Table of contents

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_localizer_right

TA: 37 sec Coil Selection: Auto Voxel Size: 0.5×0.5×3.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	On
Graphic segment	All Segments
Inline Movie	Off

Routine

Slice Group	1
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
TE	3.67 ms
Averages	1
Concatenations	19
AutoAlign	Knee > Standard
Coil Elements	18K

Contrast - Common

TR	7.7 ms
TE	3.67 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle	20 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1

Contrast - Dynamic

Multiple Series	Each Measurement

Resolution - Common

FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Interpolation	On

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
Multi-Slice Mode	Sequential
Series	Interleaved
Concatenations	19

Geometry - AutoAlign

Slice Group	1
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3

Geometry - AutoAlign

Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	Knee > Standard
Initial Position	R25.0 A36.0 H0.0
R	25.0 mm
A	36.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	7.7 ms
Segments	1

Physio - Signal

Concatenations	19

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	280 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	19

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	3.67 ms
TR	7.7 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	20 deg
Measurements	1
Contrasts	1
TE	3.67 ms
TR	7.7 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Normal
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	320 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_localizer_left

TA: 37 sec Coil Selection: Auto Voxel Size: 0.5×0.5×3.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	On
Graphic segment	All Segments
Inline Movie	Off

Routine

Slice Group	1
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
TE	3.67 ms
Averages	1
Concatenations	19
AutoAlign	Knee > Standard
Coil Elements	18K

Contrast - Common

TR	7.7 ms
TE	3.67 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle	20 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1

Contrast - Dynamic

Multiple Series	Each Measurement

Resolution - Common

FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Interpolation	On

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
Multi-Slice Mode	Sequential
Series	Interleaved
Concatenations	19

Geometry - AutoAlign

Slice Group	1
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3

Geometry - AutoAlign

Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	Knee > Standard
Initial Position	L25.0 A36.0 H0.0
L	25.0 mm
A	36.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	7.7 ms
Segments	1

Physio - Signal

Concatenations	19

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	280 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	19

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	3.67 ms
TR	7.7 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	20 deg
Measurements	1
Contrasts	1
TE	3.67 ms
TR	7.7 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Normal
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	320 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_UHR GRE_FA12

TA: 6:41 min Coil Selection: Auto Voxel Size: 0.2×0.2×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	23.0 ms
TE	7.50 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	23.0 ms
TE	7.50 ms
MTC	Off
Magn. Preparation	None
Flip Angle	12 deg
Fat-Water Contrast	Fast Water Excitation
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	1024
Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	23.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	23.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Fast Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	7.50 ms
TR	23.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	12 deg
Measurements	1
Contrasts	1
TE	7.50 ms
TR	23.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_rs
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	Slice
Bandwidth	110 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_mDixon

TA: 1:08 min Coil Selection: Auto Voxel Size: 1.3×1.3×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	6 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	6
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	128
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Off
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	6
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	6 deg
Measurements	1
Contrasts	6
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl

Sequence - Part 1

Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Readout Mode	Monopolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Flow Compensation 4	None
Flow Compensation 5	None
Flow Compensation 6	None
Bandwidth 1	710 Hz/Px
Bandwidth 2	710 Hz/Px
Bandwidth 3	710 Hz/Px
Bandwidth 4	710 Hz/Px
Bandwidth 5	710 Hz/Px
Bandwidth 6	710 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_MTR_ON

TA: 3:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
MTC	On
Magn. Preparation	None
Flip Angle	10 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	3
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256

Resolution - Common

Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	41.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	3
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TR	41.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	10 deg
Measurements	1
Contrasts	3
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TR	41.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px

Sequence - Part 1

Bandwidth 3	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_MTR_OFF

TA: 3:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
MTC	Off
Magn. Preparation	None
Flip Angle	10 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	6
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	41.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	6
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
TR	41.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	10 deg
Measurements	1
Contrasts	6
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
TR	41.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl

Sequence - Part 1

Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Flow Compensation 4	None
Flow Compensation 5	None
Flow Compensation 6	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Bandwidth 3	220 Hz/Px
Bandwidth 4	220 Hz/Px
Bandwidth 5	220 Hz/Px
Bandwidth 6	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_MTsat_pdw

TA: 1:36 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
MTC	Off
Magn. Preparation	None
Flip Angle	5 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	2
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %

Resolution - Common

Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm

Geometry - Tim Planning Suite

Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off

Inline - Liver

Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	5 deg
Measurements	1
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_MTsat_t1w

TA: 1:36 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
MTC	Off
Magn. Preparation	None
Flip Angle	22 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	2
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %

Resolution - Common

Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm

Geometry - Tim Planning Suite

Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	22 deg
Measurements	1
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_PDW

TA: 1:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
TE	5.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	12.0 ms
TE	5.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	4 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	12.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	5.10 ms
TR	12.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	4 deg
Measurements	1
Contrasts	1
TE	5.10 ms
TR	12.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	On
Bandwidth	420 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_T1W

TA: 1:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
TE	5.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	12.0 ms
TE	5.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	17 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	12.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	5.10 ms
TR	12.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	17 deg
Measurements	1
Contrasts	1
TE	5.10 ms
TR	12.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	On
Bandwidth	420 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_B1map

TA: 25 sec Coil Selection: Auto Voxel Size: 1.3×1.3×6.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	20
Distance Factor	100 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	11530.0 ms
TE	2.03 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	11530.0 ms
TE	2.03 ms
Magn. Preparation	None
Flip Angle	8 deg
Fat-Water Contrast	Standard
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
Base Resolution	128
Phase Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Allowed

Resolution - Filter

Raw Filter	Off

Resolution - Filter

Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	20
Distance Factor	100 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	11530.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
TE	2.03 ms
TR	11530.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Composing

Inline Composing	Off

Sequence - Part 1

Sequence Name	tfl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Low SAR
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	490 Hz/Px
Echo Spacing	4.50 ms
Asymmetric Echo	Allowed
Turbo Factor	128

Sequence - Part 2

Introduction	On
RF Spoiling	On

Sequence - Assistant

SAR Assistant	Off

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\thigh_ep2d_diff20_new

TA: 8:46 min Coil Selection: Auto Voxel Size: 1.3×1.3×6.0 mm³ Acc:: 3 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	16
Distance Factor	0 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	4000.0 ms
TE	93.00 ms
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	4000.0 ms
TE	93.00 ms
MTC	Off
Magn. Preparation	None
Fat-Water Contrast	SPAIR
Fat Saturation	Strong
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Multiple Series	Off
Delay in TR	0.00 ms

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
Base Resolution	128
Phase Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	EPI/Separate
Acceleration Factor PE	3
Reference Lines PE	78
Phase Partial Fourier	6/8

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	Off
Normalize	Off

Geometry - Common

Slice Group	1
Slices	16
Distance Factor	0 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	4000.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Navigator

Geometry - Saturation

Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm

System - Adjustments

Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	96 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Standard

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	4000.0 ms
Concatenations	1

Physio - PACE

Resp. Control	Off
Concatenations	1

Diff

Diffusion Mode	MDDW
Diff. Directions	20
Diffusion Scheme	Bipolar
Diff. Weightings	2
b-value 1	0 s/mm²
b-value 2	800 s/mm²
Averages 1	6
Averages 2	6
Dynamic Field Correction	Off
Invert Gray Scale	Off
Diff. Weighted Images	On
Trace Weighted Images	On
Tensor	On
FA Maps	On
ADC Maps	On
Exponential ADC Maps	Off
ADC Noise Threshold	6
Calculated Image	Off

Sequence - Part 1

Sequence Name	epse
Excitation	Standard
RF Pulse Type	Normal
Gradient Mode	Fast
Bandwidth	1028 Hz/Px
Echo Spacing	1.10 ms
Free Echo Spacing	Off
Optimization	None

Sequence - Part 1

EPI Factor	128

Sequence - Part 2

Introduction	On
Phase Correction	Internal

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_localizer_right

TA: 37 sec Coil Selection: Auto Voxel Size: 0.5×0.5×3.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	On
Graphic segment	All Segments
Inline Movie	Off

Routine

Slice Group	1
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
TE	3.67 ms
Averages	1
Concatenations	19
AutoAlign	Knee > Standard
Coil Elements	18K

Contrast - Common

TR	7.7 ms
TE	3.67 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle	20 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1

Contrast - Dynamic

Multiple Series	Each Measurement

Resolution - Common

FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Interpolation	On

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
Multi-Slice Mode	Sequential
Series	Interleaved
Concatenations	19

Geometry - AutoAlign

Slice Group	1
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3

Geometry - AutoAlign

Position	R25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	Knee > Standard
Initial Position	R25.0 A36.0 H0.0
R	25.0 mm
A	36.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	7.7 ms
Segments	1

Physio - Signal

Concatenations	19

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	280 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	19

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	3.67 ms
TR	7.7 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	20 deg
Measurements	1
Contrasts	1
TE	3.67 ms
TR	7.7 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Normal
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	320 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_localizer_left

TA: 37 sec Coil Selection: Auto Voxel Size: 0.5×0.5×3.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	On
Graphic segment	All Segments
Inline Movie	Off

Routine

Slice Group	1
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
TE	3.67 ms
Averages	1
Concatenations	19
AutoAlign	Knee > Standard
Coil Elements	18K

Contrast - Common

TR	7.7 ms
TE	3.67 ms
TD	0.00 ms
MTC	Off
Magn. Preparation	None
Flip Angle	20 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1

Contrast - Dynamic

Multiple Series	Each Measurement

Resolution - Common

FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Interpolation	On

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	On
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3
Slices	13
Distance Factor	0 %
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Phase Oversampling	25 %
FoV Read	280 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	7.7 ms
Multi-Slice Mode	Sequential
Series	Interleaved
Concatenations	19

Geometry - AutoAlign

Slice Group	1
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	2
Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
Slice Group	3

Geometry - AutoAlign

Position	L25.0 A36.0 H0.0 mm
Orientation	Sagittal
Phase Encoding Dir.	A >> P
AutoAlign	Knee > Standard
Initial Position	L25.0 A36.0 H0.0
L	25.0 mm
A	36.0 mm
H	0.0 mm
Initial Orientation	Transversal
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	H >> F
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	7.7 ms
Segments	1

Physio - Signal

Concatenations	19

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	280 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	19

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	3.67 ms
TR	7.7 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	20 deg
Measurements	1
Contrasts	1
TE	3.67 ms
TR	7.7 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Normal
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	320 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_UHR GRE_FA12

TA: 6:41 min Coil Selection: Auto Voxel Size: 0.2×0.2×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	23.0 ms
TE	7.50 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	23.0 ms
TE	7.50 ms
MTC	Off
Magn. Preparation	None
Flip Angle	12 deg
Fat-Water Contrast	Fast Water Excitation
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	1024
Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	23.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	23.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Fast Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	7.50 ms
TR	23.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	12 deg
Measurements	1
Contrasts	1
TE	7.50 ms
TR	23.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_rs
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	Slice
Bandwidth	110 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_mDixon

TA: 1:08 min Coil Selection: Auto Voxel Size: 1.3×1.3×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	6 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	6
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	128
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Off
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	6
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	6 deg
Measurements	1
Contrasts	6
TE 1	2.10 ms
TE 2	5.10 ms
TE 3	8.10 ms
TE 4	11.10 ms
TE 5	14.10 ms
TE 6	17.10 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl

Sequence - Part 1

Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Readout Mode	Monopolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Flow Compensation 4	None
Flow Compensation 5	None
Flow Compensation 6	None
Bandwidth 1	710 Hz/Px
Bandwidth 2	710 Hz/Px
Bandwidth 3	710 Hz/Px
Bandwidth 4	710 Hz/Px
Bandwidth 5	710 Hz/Px
Bandwidth 6	710 Hz/Px
Asymmetric Echo	Off
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_MTR_ON

TA: 3:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
MTC	On
Magn. Preparation	None
Flip Angle	10 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	3
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256

Resolution - Common

Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	41.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	3
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TR	41.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	10 deg
Measurements	1
Contrasts	3
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TR	41.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px

Sequence - Part 1

Bandwidth 3	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_MTR_OFF

TA: 3:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	41.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
MTC	Off
Magn. Preparation	None
Flip Angle	10 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	6
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	41.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	41.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	6
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
TR	41.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	10 deg
Measurements	1
Contrasts	6
TE 1	5.10 ms
TE 2	10.34 ms
TE 3	15.66 ms
TE 4	20.98 ms
TE 5	26.30 ms
TE 6	31.62 ms
TR	41.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl

Sequence - Part 1

Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Flow Compensation 3	None
Flow Compensation 4	None
Flow Compensation 5	None
Flow Compensation 6	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Bandwidth 3	220 Hz/Px
Bandwidth 4	220 Hz/Px
Bandwidth 5	220 Hz/Px
Bandwidth 6	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_MTsat_pdw

TA: 1:36 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
MTC	Off
Magn. Preparation	None
Flip Angle	5 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	2
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %

Resolution - Common

Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm

Geometry - Tim Planning Suite

Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	5 deg
Measurements	1
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_MTsat_t1w

TA: 1:36 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	20.0 ms
TE 1	5.10 ms
TE 2	10.34 ms
MTC	Off
Magn. Preparation	None
Flip Angle	22 deg
Fat-Water Contrast	Water Excitation
Dark Blood	Off
Contrasts	2
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	75 %
Slice Resolution	100 %

Resolution - Common

Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	20.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm

Geometry - Tim Planning Suite

Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	20.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Water Excitation
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	75 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off

Inline - Liver

Save Original Images	On

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	22 deg
Measurements	1
Contrasts	2
TE 1	5.10 ms
TE 2	10.34 ms
TR	20.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Normal
Readout Mode	Bipolar
Gradient Mode	Fast
Flow Compensation 1	None
Flow Compensation 2	None
Bandwidth 1	220 Hz/Px
Bandwidth 2	220 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_PDW

TA: 1:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
TE	5.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	12.0 ms
TE	5.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	4 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	12.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	5.10 ms
TR	12.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	4 deg
Measurements	1
Contrasts	1
TE	5.10 ms
TR	12.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	On
Bandwidth	420 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_T1W

TA: 1:15 min Coil Selection: Auto Voxel Size: 0.6×0.6×3.0 mm³ Acc:: 2 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
TE	5.10 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	12.0 ms
TE	5.10 ms
MTC	Off
Magn. Preparation	None
Flip Angle	17 deg
Fat-Water Contrast	Standard
Dark Blood	Off
Contrasts	1
SWI	Off
Reconstruction	Magn./Phase

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
Base Resolution	256
Phase Resolution	100 %
Slice Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	Integrated
Acceleration Factor PE	2
Reference Lines PE	24
Acceleration Factor 3D	1
Phase Partial Fourier	Off
Slice Partial Fourier	Off
Asymmetric Echo	Allowed
Elliptical Scanning	Off

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slab Group	1
Slabs	1
Distance Factor	20 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Slices per Slab	40
Phase Oversampling	0 %
Slice Oversampling	10.0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	3.0 mm
TR	12.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slab Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Saturation

Saturation Mode	Standard
Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	120 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slab-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	12.0 ms
Segments	1
Concatenations	1

Physio - Cardiac

Tagging	None
Fat-Water Contrast	Standard
Magn. Preparation	None
Dark Blood	Off
FoV Read	160 mm
FoV Phase	100.0 %
Phase Resolution	100 %
Dynamic Mode	Standard

Physio - PACE

Resp. Control	Off
Concatenations	1

Inline - Liver

Liver Registration	Off
Save Original Images	On

Inline - Subtraction

Subtract	Off

Inline - Subtraction

Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
Contrasts	1
TE	5.10 ms
TR	12.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Soft Tissue

Wash-in	Off
Wash-out	Off
TTP	Off
PEI	Off
MIP Time	Off
Measurements	1

Inline - Composing

Inline Composing	Off

Inline - MapIt

MapIt	None
Flip Angle	17 deg
Measurements	1
Contrasts	1
TE	5.10 ms
TR	12.0 ms
Save Original Images	On

Sequence - Part 1

Sequence Name	fl_r
Dimension	3D
Excitation	Slab-sel.
RF Pulse Type	Fast
Gradient Mode	Fast
Flow Compensation	On
Bandwidth	420 Hz/Px
Asymmetric Echo	Allowed
Segments	1

Sequence - Part 2

Introduction	On
RF Spoiling	On
Acoustic noise reduction	Off

Sequence - Assistant

SAR Assistant	Off
Allowed Delay	0 s

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_B1map

TA: 25 sec Coil Selection: Auto Voxel Size: 1.3×1.3×6.0 mm³ Acc:: None Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	20
Distance Factor	100 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	11530.0 ms
TE	2.03 ms
Averages	1
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	11530.0 ms
TE	2.03 ms
Magn. Preparation	None
Flip Angle	8 deg
Fat-Water Contrast	Standard
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Measurements	1
Multiple Series	Each Measurement

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
Base Resolution	128
Phase Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	None
Phase Partial Fourier	Off
Asymmetric Echo	Allowed

Resolution - Filter

Raw Filter	Off

Resolution - Filter

Elliptical Filter	Off
Distortion Correction	2D
Normalize	Off
Image Filter	Off

Geometry - Common

Slice Group	1
Slices	20
Distance Factor	100 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	11530.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Sum of Squares
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Tune up
B1 Shim	TrueForm
Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	Isocenter
Orientation	Transversal
Rotation	0.00 deg
A >> P	263 mm
R >> L	350 mm
F >> H	350 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Slice-sel.

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Inline - Subtraction

Subtract	Off
Measurements	1
StdDev	Off
Save Original Images	On

Inline - Cardiac

Magn. Preparation	None
Save Original Images	On
TE	2.03 ms
TR	11530.0 ms

Inline - MIP

MIP Sag	Off
MIP Cor	Off
MIP Tra	Off
MIP Time	Off
Radial MIP	Off
Save Original Images	On
MPR Sag	Off
MPR Cor	Off
MPR Tra	Off

Inline - Composing

Inline Composing	Off

Sequence - Part 1

Sequence Name	tfl
Dimension	2D
Excitation	Slice-sel.
RF Pulse Type	Low SAR
Gradient Mode	Normal
Flow Compensation	None
Bandwidth	490 Hz/Px
Echo Spacing	4.50 ms
Asymmetric Echo	Allowed
Turbo Factor	128

Sequence - Part 2

Introduction	On
RF Spoiling	On

Sequence - Assistant

SAR Assistant	Off

\\MRI Research\Knee\NIH\NIH_R61NS119434_Chen_20221103\calf_ep2d_diff20_new

TA: 8:46 min Coil Selection: Auto Voxel Size: 1.3×1.3×6.0 mm³ Acc:: 3 Rel. SNR: 1.00

Properties

Start measurement without further preparation	On
Wait for User to Start	Off
Start measurements	Single Measurement
Prio Recon	Off
Auto Open Inline Display	Off
Auto Close Inline Display	Off
Load Images to MR View&GO	On
Auto Store Images	On
Load Images to Stamp Segments	Off
Load Images to Graphic Segments	Off
Graphic segment	Default
Inline Movie	Off

Routine

Slice Group	1
Slices	16
Distance Factor	0 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	4000.0 ms
TE	93.00 ms
Concatenations	1
AutoAlign	---
Coil Elements	18K

Contrast - Common

TR	4000.0 ms
TE	93.00 ms
MTC	Off
Magn. Preparation	None
Fat-Water Contrast	SPAIR
Fat Saturation	Strong
Reconstruction	Magnitude

Contrast - Dynamic

Dynamic Mode	Standard
Multiple Series	Off
Delay in TR	0.00 ms

Resolution - Common

FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
Base Resolution	128
Phase Resolution	100 %
Interpolation	Off

Resolution - Acceleration

Acceleration mode	GRAPPA
Reference Scans	EPI/Separate
Acceleration Factor PE	3
Reference Lines PE	78
Phase Partial Fourier	6/8

Resolution - Filter

Raw Filter	Off
Elliptical Filter	Off
Distortion Correction	Off
Normalize	Off

Geometry - Common

Slice Group	1
Slices	16
Distance Factor	0 %
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
Phase Oversampling	0 %
FoV Read	160 mm
FoV Phase	100.0 %
Slice Thickness	6.0 mm
TR	4000.0 ms
Multi-Slice Mode	Interleaved
Series	Interleaved
Concatenations	1

Geometry - AutoAlign

Slice Group	1
Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Phase Encoding Dir.	A >> P
AutoAlign	---
Initial Position	R34.4 A24.0 F1.3
R	34.4 mm
A	24.0 mm
F	1.3 mm
Initial Orientation	T > C
T > C	1.20
> S	0.00
Initial Rotation	0.00 deg

Geometry - Navigator

Geometry - Saturation

Special Saturation	None

Geometry - Tim Planning Suite

Set-n-Go Protocol	Off
Table Position	0 mm
Table Position	H
Inline Composing	Off

System - Miscellaneous

Coil Selection	Default
MSMA	S - C - T
Sagittal	R >> L
Coronal	A >> P
Transversal	F >> H
Coil Combination	Adaptive Combine
Matrix Optimization	Off

System - Adjustments

Adjustment Strategy	Standard
B0 Shim	Standard
B1 Shim	TrueForm

System - Adjustments

Adjustment Tolerance	Auto
Adjust with Body Coil	Off
Confirm Frequency	Never
Assume Silicone	Off

System - Adjust Volume

Position	R34.4 A24.0 F1.3 mm
Orientation	T > C1.2
Rotation	0.00 deg
A >> P	160 mm
R >> L	160 mm
F >> H	96 mm
Reset	Off

System - pTx

B1 Shim	TrueForm
Excitation	Standard

System - Tx/Rx

Frequency 1H	123.248547 MHz
? Ref. Amplitude 1H	0.000 V
Reset	Off
Correction Factor	1.00
Image Scaling	1.000

Physio - Signal

1st Signal/Mode	None
TR	4000.0 ms
Concatenations	1

Physio - PACE

Resp. Control	Off
Concatenations	1

Diff

Diffusion Mode	MDDW
Diff. Directions	20
Diffusion Scheme	Bipolar
Diff. Weightings	2
b-value 1	0 s/mm²
b-value 2	800 s/mm²
Averages 1	6
Averages 2	6
Dynamic Field Correction	Off
Invert Gray Scale	Off
Diff. Weighted Images	On
Trace Weighted Images	On
Tensor	On
FA Maps	On
ADC Maps	On
Exponential ADC Maps	Off
ADC Noise Threshold	6
Calculated Image	Off

Sequence - Part 1

Sequence Name	epse
Excitation	Standard
RF Pulse Type	Normal
Gradient Mode	Fast
Bandwidth	1028 Hz/Px
Echo Spacing	1.10 ms
Free Echo Spacing	Off
Optimization	None

Sequence - Part 1

EPI Factor	128

Sequence - Part 2

Introduction	On
Phase Correction	Internal