

# BODY MRI PROTOCOLS

3T



# Non Specific – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	90				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				83.33	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 45s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Non Specific – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 x 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 x 256	1	8/2
AX 3D In/Out Phase	28-44	4.2	2 Echoes MIN FULL/2.3		12		142.86	256 x 224	1	8/2
Axial LAVA- FLEX Multiphase	28-44		MIN		12		166.67	300 x 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 x 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 45s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Renals – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 90s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Renals – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 x 256		8/2
Axial Fiesta Fat Sat	28-44		Min Full		50		125	256 x 256	1	8/2
Axial 3D In/Out Phase Kidneys	28-44	4.2	2 Echoes MIN FULL/2,3		12		142.86	256 x 224	1	3/0
Axial LAVA-FLEX Multiphase	28-44		MIN		12		166.67	300 x 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 x 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 90s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

## Notes:



- For renal specific diagnosis.
- Coverage is from above Liver/Spleen to aortic bifurcation and will include the Kidneys, except the In/Out of phase which is for kidneys
- All sequences are breath hold.
- Separate all dynamic sequences and perform subtraction on all timed views if possible.
- Please call for protocols if necessary.

# Adrenals – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC (FGRE)	48	MIN					31	320 x 192	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				83.33	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 45s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Adrenals – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 X 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 X 224	1	4/0
Axial LAVA-FLEX Multiphase	28-44		MIN		12		166.67	300 X 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 X 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 45s, 3min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**



# Pancreas – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Pancreas – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 X 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 X 224	1	4/0
Axial LAVA-FLEX Multiphase	28-44		MIN		12		166.67	300 X 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 X 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min, 5min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 X 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 X 224	1	4/0
Axial LAVA-FLEX Multiphase	28-44		MIN		12		166.67	300 X 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 X 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min, 5min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver No Gad – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver No Gad – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 x 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 x 224	1	4/0
Axial LAVA-FLEX	28-44		MIN		12		166.67	300 x 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 x 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Separate Sequences and subtract if Possible. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver No Gad – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial DWI B-Value 400 & 800	28-44		MIN					128 x 128	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Separate Sequences and subtract if Possible. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# Liver Eovist – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min, 5min, 10min, 15min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**



# Liver Eovist – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial SS-FSE Fat Sat	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 x 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 x 224	1	4/0
Axial LAVA-FLEX Multiphase	28-44		MIN		12		166.67	300 x 224	1	5/50
Coronal LAVA-FLEX	28-44		MIN		12		166.67	320 x 224	1	5/50

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Timing is 20s, 60s, 2min, 5min, 10min, 15min. Separate Sequences and subtract if Possible. Use LAVA for multiphase if LAVA-FLEX not available. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# MRCP – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256	1	8/2
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256	1	8/2
Axial SS-FSE	28-44	MIN	90				62.50	384 x 256	1	8/2

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Separate Sequences and subtract if Possible. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# MRCP – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial Fiesta Fat Sat	28-44		MIN		50		125	256 x 256	1	8/2
Axial 3D In/Out Phase	28-44		2 Echoes MIN FULL/2,3		12			256 x 224	1	4/0
Axial LAVA- FLEX	28-44		MIN		12		166.67	300 x 224	1	5/50
Axial SS- FSE (FULL BILIARY TRACT)	28-44	MIN	90				83.33	320 X 284	1	4/0
Coronal SS- FSE (FULL BILIARY TRACT)	28-44	MIN	90				83.33	320 X 284	1	4/0

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Liver/Spleen to Aortic Bifurcation. Separate Sequences and subtract if Possible. Non-contrast exam scan single phase LAVA-FLEX or LAVA-ARC or LAVA (AX and COR)**

# MRCP – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Obl Coronal MRCP Resp Trigger	34	3	MIN					320 x 320	1	1.4/58
Axial Thin Slice MRCP SSFSE	28-44	MIN	250				62.50	320 X 224	1	4/0
Cor Thin Slice MRCP SSFSE	34	MIN	250				62.50	320 X 224	1	4/0

**On MRCP sequences cover entire Biliary Tree**

# Enterography – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal SS-FSE (ARC)	28-44	MIN	80				83.33	352 x 256		7/1
Sagittal SS-FSE	28-44	MIN	90				83.33	384 X 256		7/1
Axial SS-FSE	28-44	MIN	90				83.33	384 x 256		7/1

**Adjust to Body Habitus, Optimize TR on FRFSE, Coverage is from top of stomach to pubis symphysis.**

# Enterography – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial SSFSE Fat Sat	28-44	Min	90				83.33	320 x 224	1	7/1
Cor LAVA FLEX PRE	28-44	6.1	2 Echoes		12		166.67	300 x 300	1	4.4/50
Cor LAVA FLEX POST	28-44	6.1	2 Echoes		12		166.67	320 x 300	1	4.4/50
Axial LAVA FLEX POST	28-44	7.3	MIN		12		166.67	300 x 224	1	5/50
Coronal SS-FSE DELAYED	28-44	MIN	80				83.33	352 x 256		7/1

**Adjust to Body Habitus, Optimize TR on FRFSE, Coverage is from top of stomach to pubis symphysis.**

# Enterography – 3T Pelvis Sequences



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Sagittal FSPGR Fat Sat (Pelvis)	26	120- 200	In Phase		60		31.25	320 X 288	2	5/0
Axial FSPGR fat sat (Pelvis)	26	120- 200	In Phase		60		31.25	416 X 224	2	4.5/.5
Axial FRFSE T2 Fat Sat (Pelvis)	26	2400- 4800	100			20	50	384 X 224	2	4.5/.5

**Adjust to Body Habitus, Optimize TR on FRFSE**

# Notes:



- For inflammatory bowel disease. Eg; Crohn's disease, ulcerative colitis.
- Coverage is from top of stomach to pubis symphysis.
- Separate abdomen and pelvic axial slices with overlap for better signal, fat suppression, and decreased artifacts.
- Follow prep in Enterography protocol memo.
- Post LAVA/Fame sequences are for small FOV pelvis, adjust coil as needed
- Only for systems with abd/pelvic multi channel coil.



# Patient prep



- **Scheduling and Prep:**

- Low-residue diet for 5 days before the procedure is ideal but not required, nor any other specific bowel prep.
- Prescriptions needed for exam is **20 mg Metoclopramide (Reglan)** and **1 mg glucagon** from the Referring MD. If pt is Diabetic glucagon is NOT administered
- Patients must **fast for 6 hours** prior to exam time.

- **Pre-Exam Procedure:**

- Patients need to arrive to the center at least **1 hour** before the exam.
- Upon arrival, patient is to take **20 mg Metoclopramide (Reglan)** orally.
- Patient is then given 1350 ml total (3-450 ml bottles) of **VoLumen** to drink. **1 bottle is given at the time of arrival**, and another **1 bottle 25-30 minutes later**. (Last bottle is reserved for just before the start of exam. VoLumen is available from E-Z-Em/ Bracco Diagnostics.

- **Start of Exam:**

- **Glucagon 1 mg** is administered intravenously for **30-60 seconds** to reduce bowel peristalsis.

# Female Pelvis – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Sagittal FRFSE T2	24	2400 - 8000	85			20	50	320 x 224	2	5/0
Long Axis FRFSE T2	24	2400- 8000	85			20	50	320 X 224	2	5/0
Short Axis FRFSE T2	24	2400- 8000	85			20	50	320 x 224	2	5/0

**Short Axis- Perpendicular to endometrial canal**

**Long Axis- Parallel to endometrial canal**

# Female Pelvis – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial T2 FRFSE large FOV	32	3000	85				50	320 x 224	2	5/1.5
Axial T2 FRFSE fat sat large FOV	32	3000	85				50	320 X 224	2	5/1.5
Axial FSPGR	24	120- 200	In phase		60		31.25	416 X 224	2	5/0
Ax FSPGR fat sat PRE	24	120- 200	In phase		60		31.25	416 X 224	2	5/0
Ax FSPGR Fat sat POST	24	120- 200	In phase		60		31.25	416 X 224	2	5/0

# Female Pelvis – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Sag FSPGR fat sat post	24	120- 200	In phase		80		31.25	256 X 128	1	5/0
Cor FSPGR fat sat post	24	120- 200	In phase		80		31.25	256 X 128	1	5/0



# Female Pelvis Hysterectomy-3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Coronal FRFSE T2	24	2400- 8000	85				32.83	256 X 192	2	5/0
Axial FRFSE T2	24	2400- 8000	85				32.83	256 x 192	2	5/0

**If patient has a history of hysterectomy scan Axial and Coronal instead of long and short axis of uterus**

# Male Pelvis - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Sagittal FRFSE T2	24	2400 - 8000	85			20	50	384 x 224	2	5/0
Coronal FRFSE T2	26	2400- 8000	85			20	50	384 X 224	2	5/1
Axial T1	26	500	Min full				25	320 x 224	2	5/1

# Male Pelvis - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial T2 FRFSE	26	3000	85			20	50	384 x 224	2	5/1
Axial T2 FRFSE fat sat	26	3000	85			20	50	384 x 224	2	5/1
Axial FSPGR	26	120- 200	In phase		60		31.25	416 X 224	2	5/1
Ax FSPGR fat sat PRE	26	120- 200	In phase		60		31.25	416 X 224	2	5/1
Ax FSPGR Fat sat POST	26	120- 200	In phase		60		31.25	416 X 224	2	5/1

# Male Pelvis -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Sag FSPGR fat sat post	26	120- 200	In phase		60		31.25	416 X 224	2	5/1



# Pelvis Fistula - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Sagittal FRFSE T2	24	2400 - 8000	85			20	50	320 x 224	3	4/1
Axial FRFSE T2	24	2400- 8000	85			20	50	320 X 224	3	4/1
Axial T1	24	500	Min full				25	320 x 224	2	4/1

# Pelvis Fistula -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial IR	24	3000	50	185			50	320 x 224	2	4/1
Axial FSPGR	24	120-200	In phase		60		31.25	416 X 224	2	4/1
Ax FSPGR fat sat PRE	24	120-200	In phase		60		31.25	416 X 224	2	4/1
Ax FSPGR fat sat POST	24	120-200	In phase		60		31.25	416 X 224	2	4/1
Cor FSPGR Fat sat POST	24	120-200	In phase		60		31.25	416 X 224	2	4/1

# Pelvis Fistula -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Sag FSPGR fat sat POST	24	120- 200	In phase		60		31.25	416 x 224	2	4/1

# Scrotum - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Axial T2 FRFSE	36	2400 - 8000	85			20	50	384 x 224	2	5/1
Coronal FRFSE T2	36	2400- 8000	85			20	50	384 X 224	2	5/1
Sagittal T2 FRFSE	18	3000	85			20	50	320 x 192	4	4/0.4

# Scrotum -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial T2 FRFSE	18	3000	85			20	50	320 x 192	4	4/0.4
Coronal T2 FRFSE	18	3000	85			20	50	320 x 192	4	4/0.4
Axial FSPGR	18	120- 200	In phase		60		31.25	320 X 224	2	5/1
Ax FSPGR Fat sat PRE	18	120- 200	In phase		60		31.25	320 X 224	2	5/1
Ax FSPGR Fat sat POST	18	120- 200	In phase		60		31.25	320 X 224	2	5/1

# Scrotum -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Sag FSPGR fat sat POST	18	120- 200	In phase		60		31.25	320 X 224	2	5/1

# Urogram – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Coronal SS-FSE	28- 44	MIN	80				83.33	384 x 224	1	6/1
Sagittal SS-FSE	28- 44	MIN	80				83.33	384 X 224	1	6/1
Axial SS-FSE	28- 44	MIN	80				83.33	384 x 224	1	6/1

**Adjust to Body Habitus, Optimize TR on FRFSE, Cover from above Kidneys to past Bladder.**

**See Urogram Prep notes on page 62**

# Urogram – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial SSFSE Fat Sat	28- 44	MIN	80				83.33	384 x 224		6/1
Axial 3D In/Out Phase	28- 44		2 Echoes MIN FULL/2,3		12		142	256 x 224	1	3/0
COR OBL SS-FSE MRU*	28- 44	MIN	1300				31	320 X 224		4/0
Coronal LAVA Fat Sat PRE	28- 44				12		83.33	320 x 192	1	5/50
Axial LAVA Fat Sat Multiphase	28- 44				12		83.33	320 x 192	1	5/50

**\*MRU- Angle with the spine and make sure to get posterior portion of vertebral bodies, kidneys and bladder.**

**Timing is 20s, 90s, 3min. Separate sequences and subtract if possible**



# Urogram - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Coronal LAVA F/S POST 7-8MIN DELAY	28- 44				12		83.33	320 x 192	1	5/50
Sagittal LAVA F/S POST	28- 44				12		83.33	320 x 192	1	5/50

**\*MRU- Angle with the spine and make sure to get posterior portion of vertebral bodies, kidneys and bladder.**

**Coronal LAVA- Use same angle as MRU sequence**

**Urogram Prep- Have patient drink 20 oz. of water prior to exam. Empty bladder just prior to exam.**

# Placenta – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
3-PLANE LOC (FGRE)	48	MIN	1.4				31	256 x 128	1	8/2
Calibration scan	48									15
Coronal T2 SS-FSE	32-40	MIN	80				83.33	352 x 224	1	7/1
Sagittal T2 SS-FSE	20-28	MIN	90				83.33	384 X 224	1	5/1
AXIAL T2 SS-FSE	20-28	MIN	90				83.33	384 X 224	1	5/1

PT POSITIONED LT LATERAL DECUBITUS TO AVOID IVC COMPRESSION AND SYNCOPE. ALL PLANES RELATIVE TO FETUS. EXAM TO BE PREFORMED WITH READING RADIOLOGIST PRESENT. RADIOLOGIST TO DETERMINE SLICE PRESCRIPTION AND ORIENTATION.

# Placenta – 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	NEX	Slice
Axial LAVA-FLEX	20-28		MIN		12		166.67	300 x 224	1	5/50
SAG Fiesta Fat Sat	20-28		MIN		50		125	256 x 256	1	5/1
SAG LAVA-FLEX	20-28		MIN		12		166.67	300 x 224	1	5/0
Axial DWI B-Value 400 & 800	20-28		MIN					128 x 128	1	6/1

PT POSITIONED LT LATERAL DECUBITUS TO AVOID IVC COMPRESSION AND SYNCOPE. ALL PLANES RELATIVE TO FETUS. EXAM TO BE PREFORMED WITH READING RADIOLOGIST PRESENT. RADIOLOGIST TO DETERMINE SLICE PRESCRIPTION AND ORIENTATION.

# Urethral Diverticulum- 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Axial T2 FRFSE (Full Pelvis)	36	2400 - 8000	85			20	50	384 x 224	2	5/1
Sagittal T2 FRFSE (Full Pelvis)	36	3000	85			20	50	320 x 192	2	5/1
Axial T2FS FRFSE (Full Pelvis)	36	2400 - 8000	85			20	50	384 x 224	2	5/1

# Urethral Diverticulum -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial FSPGR (Full Pelvis)	36	120- 200	In phase		60		31.25	320 X 224	2	5/1
Ax FSPGR Fat sat (Full Pelvis)	36	120- 200	In phase		60		31.25	320 X 224	2	5/1
Axial T2FS FRFSE	24	2400 - 8000	85			20	50	384 x 224	2	4/1
Sagittal T2FS FRFSE	24	3000	85			20	50	320 x 192	2	4/1
Coronal T2FS FRFSE	24	2400 - 8000	85			20	50	384 x 224	2	4/1

# Urethral Diverticulum -3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Ax FSPGR Fat sat (Small FOV)	24	120- 200	In phase		60		31.25	320 X 224	2	4/1
Sag FSPGR Fat sat POST (Small FOV)	24	120- 200	In phase		60		31.25	416 x 224	2	4/1
Ax FSPGR Fat sat POST (Small FOV)	24	120- 200	In phase		60		31.25	320 X 224	2	4/1
Ax FSPGR Fat sat POST (Full Pelvis)	36	120- 200	In phase		60		31.25	320 X 224	2	5/1

# Body Imaging



MRI of the body is organ/diagnosis specific and always needs to be discussed with a radiologist regarding the type of exam and contrast required. When calling the radiologist please have all pertinent info on hand including previous pertinent exams and requests from the referring physician. This should be done at least 24-48 hours before the patient is scheduled for their exam. Thank You

# Rectal Cancer - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
3-PLANE LOC	48	MIN	80				62.50	320 x 192	1	8/2
Calibration scan	48									
Sagittal FRFSE T2	22	2400 - 8000	85				50	256 x 192	2	3/0.5
Axial FRFSE T2	22	2400- 8000	85				50	256 X 192	2	3/0.5
Cor FRFSE T2	22	2400- 8000	85				50	256 X 192	2	3/0.5
Axial T1	24	400- 795	Min-Full				25	320 x 224	2	4/1

Freq direction - Sag A/P, Cor S/I, Ax R/L.



# Rectal Cancer - 3T



Sequence	FOV	TR	TE	TI	Flip	ETL	BW	Matrix	Nex	Slice
Axial IR	24	3000	42	190			41.67	320 x 192	2	4/1
Axial FSPGR BH	24	120- 200	In phase		80		31.25	256 X 192	1	4/1
Ax FSPGR fat sat pre BH	24	120- 200	In phase		80		31.25	256 X 192	1	4/1
Ax FSPGR fat sat post BH	24	120- 200	In phase		80		31.25	256 X 192	1	4/1
Cor FSPGR Fat sat post BH	24	120- 200	In phase		80		31.25	256 X 192	1	4/1
Sag FSPGR fat sat post BH	324	120- 200	In phase		80		31.25	256 x 192	1	4/1