No	No

COR T1 FSE POST

COR T1 FSE POST