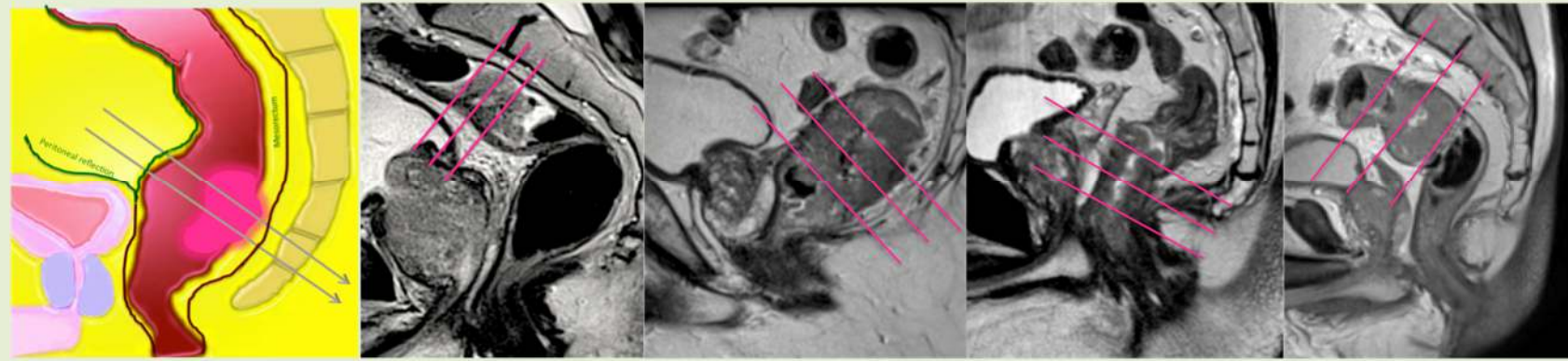


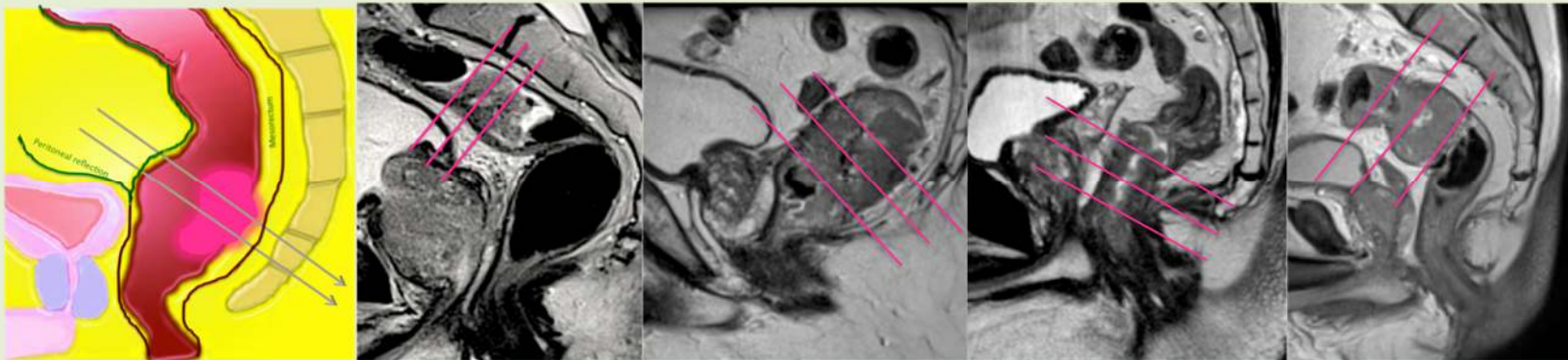
**Protocol: 1.5T PHILIPS**

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DWI
<b>Generic sequence name</b>	TSE T2	TSE T2	TSE T2	TSE T2	TSE T2	DWI
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>	N/A	N/A	N/A	N/A	N/A	N/A
<b>Field of View (cm)</b>	22-24	22-22	18	18	18	400
<b>Slice Thickness (mm)</b>	5	3	3	3	3	8
<b>Gap (mm)</b>	0	0	0	0	0	0
<b>Saturation Pulse</b>	N/A	N/A	N/A	N/A	N/A	N/A
<b>TE1 / TE2</b>	90	90	126	126	126	64
<b>TR</b>	3000-3500	3500-6000	3000-3500	3000-3500	3500-6000	shortest
<b>Flip Angle</b>	90	90	90	90	90	90
<b>Bandwidth (kHz)</b>	256.1	259.1	260	268.9	259.1	22.2
<b>ETL</b>	18	18	18	18	18	NA
<b>NEX</b>	2	2	2	2	2	2
<b>Phase Encoding Steps</b>	224	257	259	244	257	135
<b>Frequency Steps</b>	244	268	268	268	268	97
<b>Frequency Direction</b>	A/P	F/H	A/P	A/P	F/H	R/L
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					



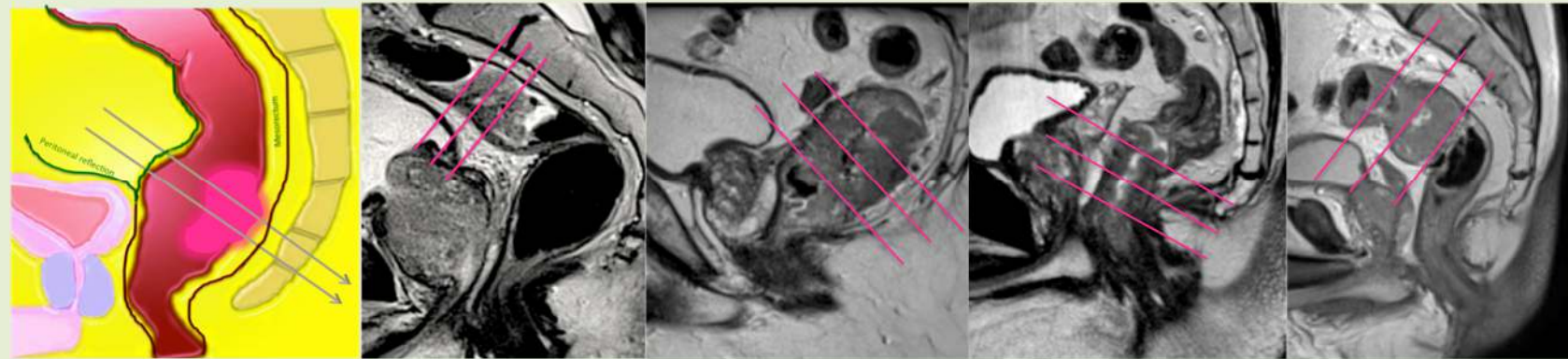
**Protocol: 1.5T GE**

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DIFFUSION
<b>Generic sequence name</b>	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	2D
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>	Fast/NPW/ED	Fast/NPW/ED	Fast/NPW/ED	Fast/NPW/ED	Fast/NPW/ED	EPI, DIFF
<b>Field of View (cm)</b>	18-26	18-26	18-26	18-26	18-26	28-36
<b>Slice Thickness (mm)</b>	5	4	4	3	3	5
<b>Gap (mm)</b>	1	1	1	1	1	1
<b>Saturation Pulse</b>	S/I/A	NA	A	S/I/A	A	N/A
<b>TE1 / TE2</b>	102	102	102	102	102	Min
<b>TR</b>	4000-6000	4000-6000	4000-6000	4000-6000	4000-6000	3500
<b>Flip Angle</b>	90	90	90	90	90	N/A
<b>Bandwidth (kHz)</b>	32	32	32	32	32	N/A
<b>ETL</b>	24	24	24	24	24	Na
<b>NEX</b>	3	3	3	3	3	6
<b>Phase Encoding Steps</b>	192	192	192	192	192	128
<b>Frequency Steps</b>	320	320	320	320	320	128
<b>Frequency Direction</b>	A/P	S/I	R/L	R/L	R/L	A/P
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					



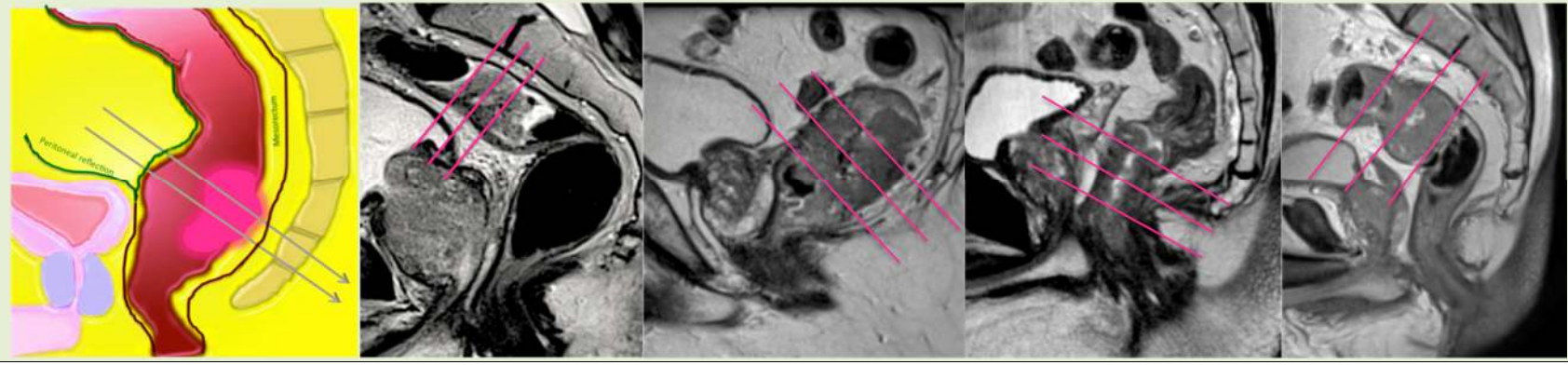
**Protocol: 1.5T SIEMENS**

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DWI
<b>Generic sequence name</b>	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	DWI
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>						EPI, b0, b500,b100
<b>Field of View (cm)</b>	38	18	38	18	18	
<b>Slice Thickness (mm)</b>	5	3	3	3	3	5
<b>Gap (mm)</b>	1	0	0	0	0	1
<b>Saturation Pulse</b>	S/II	A	A	A	A	
<b>TE1 / TE2</b>	90-150	90-150	90-150	90-150	90-150	Min
<b>TR</b>	3500-5000	3500-5000	3500-5000	3500-5000	3500-5000	4000
<b>Flip Angle</b>	90	90	90	90	90	
<b>Bandwidth (kHz)</b>	32	32	32	32	32	
<b>ETL</b>	24	24	24	24	24	
<b>NEX</b>	4	2	2	2	2	4
<b>Phase Encoding Steps</b>	320	240	240	256	256	128
<b>Frequency Steps</b>	320	320	320	256	256	128
<b>Frequency Direction</b>	A/P	S/I	R/L	A/P	A/P	R/L
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					



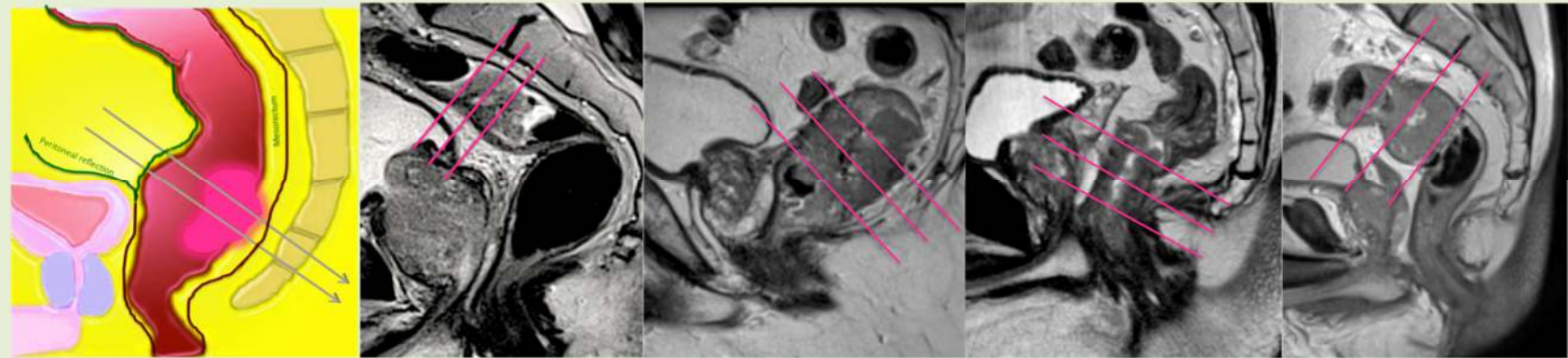
**Protocol: 3T PHILIPS**

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DWI
<b>Generic sequence name</b>	TSE T2	TSE T2	TSE T2	TSE T2	TSE T2	DWI
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>	FC	FC	FC	FC	FC	
<b>Field of View (cm)</b>	20-24	22-22	18	18	18	24
<b>Slice Thickness (mm)</b>	5	3	4	3	3	4
<b>Gap (mm)</b>	1	1	1	1	1	1
<b>Saturation Pulse</b>	NA	NA	NA	NA	NA	NA
<b>TE1 / TE2</b>	100	100	100	100	100	shortest
<b>TR</b>	4000-6000	4000-6000	4000-6000	4000-6000	4000-6000	2500-6500
<b>Flip Angle</b>	90	90	90	90	90	90
<b>Bandwidth (kHz)</b>	87.5kHz	87.5kHz	87.5kHz	87.5kHz	87.5kHz	128kHz
<b>ETL</b>	15-30	15-30	15-30	15-30	15-30	NA
<b>NEX</b>	2	3	1	4	4	1
<b>Phase Encoding Steps</b>	360	320	348	360	300	280
<b>Frequency Steps</b>	220	220	248	240	200	160
<b>Frequency Direction</b>	R/L	R/L	A/P	R/L	R/L	R/L
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					



## Protocol: 3T GE

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DWI
<b>Generic sequence name</b>	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	DWI
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>	Fast/ NPW/ ED	Fast/ NPW/ ED	Fast/ NPW/ ED	Fast/ NPW/ ED	Fast/ NPW/ ED	EPI, b0, b400,b800 Directions All
<b>Field of View (cm)</b>	16-24	16-24	16-24	16-24	16-24	Match T2 Axial
<b>Slice Thickness (mm)</b>	5	4	4	3	3	5
<b>Gap (mm)</b>	1	1	1	1	1	1
<b>Saturation Pulse</b>	S/I/A	NA	A	S/I/A	A	
<b>TE1 / TE2</b>	120	120	120	120	120	80
<b>TR</b>	4000-6000	4000-6000	4000-6000	4000-6000	4000-6000	3500
<b>Flip Angle</b>	90	90	90	90	90	90
<b>Bandwidth (kHz)</b>	32	32	32	32	32	NA
<b>ETL</b>	23	23	23	23	23	
<b>NEX</b>	4	4	4	4	3	4
<b>Phase Encoding Steps</b>	224	224	224	224	224	128
<b>Frequency Steps</b>	320	320	320	320	320	128
<b>Frequency Direction</b>	A/P	S/I	R/L	R/L	R/L	R/L
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					



## Protocol: 3T SIEMENS

<b>Region to Scan:</b>	Rectum					
<b>Patient position:</b>	Supine					
<b>Coil:</b>	Phased-array surface coil positioned such that the lower edge of the coil lies below the pubic bone.					
<b>Patient Preparation:</b>	Use of rectal contrast and IV contrast is not recommended (ESGAR 2012 Guidelines).					
<b>Sequence</b>	Axial T2	Coronal T2	Sagittal T2	Oblique Axial T2	Oblique Coronal T2	DWI
<b>Generic sequence name</b>	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	FRFSE T2	DWI
<b>Plane</b>	Axial	Coronal	Sagittal	Oblique Axial	Oblique Coronal	Axial
<b>Options</b>						EPI, b0, b400,b800 Directions All
<b>Field of View (cm)</b>	38	18	38	18	18	
<b>Slice Thickness (mm)</b>	5	3	3	3	3	5
<b>Gap (mm)</b>	1	0	0	0	0	1
<b>Saturation Pulse</b>	S/II	A	A	A	A	
<b>TE1 / TE2</b>	95	97	97	97	97	68
<b>TR</b>	2000	300-6000	300-6000	300-6000	300-6000	7900
<b>Flip Angle</b>	150	150	150	150	150	
<b>Bandwidth (kHz)</b>	710	401	401	401	401	1184
<b>ETL</b>	200	25	23	25	25	
<b>NEX</b>	4	2	2	2	2	4
<b>Phase Encoding Steps</b>	320	240	240	208	208	192
<b>Frequency Steps</b>	320	320	320	320	320	192
<b>Frequency Direction</b>	A/P	S/I	R/L	A/P	A/P	R/L
<b>Comments</b>	<ul style="list-style-type: none"> <li>✓ Since assessment of tumor extent on the T2-WI is based on the intrinsic contrast between the high-signal-intensity mesorectal fat and the relatively low signal intensity of the tumor, fat suppression technique is absolutely not recommended</li> <li>✓ Placement of the orthogonal plane is based on the tumor location on the sagittal T2W at the level where the tumor extends within the mesorectal fat</li> </ul>					

