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MR Protocols

Exam: Shoulder / Shoulder +C

Coil: SHOPA3

Position: Supine

Landmark: Glenoid Fossa

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick / Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PL T2*LOC	NPW						24	5/4		<u>256</u> 128	2	Water	1:08	11 slices R120 or L120 A20
AX PD F/S	NPW	2000	30	6		15.63	14	4/1		<u>256</u> 224	2	A/P	5:11	17 slices
COR PD	NPW TRF FAST;ZIP5 12	1800	42	6		25.00	14	4/1		<u>256</u> 256	1	A/P	5:11	17 slices
COR T2 F/S	NPW VBW TRF FAST	3000	85	16		15.63	14	4/1		<u>256</u> 256	3	S/I	2:30	17 slices
SAG T1	NPW;ZIP51 2	400	MIN			15.63	14	4/1		<u>256</u> 256	2	S/I	2:08	17 slices
SAG T2 F/S	NPW;ZIP51 2	3000	85	16			14	4/1		<u>256</u> 256	4	S/I	3:18	17 slices
3 PLANE Body Coil	NPW						48	5/2		<u>256</u> 128	2	Unswa p	:45	Auto Shim 11 slice
GAD SHOULDER +C														
3PL T2*LOC	NPW						24	5/4		<u>256</u> 128	2		1:08	11 slices R120 L120 A20
AX T1 F/S	NPW VBW	500	MIN			12.50	14	4/1		<u>256</u> 256	1	R/L	4:48	17 slices
COR T1 F/S	NPW VBW	500	MIN			12.50	14	4/1		<u>256</u> 256	1	R/L	4:48	17 slices
COR T2 F/S	NPW VBW FAST	4500	85	16		15.63	14	4/1		<u>256</u> 256	2	R/L	2:29	17 slices
COR PD FSE	NPW VBW TRF FAST	1800	42	6		25.00	14	4/1		<u>256</u> 256	1	R/L	1:27	17 slices

SAG T2 F/S		3000	85	16		15.63	14	4/1		$\frac{256}{256}$	4	S/I	3:18	17 slices
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MR Protocols

Exam: Humerus

Coil: 8 ch. Body Full FOV

Position: Supine

Landmark: Mid-Shaft humerus

Pulse Sequence	Options	TR	TE TI	E T L	F A	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PL LOC	NPW						40	5/2		<u>256</u> 128	2		1:21	ACF: H2O MODE 2D 13 SLICES
COR T1	NPW, VBW	450	MIN FULL			31.25	40	5/1		<u>256</u> 192	1	S/I	1:30	20 SL
COR FSE T2 F/S	NPW, VBW, FAST	4525	85.0	16		31.25	40	5/1	F/S	<u>256</u> 224	3	S/I	3:14	20 SL
AX T1	NPW, VBW	550	MIN FULL			31.25	16	5/1		<u>256</u> 192	1	A/P	2:02	30 SL
AX T2 F/S	NPW,FBW, FAST	3000	85.0	8		25.00	16	5/1	F/S	<u>256</u> 224	3	UNSWAP	4:18	30 SL
SAG T1	NPW	400	MIN			15.63	40	5/1		<u>256</u> 256	2	S/I	3:31	20 SL

POST CONTRAST IN PLANES THAT BEST DEMONSTRATES ABNORMALITY

Formatting

PACS SYSTEM – BURN CD IF NEEDED

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Comments:

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MR Protocols

Exam: ELBOW

Coil: Quad Knee

Position: Prone – SUPERMAN POSITION

Landmark: ELBOW JT.

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3Pl Loc	NPW						24	5/5		<u>256</u> 128	2		1:08	11 slices ACF=H20
COR T1	NPW VBW EDR	500	Min Full			15.63	16	3/1		<u>256</u> 224	1	S/I	2:08	20 slices
COR T2 F/S	FC VBW FAST	3000	100	6		15.63	16	3/1	F/S	<u>256</u> 224	2	S/I	2:57	ACF=H20 PFOV=1 F/S
COR STIR	FC SEQ NPW VBW FAST	6000	<u>100</u> 140	8		20.83	16	3/1		<u>256</u> 192	2	S/I	4:54	ACF=H20
SAG T1	NPW VBW	600	Min Full			15.63	16	3/1		<u>256</u> 224	1	S/I	2:32	ACF=H20
SAG PD F/S	FC VBW FAST	2000	30	6		15.63	16	3/1		<u>256</u> 224	2	S/I	2:36	ACF=H20
AX T1	NPW VBW	600	Min Full			15.63	14	3/1		<u>256</u> 224	1	A/P	2:32	ACF=H20
AX PD F/S	FC NPW VBW TRF FAST	2000	30	6		15.63	14	3/1		<u>256</u> 224	2	A/P	5:12	ACF=H20
COR PD F/S BICEPS FABS SEQ (LUMSDEN)	FC, VBW, FAST (90 DEGREE FLEX COR TO HUMERUS)	2150	34	6		15.63	15	4/1		<u>256</u> 224	3	S/I	4:10	AUTOSHIM 18 SLICES

[illegible]

MR Protocols

Exam: GAD Elbow (Intra-articular)

Coil: Quad Knee

Position: Prone – superman position

Landmark: INTERCONDYLAR FOSSA

[illegible]

MR Protocols

Exam: Wrist

Coil: single ch (3 in)

Position: Prone

Landmark: Carpal Bones

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PL LOC	None						24	5/5		$\frac{256}{128}$	1		:29	PFOV=1;ACF:H20 9 slices
2DT2*COR GRE	None	500	15		20	8.93	10	2/.5		$\frac{288}{192}$	2	S/I	3:10	PFOV=1;ACF:H20 30 slices
COR T1 SE	VBW Zip 502	400	Min Full			15.63	10	3/.5		$\frac{256}{224}$	2	S/I	3:02	PFOV=1;ACF:H20 16 slices
COR T2 F/S FRFSE	TRF,FAST ZIP 512	3500	100	15		20.80	10	3/.5		$\frac{256}{192}$	4	S/I	3:09	ACF:H20 16 slices
AX T1	ZIP 512	500	Min Full			15.63	10	3/.5		$\frac{256}{192}$	3	A/P	4:56	ACF:H20 16 slices
AX PD F/S FRFSE	TRF FAST FR	2100	30	6		20.83	10	3/.5		$\frac{256}{192}$	3	A/P	3:01	ACF:H20 16 slices
SAG PD F/S FRFSE	TRF,FAST ZIP 512	2800	30	6		20.83	10	3/.5		$\frac{256}{192}$	2	S/I	3:39	ACF:H20 22 slices
OPTIONAL SEQUENCES	USE FOR	SOFT TISSUE	MASS	VS		BONE LESION								
+C AX FSPGR F/S	FC Zip 512	34	Min	70		31.25	10	3/.5		$\frac{256}{192}$	3	A/P	2:59	PFOV=1;ACF:H20 18 slices
+C COR FSPGR F/S	FC Zip 512	34	Min	70		31.25	10	3/.5		$\frac{256}{192}$	1	S/I	2:00	PFOV=1;ACF:H20 18 slices

GAD WRIST ADD SEQUENCES

2D COR T2*	+C	550	15		20	8.93	10	2/.5		<u>288</u> 192	2	S/I	3:35	PFOV=1;AS-ACF:20
COR T1 F/S	+C ZIP512	700	Min Full			15.63	10	3/1		<u>256</u> 224	2	SI/	5:18	PFOV=1;AS-ACF:20
COR T1	+C ZIP 512	700	Min Full			15.63	10	3/1		<u>256</u> 224	2	SI/	6:32	AS – ACF:H20
COR T2 F/S	+C FAST	3900	85	16		15.63	10	3/1		<u>256</u> 224	7	SI/	5:18	
AX T1	+C ZIP512	400	Min Full			15.63	10	3/1		<u>256</u> 224	2	SI/	3:02	PFOV=1;AS-ACF:20
AX PD F/S	+C FC TRF FAST	1850	30	6		15.63	10	3/1		<u>256</u> 224	1	S/I	5:18	PFOV=1;AS-ACF:20
SAG T1 F/S	+C ZIP 512	400	Min Full			15.63	10	3/1		<u>256</u> 224	2		5:18	PFOV=1; ACF:H20

PACS SYSTEM / BURN CD IF NECESSARY

Exam: Arthritic Wrist/Hand

Coil: single ch (3 in) (SCAN ONLY AFFECTED SIDE)

Position: Prone

Landmark: Carpal Bones

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PL LOC							24	5/1		<u>256</u> 128	1	S/I	:26	PFOV=1, 15 slices
3DT2*COR	FAST, ZIP 512		Min Full		30	31.25	12	.4	32/ loc slab	<u>288</u> 192	2	S/I	2:20	PFOV=1, Shim Auto
COR STIR	FC, SCQ, FAST, ZIP 512	4225	<u>50</u> 150	8		15.63	12	2/0		<u>256</u> 160	2	S/I	2:53	PFOV=1, Shim Auto

MR Protocols

Exam: MRA HAND/FINGERS-CHEN

Coil: 3 INCH WRIST COIL

Position: PRONE

Landmark: METACARPAL HEAD

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	SAT	Matrix	NEX	Freq Dir	Time	Instructions
LOC T2* FGRE	SEQ						30	4.0		<u>256</u> 128	1	UNSWAP	:55	25 SLICES
COR T1	NPW ZIP 512	400	<u>MIN</u> FULL			15.63	12	3/0		<u>256</u> 160	3	S/I	3:18	PFOV:1 SHIM :AUTO
COR STIR	FC NPW SEQ ZIP 512 FAST	4500	50/150	8		15.63	12	3/0		<u>256</u> 160	3	S/I	4:35	SHIM:AUTO 16 SL. PHASE CONTRAST
AX T1	NPW	65	<u>MIN</u> FULL			15.63	12	3/0		<u>256</u> 160	2	R/L	3:37	SHIM:AUTO 26 SL.
AX FSPGR F/S	FC FAST ZIP 512	51	<u>MIN</u> FULL		60	31.25	12	3/0		<u>256</u> 192	2	R/L	3:00	SHIM:AUTO 26 SL.
AX T2 F/S	NPW FAST	3200	30	6		15.63	12	3/0		<u>256</u> 192	2	R/L	3:32	SHIM:AUTO 26 SL.
SAG T2 F/S	NPW FAST	4400	85	16		15.63	12	3/0		<u>256</u> 192	3	S/I	2:43	SHIM:AUTO 17 SL.

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PACS SYSTEM – BURN CD IF NEEDED

THE DACARE MRI PROTOCOLS

Exam: Unilateral or Bilateral Hand OR Wrist for Inflammatory Arthropathy

Coil: 8 Channel Knee Coil

Position: Prone

Landmark: Hand/Wrist

[illegible]

AX T1 Pre F/S	FC, NPW, TRF, FAST, ZIP512	400.0	Min full	3		20.83	14	4/.5	Classic FS	256/192	3	R/L		
AX T1 POST F/S	FC, NPW, TRF, FAST, ZIP512	400.0	Min full	3		20.83	14	4/.5	Classic FS	256/192	3	R/L		
COR T1 POST F/S	FC, NPW, TRF, FAST, ZIP512	400.0	Min full	3		20.83	20	3/.5	Classic FS	256/192	3	S/I		

If bilateral exam is ordered, both hands/wrists can be scanned simultaneously to save time. Place the patient prone and have them put both hands together, palms flat against each other. Make sure to put a marker on the right hand so we know which side is which.
If the patient cannot tolerate the positioning then scan them separately.

FOV and parameters adjustment to techs discretion

2/2020

MR Protocols

Exam: HIP Right or Left
 Coil: 12 ch. Body Full FOV
 Position: Supine
 Landmark: SIS

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
HIP 3PL. LOC	NPW						44	5/1		<u>256</u> 192	2		1:08	Auto Freq – H20
HIP COR T1 Bilateral	NPW VBW	500	MIN FULL			31.25	40	5/1	S/I	<u>288</u> 192	2	Un- swap	3:20	Auto Shim - on Auto Freq – H20
HIP COR STIR Bilateral	NPW FAST	6000	<u>50</u> 150	6		15.63	40	5/1	S/I	<u>288</u> 192	3	Un- swap	3:05	Auto Shim – on phase correct - on Auto Freq – H20 Phase FOV – 1.00 Fat Sat on
HIP AXIAL T2 F/S Bilateral	F/C VBW FAST	5000	85	16		15.63	40	5/1	S/I F/S	<u>288</u> 192	3	Un- swap	3:05	Auto Shim – on phase correct - on Auto Freq – H20 Phase FOV – 1.00 Fat Sat on
HIP AXIAL T2 F/S (AX OBLIQUE) (ISOLATE TO SPECIFIC HIP)	F/C VBW FAST	5000	85	16		15.63	18	4/1	S/I F/S	<u>288</u> 224	5	Un- swap	5:05	Auto Shim – on phase correct - on Auto Freq – H20 Phase FOV – 1.00 Fat Sat on
HIP COR T2 F/S (ISOLATE TO SPECIFIC HIP)	VBW FAST	5000	85	16		31.25	18	4/1	S/I F/S	<u>288</u> 224	5	Un- swap	5:05	Auto Shim – on phase correct - on Auto Freq – H20 Phase FOV – 1.00 Fat Sat on

HIP SAG T2 F/S (ISOLATE TO SPECIFIC HIP) STRAIGHT SAGGITALS	VBW FAST	5000	85	16		31.25	18	4/1	S/I F/S	$\frac{288}{224}$	5	Un- swap	4:05	Auto Shim – on phase correct - on Auto Freq – H20 Phase FOV – 1.00 Fat Sat on
PACS SYSTEM - BURN CD IF NEEDED														

MR Protocols

Exam: HIP W GAD
 Coil: 8ch Body Full FOV
 Position: Supine
 Landmark: SIS

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
HIP 3PL. LOC	NPW						44	5/1		<u>256</u> 192	2		1:08	Auto Freq-H2O
CALIBRATION SCAN							48					A/P	0:24	45 slices
+C COR STIR	NPW FAST	6000	50/150	6		15.63	18	4/1		<u>256</u> 256	3	S/I	7:33	15 slices
+C COR T1 FS	NPW	575	MIN			15.63	18	4/1	F/S	<u>256</u> 256	4	S/I	9:44	15 slices
+C COR T1	NPW	575	MIN			15.63	18	4/1		<u>256</u> 256	4	S/I	9:44	15 slices
+C AX T1 FS (OBL.AXIAL)	NPW	700	MIN FULL			15.63	18	4/1	F/S	<u>256</u> 256	4	R/L	12:00	15 slices auto shim
+C AX T2 FS	NPW, FAST	3750	85	16		25	18	4/1		<u>256</u> 224	7	R/L	6:15	15 slices
+C SAG T1 FS	NPW	575	MIN			15.63	18	4/1	F/S	<u>256</u> 256	4	S/I	9:44	15 slices

Formatting

PACS SYSTEM – BURN CD IF NEEDED

MR Protocols

Exam: Femur

Coil: 8 ch body fuel fov

Position: mid shaft femur

Landmark: sapine

Pulse Sequence	Options	TR	TE TI	ETL	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3pl T2* Loc	NPW					40	8/5		<u>256</u> 128	2			ACF= H2O 17 slice
Calibration Scan						48					A/P	:47	12 SLICES
Cor T1	NPW VBW	500	Min Full		12.50	40	4/1	SI	<u>256</u> 192	3	S/I	4:56	ACF= H2O 15 slice
Cor PD FSE F/S	NPW VBW Fast	2325	Min Full	8	31.25	40	8/1	SI F/3	<u>256</u> 224	2	Un- swap	2:15	ACF H2O 15 slice
Cor Fast Stir	IC NPW Seq VBW fast	5000	<u>50</u> 150	8	20.83	40	8/1	SI	<u>256</u> 224	3	Un- swap	7:05	ACF= H2O
AX T1	NPW VBW	500	<u>Min</u> Full		15.63	22	8/1	SI	<u>256</u> 160	4	R/L	5:24	ACF= H2O
AX T2	NPW VBW FC Fast	4675	102	16	15.63	22	8/1	SI	<u>256</u> 224	4	R/L	4:26	ACF= H2O
Ax Fast Stir	NPW FC Seq VBW fast	4950	<u>50</u> 150	8	20.83	22	8/1	SI	<u>256</u> 244	3	R/L	7:01	ACF= H2O Ashim
Sag T1	NPW VBW	500			15.63	40	8/1	SI	<u>256</u> 192	3	S/I	4:56	ACF= H2O Ashim 17 sl
Sag T2 FSE	NPW VBW Fast	4275	85	16	17.86	40	8/1	S/I	<u>256</u> 224	4	S/I	4:03	ACF= H2O Ashim 17 sl
Sag fast stir	fc NPW seq VPW fas	5000	<u>50</u> 150	8	20.83	40	8/1	S/I	<u>256</u> 224	3	S/I	7:05	ACF= H2O Ashim

Post Sequences in plane best demonstrated of mass/lesion
AX-Cor-Sag T1 F/S

PACS system
(burn CD if necessary)

MR Protocols

Exam: Knee

Coil: Quad knee

Position: supine infra patellar point

Landmark:

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 plane localizer	none						24	5/5		<u>256</u> 128	1	H2O	23s	R40 rt knee L40 lft knee PFOV=1
Cor T1	VBW	550	Min			15.63	14	3/1		<u>256</u> 256	1	S/I	2.11	Oblique Pfov=1 27 sl
Cor PD F/S	VBW TRF fast	2675	34	6		20.83	14	3/1	F/S	<u>256</u> 256	2	S/I	3.59	Oblique Pfov=1 27sl
Ax PD F/S	VBW TRF fast	2500	34	6		20.83	16	3/1	F/S	<u>256</u> 256	2	Unswap	3.45	Oblique 25 slices
Sag PD T2	FC VBW	1000	<u>MIN</u> FULL 85			15.63	14	3/1		<u>256</u> 256	1	A/P	4.28	Oblique 25 slices
Sag T2 FRFSE F/S	FR TRF fast	3125	50	16		15.63	14	3/1	S/I F/S	<u>256</u> 224	2	A/P	4.24	Oblique
Options														
Ax 3 D	FC zip 512 zip 2	50	7		40	12.50	16	2/0/50	F/S	<u>256</u> 192	1	Unswap	6.34	Oblique Osteochondro- malacia
Cor T2	VBW TRF fast	2250	35	6		31.25	14	2/1	F/S	<u>512</u> 256	4	S/I	6.44	Oblique thin slice
Cor T1 GRE	FC	550	18		20	15.63	14	3/1	I/S	<u>256</u> 192	3	R/L	5.20	oblique

ADJUST SAGGITAL FOV IF PATIENT IS OBESE(SMALLER FOV PREFERRED IF POSSIBLE)
PACS system Burn CD if needed

MR Protocols

Exam: LOWER LEG

Coil: BODY TORSO(LOWER) 8CH OR 12CH

Position: SUPINE

Landmark: MID SHAFT TIBIA

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PLANE LOC	SEQ,FAST ZIP512		80			83.33	48	8/0		<u>320</u> 160			:26	25 SLICES AUTOSHIM
CALIB SCAN	GRE ECHO FAST CALIB		1.2				48	15/0					:12	47 SLICES
COR T1	NPW,FAST ZIP512	497	<u>MIN</u> FULL	3		31.25	45	7/.5		<u>256</u> 192	4	S/I	2:09	47 SLICES AUTOSHIM PURE
COR T2 FS	NPW,TRF FAST	3834	100	26		41.67	45	7/.5	F/S	<u>320</u> 160	4	S/I	5:22	47 SLICES AUTOSHIM PURE
SAG T2 FS	NPW,TRF FAST	3834	100	26		41.67	45	8/1	F/S	<u>320</u> 256	2	R/L	4:12	15 SLICES AUTOSHIM PURE
AXIAL T1	NPW,TRF FAST	746	<u>MIN</u> FULL	3		31.25	36	8/1		<u>256</u> 192	2	R/L	4:52	47 SLICES AUTOSHIM PURE
AXIAL T2 FS (PRE/POST- EXERCISE SEQUENCES	NPW,TRF FAST FRFSE	5775	100	26		41.67	36	8/1		<u>320</u> 256	4	R/L	7:54	47 SLICES AUTOSHIM PURE

MR Protocols

Exam: Ankle

Coil: Quad Knee

Position: Supine feet first

Landmark: ankle jt

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PLANE LOC	NPW						28	5/2		<u>256</u> 128	2		:44	AutoSHIM Freq H2O 7 sl
SAG T2 FS	NPW VBW fast FR	3500	68	16		25.00	14	3/1	F/S	<u>288</u> 192	3	S/I	4:26	AutoSHIM freq H2O
SAG T1	NPW VBW	525	Min			15.63	18	3/1		<u>288</u> 192	1	S/I	1:55	AutoSHIM freq H2O
COR T1	VBW	650	MIN			15.63	18	3/1		<u>256</u> 192	2	S/I	2:11	ACF:H2O PFOV:1
COR T2 FS	TRF FAST FR	3100	68	15		25.00	18	3/1	F/S	<u>288</u> 192	3	S/I	4:38	Auto SHIMPFOV=1 freq H2O
COR PD FS	FC VBW TRF Fast	2775	Min Full	6		25.00	18	3/1	F/S	<u>288</u> 192	1	A/P	3:03	AutoSHIMfreq H2O PFOV=1 phase correct
COR GRE	FC (2) Zip 512	56	18		10	6.94	18	2.4 6 overlap	28 lps	<u>256</u> 160	1	unswap	4:14	AutoSHIM freq H2O PFOV=1
AXIAL PD FS	FC VBW TRF zip 512	2000	Min Full	6		20.83	18	3/1	F/S	<u>256</u> 224	1	A/P	2:40	AutoSHIMphase correct freq H2O PFOV=1 slice
AXIAL T1	VBW	800	Min Full			15.63	18	3/1		<u>288</u> 192	1	A/P	2:43	Autoshim freq H2O PFOV=1
Optional														
COR STIR	Seq VBW fast	3875	<u>35</u> 150	8		31.25	18	3/1		<u>256</u> 192	2	S/I	6:27	Auto center phase correct freq H2O PFOV=1

PACS system (burn CD if necessary)

MR Protocols

Exam: Ankle (Achilles tendon)

Coil: Quad Knee

Position: Supine 75° foot position not 90°

Landmark:

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PLANE LOC	NPW						28	5/2		<u>256</u> 128	2		:44	ACF=H2O
SAG T2	NPW VBW fast	3000	34	12		31.25	14	3/.5	F/S	<u>256</u> 224	2	S/I	4:26	ACF=H2O 30 slice
SAG T1	NPW Zip 12 VBW	400	Min Full			12.50	14	3/.5		<u>256</u> 224	2	S/I	1:55	ACF=H2O
SAG STIR	NPW VBW seq Fast	6000	<u>102</u> 120	12		31.25	25	3/1		<u>256</u> 192	4	Unswap	6:30	ACF=H2O
COR T2 FS	TRF FAST FR	3100	68	15		25.00	14	3/1	F/S	<u>288</u> 192	3	S/I	4:38	ACF:H2O PFOV:1
COR T1	VBW Zip 512	650	Min			15.63	14	3/1		<u>256</u> 192	2	A/P	2:11	ACF=H2O PFOV=1
AXIAL T1	NPW VBW ZIP 512	650	Min			10.42	14	3/1		<u>256</u> 192	3	A/P	2:43	ACF=H2O
AXIAL T2 FS	NPW VBW Fast	3500	102	12		31.25	14	3/1		<u>256</u> 224	2	A/P	4:06	ACF=H2O

PACS system (burn CD if necessary)

MR Protocols

Exam: Foot/Toes
 Coil: Quad Knee
 Position: supine
 Landmark: meta tarsal

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PI T2* Loc	NPW						28	5/5		<u>256</u> 128	2		:44	Auto center freq H2O
Sag PD	NPW TRF VBW fast	2000	20	6		20.83	18	4/1		<u>256</u> 192	3	S/I	3:16	ACF=H2O
Sag T2 FSE F/S	FC NPW VBW fast	5000	102	16		25.00	18	4/1	F/S	<u>256</u> 192	3	S/I	3:05	ACF=H2O FC direction = freq
Cor T1	NPW VBW fast	650	MIN			15.63	18	3/1		<u>256</u> 192	2	S/I	3:18	ACF=H2O 30 slice
Cor Stir	Seq VBW fast	6000	<u>102</u> 120	12		31.25	18	3/1		<u>256</u> 192	3	S/I	4:54	ACF=H2O
Ax T2 F/S	NPW VBW Fast	3500	102	12		31.25	18	3/1	F/S	<u>256</u> 224	2	A/P	3:36	ACF=H2O PFOV=1 30 slice
Ax T1	VBW Zip 512	600	<u>Min</u> Full			15.63	18	3/1		<u>256</u> 224	2	A/P	4:55	ACF=H2O
<u>Optional</u>														
Sag Stir	NPW Seq VBW fast	6000	<u>102</u> 120	12		31.25	18	3/1		<u>256</u> 192	4	Swap	6:30	ACF=H2O

Toes (use STIR sequences vs F/S 3 Planes)

PACS System (burn CD if necessary)

Exam: PELVIS (SPORTS HERNIA)

Coil: 8 CH BODY LOWER

Position: PELVIS

Landmark: PELVIS

Pulse Sequence	Options	TR	TE TI	ET L	FA	BW	FO V	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PL LOC							48	10		<u>256</u> 128	2	UNSWAP	:35	9 SLICES
CALIB SCAN							48	15				A/P	:12	30 SLICES
COR STIR	FC, SEQ, FAST	3250	<u>30</u> 150	8		15.63	24	4/1	S/I	<u>256</u> 192	2	S/I	5:25	26 SLICES FCD=FREQ PFOV=1
COR T1 SEC	NPW	450	<u>MIN</u> <u>FULL</u>			15.63	24	4/1	S/I	<u>256</u> 160	2	S/I	5:03	30 SLICES AUTOSHIM
SAG T2 FS	NPW, FAST	6200	60	8		15.63	26	4/1	F/S	<u>256</u> 192	2	S/I	3:26	30 SLICES AUTOSHIM
AXIAL T2 FS	FC, NPW, FAST	6800	60	8		15:63	20	4/1	I/S F/S	<u>256</u> 192	2	R/L	3:55	32 SLICES F/C DIR=SLICE AUTOSHIM
AXIAL PD OBL	NPW, TRF, FAST	1800	25	8		15:63	20	4/1	I/S	<u>256</u> 256	2	S/I	3:58	25 SLICES AUTOSHIM

AXIAL T2 FS OBL	FC, NPW FAST	3750	60	8		15:63	20	4/1	I/S F/S	<u>256</u> 192	2	S/I	3:08	25 SLICES F/C DIR=SLICE
PACS SYSTEM - BURN CD IF NEEDED														

MR Protocols

Exam: BIL LE MEASUREMENTS FOR ANTEVERSION FEMURS/TIBIAL TORSION

Coil: BODY TORSO(LOWER) 8CH OR 12CH

Position: SUPINE

Landmark: ACCORDINGLY

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PLANE LOC (BODY COIL- HIPS)	SEQ,FAST ZIP512		80			83.33	48	5/0		<u>256</u> 128			:20	9 SLICES AUTOSHIM
AXIAL T1 (HIPS)	NPW,FAST ZIP512 TRF	550	<u>MIN</u> FULL	3		17.86	48	5/1		<u>256</u> 224	2	S/I	2:50	BIL.HIPS TOP OF ACETABULUM THRU LESSER TROCHANter
3 PLANE LOC (8CH BODY FULL FOV) (KNEES)	SEQ,FAST ZIP512		80			83.33	24	5/0		<u>256</u> 128			:20	25 SLICES AUTOSHIM
CALIB SCAN	GRE ECHO FAST CALIB		1.2				48	15/0					:12	47 SLICES
AXIAL T1 (KNEES)	NPW,FAST ZIP512 TRF	550	<u>MIN</u> FULL	3		17.86	48	4/1		<u>256</u> 224	2	S/I	2:50	BIL.KNEES ABOVE PATELLA THRU TIBIAL TUBEROSITY
3 PLANE LOC (8CH BODY	SEQ,FAST ZIP512		80			83.33	24	5/0		<u>256</u> 128			:26	25 SLICES AUTOSHIM

FULL FOV) (ANKLES)														
CALIB SCAN	GRE ECHO FAST CALIB		1.2				48	15/0					:12	47 SLICES
AXIAL T1 (ANKLES)	NPW,FAST ZIP512 TRF	550	$\frac{\text{MIN}}{\text{FULL}}$	3		17.86	48	4/1		$\frac{256}{224}$	2	S/I	2:50	BIL.ANKLES ABOVE ANKLE JT. THRU CALCANEOUS

Exam: Exam: BIOMET SIGNATURE PROTOCOL

Coil: HR KNEE—LR KNEE—ANKLE---HIP

Position: SUPINE

Landmark: HR KNEE AND LR KNEE

Pulse Sequence	Options	TR	TE TI	ETL	FA	VBW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PL LOC HR KNEE	2D, NPW SEQ						24	7/0		<u>256</u> 128	2	S/I	:46	15 SLICES LANDMARK HD KNEE COIL
HR SAG 3DTOF SPGR FS KNEE	3D FSPGR TOF FAST (VASC) ZIP2, ZIP512		MIN FULL		12	19.23	20	2/0	FAT	<u>256</u> 256	2	S/I	7:13	PFOV:80 56 LOCS + SHIM ON HD KNEECOIL (REMOVE COIL AFTER SEQUENCE)
3 PL LOC LR KNEE	2D, NPW SEQ						30	5/0		<u>256</u> 128	2	S/I	:45	15 SLICES BODY COIL
LR SAG 3DTOF SPGR FS KNEE	3D FSPGR TOF FAST (VASC) ZIP2, ZIP512		MIN FULL		12	19.23	26	6/0	FAT	<u>256</u> 256	1	S/I	7:13	PFOV:80 22 LOCS + BODY COIL

3 PL LOC ANKLE	2D,SEQ NPW						26	5/0		<u>256</u> 128	1	S/I	1:06	15 SLICES I400 BODY COIL
AXIAL 2D T1 FSE-XL ANKLE	FSE-XL NPW	450	MIN FULL	2		125.0	26	5/2		<u>256</u> 256	1	A/P	1 :03	15 SLICES BODYCOIL
3 PL LOC HIP	2D, NPW SEQ						40	8/0		<u>256</u> 128	2	S/I	:41	15 SLICES S425 BODY COIL
AXIAL 2D T1 FSE-XL HIP	FSE-XL NPW	600	MIN FULL	2		125.0	36	5/2		<u>256</u> 256	1	A/P	1 :22	20 SLICES BODY COIL
	CALL	ERIC	MAHLIK	TO	PICK UP	CD #920-621 3272								
	CALL	ANN	RIOPEL	FOR		BIOMET APPS ASSIST		#574-371 3069						

MR Protocols

Exam: ZIMMER KNEE (PSI)

Coil: TRANSMIT/RECEIVE COIL ONLY FOR GE 1.5T

Position: FOLLOW INSTRUCTIONS

Landmark: (HR) KNEE ONLY

Pulse Sequence	Options	TR	TE TI	ETL	FA	VBW	FOV	Thick/Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3 PL LOC HR KNEE	2D GE NPW SEQ, FAST						30	5		<u>256</u> 256	2	S/I	1:05	15 SLICES HR KNEE COIL
HR SAG 3DTOF SPGR FS KNEE	3D FSPGR TOF FAST(VASCULAR) ZIP2 ZIP512 (REMOVE COIL----- -	AFTER	MIN FULL SEQUENCE		12	19.23	20	2/0	FAT	<u>256</u> 256	2	S/I	7:23	PFOV:.80 56 LOCS SHIM;ON(20) R/L;DEFINED HR KNEE COIL
3 PL LOC ANKLE	2D GE NPW SEQ,FAST						30	5		<u>256</u> 128	2	S/I	2:00	27 SLICES I=400 R/L;DEFINED BODY COIL
AXIAL 2D T1 FSE ANKLE	FSE-XL, NPW	600	MIN FULL	2		125.0	26	5/2	OFF	<u>256</u> 256	1	A/P	1:28	SHIM;AUTO 20 SLICES R/L;DEFINED BODY COIL

3 PL LOC LR KNEE	2D GE NPW SEQ,FAST						30	5		$\frac{256}{128}$	2	S/I	1:23	9 SLICES S=0 R/L;DEFINED BODY COIL
LR SAG 3DTOF SPGR FS KNEE	3D FSPGR TOF FAST(VASCULAR)		MIN FULL		12	19.23	26	4/0	FAT	$\frac{256}{256}$	2	S/I	3:53	PFOV:.80 30 LOCS SHIM;ON(26) R/L;DEFINED BODY COIL
3 PL LOC HIP	2D GE NPW SEQ,FAST						30	5			2	S/I	:49	9 SLICES S=375 R/L;DEFINED BODY COIL
AXIAL 2D T1 FSE HIP	FSE-XL, NPW	600	MIN FULL	2		125.0	36	5/2	OFF	$\frac{256}{256}$	1	A/P	2:55	20 SLICES SHIM:AUTO R/L;DEFINED BODY COIL

**INSTRUCTIONS: UTILIZE TRANSMIT/RECEIVE COIL ONLY FOR HR KNEE
PATIENT MUST REMAIN IN SAME POSITION—NO MOVEMENT FOR ALL SEQUENCES
REMOVE COMPLETE COIL AFTER (HR SAG 3DTOF) FOR REMAINDER OF SCANNING.**

SCANNING SEQUENCES ARE (HR) KNEE-----ANKLE (BODY)----- (LR) KNEE (BODY)-----HIP (BODY)

ZIMMER REP: Kael Coleman---#920-569-9425

HAVE FILEROOM PRINT DISC AND CALL ZIMMER REP WHEN COMPLETE.

MR Protocols

Exam: TMJ

Coil: (OTHERS)-2CH./PHASED ARRAY ADAPTER(DUAL)

Position: AP SUPINE-COILS ADJUSTED TO INDIVIDUAL SIDES

Landmark: ORBITALMEATAL LINE

Pulse Sequence	Options	TR	TE TI	ETL	FA	BW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instruction
3PL LOC							24	4/0		256/128	1	UNSWP	:26	11 SLICES
COR T1 LOC	NPW TRF FAST	400	14	2		20.83	15	3/INTLV		256/160	1	S/I	1:16	12 SLICES
(OFF SAG PL)														
SAG T1(CLSD)	NPW TRF	475	14	2		20.83	12	3/INTLV		256/224	4	S/I	6:17	14 SLICES
SAG T2(CLSD)	NPW FAST	3150	85	16		25.00	12	3/INTLV		256/224	4	S/I	6:06	14 SLICES
SAG T2* GRE (CLSD)	NPW	400	15		20	8.93	12	3/INTLV		256/192	2	S/I	5:14	14 SLICES
REPEAT SAME SEQUENCES WITH MOUTH OPEN														
DO INDIVIDUAL SIDES (R&L)IF PATIENT HAS DIFFICULTY HOLDING POSITION														

MR Protocols

Exam: SI JTS.

Coil: 8CH. BODY FULL FOV/PHASE ARRAY SPINE COIL

Position: SUPINE

Landmark: ILIAC CREST

Pulse Sequence	Options	TR	TE TI	ETL	FA	VbW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3PL LOC							24	4/0		<u>256</u> 128	1	UNSWP	:26	11 SLICES
COR STIR	FC NPW SEQ FAST	6000	<u>50</u> 150	8		20.83	24	5/1		<u>256</u> 160	3	UNSWP	6:06	20 SLICES FCD:FREQ SHIM:AUTO
COR T1	FC NPW	625	<u>MIN</u> FULL			15.63	24	5/1		<u>288</u> 160	3	UNSWP	5:05	20 SLICES SHIM AUTO
COR T1 F/S	FC NPW	625	<u>MIN</u> FULL			15.63	24	5/1	F/S	<u>288</u> 160	3	UNSWP	5:05	20 SLICES SHIM AUTO
AX T2 F/S	NPW FAST	4425	102	12		15.63	24	5/1	F/S	<u>288</u> 256	3	UNSWP	4:56	20 SLICES SHIM AUTO
AX T1	FC NPW	625	<u>MIN</u> FULL			15.63	24	5/1		<u>288</u> 160	3	UNSWP	5:05	20 SLICES SHIM AUTO
+C AX T1 F/S	FC NPW	525	<u>MIN</u> FULL			15.63	24	5/1	F/S	<u>288</u> 160	3	UNSWP	8:31	20 SLICES SHIM AUTO
+C COR T1 F/S	FC NPW	500	<u>MIN</u> FULL			15.63	24	5/1	F/S	<u>288</u> 160	3	UNSWP	8:16	20 SLICES SHIM AUTO

MR Protocols

Exam: Exam: SCOLIOSIS STUDY

Coil: 8CH. CTL SPINE COIL

Position: SUPINE

Landmark: THORACIC/LUMBAR REGION

Pulse Sequence	Options	TR	TE TI	ETL	FA	VBW	FOV	Thick/ Gap	Sat	Matrix	NEX	Freq Dir	Time	Instructions
3- PLANE LOC	SEQ NPW						40	5		<u>256</u> 128	2	Unswap	0:45	AUTOSHIM 15 SLICES
CALIB SCAN	FAST CALIB						48	10 / 0				R / L	0:12	AUTOSHIM
SAG T2 FRFSE-XL	FC NPW TRF FAST FR	2750.0	110	27		41.67	48	4 / 1	I/S	<u>288</u> 224	4	S/I	3:29	AUTOSHIM INCLUDE COMPLETE SPINE AREA
SAG T1 FSE-XL	NPW TRF FAST	500.0	Min Full	3		22.73.	48	4 / 1		<u>288</u> 224	2	S/I	1:22	AUTOSHIM INCLUDE COMPLETE SPINE AREA
COR T1	NPW TRF FAST	575	10.2	2	-	15.63	48	4/1	I, S	<u>288</u> 192	3	Un- swap	2:18	AUTOSHIM INCLUDE COMPLETE SPINE AREA

Exam: PACS SYSTEM - BURN CD IF NEEDED

MR Protocols

Exam: PECTORALIS MUSCLE(MAJOR/MINOR)

Coil: SHOPA 3

(DR.CHEN TO READ)

Position: SUPINE- HEAD FIRST

Landmark: SHOULDER GIRDLE TO MEDIASTINUM

[illegible]