\\USER\AMRIT\Jen\4d_flow\localizer

TA: 0:13 PA	AT: Off Voxel size: 1.1×1.0×	77.0 mm Rel. SNR: 1.00	SIEMENS: gre
Proportion		Phase resolution	90 %
Properties	0"	- Phase partial Fourier	Off
Prio Recon	Off	Interpolation	On
Before measurement		DAT mode	None
After measurement	On	PAT mode	None
Load to viewer	On Off	Matrix Coil Mode	Auto (CP)
Inline movie	Off	Image Filter	Off
Auto store images	On O#	Distortion Corr.	Off
Load to stamp segments	Off Off	Unfiltered images	Off
Load images to graphic	OII	Prescan Normalize	On
segments	0#	Normalize	Off
Auto open inline display	Off	B1 filter	Off
Start measurement without	Off	Raw filter	Off
further preparation	Off	Elliptical filter	On
Wait for user to start		Mode	Inplane
Start measurements	single	0	•
Routine		Geometry	Commential
Slice group 1		- Multi-slice mode	Sequential
Slices	1	Series	Interleaved
Dist. factor	20 %	Saturation mode	Standard
Position	Isocenter	Special sat.	None
Orientation	Sagittal		
Phase enc. dir.	A >> P	Tim CT mode	Off
Rotation	0.00 deg	l	5
Slice group 2		System	
Slices	1	Body	Off
Dist. factor	20 %	HEP	On
Position	Isocenter	HEA	On
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	Table position	H
Rotation	0.00 deg	Table position	0 mm
Slice group 3	3	MSMA	S - C - T
Slices	1	Sagittal	R >> L
Dist. factor	20 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Coronal	Save uncombined	Off
Phase enc. dir.	R >> L	Coil Combine Mode	Adaptive Combine
Rotation	0.00 deg	AutoAlign	
Phase oversampling	0 %	Auto Coil Select	Default
FoV read	250 mm	Auto Coil Select	Delault
FoV phase	100.0 %	Shim mode	Tune up
Slice thickness	7.0 mm	Adjust with body coil	Off
TR	8.6 ms	Confirm freq. adjustment	Off
TE	4.00 ms	Assume Silicone	Off
Averages	2	? Ref. amplitude 1H	0.000 V
Concatenations	3	Adjustment Tolerance	Auto
Filter	Prescan Normalize, Elliptical	Adjust volume	
	filter	Position	Isocenter
Coil elements	HEA;HEP	Orientation	Transversal
	•	Rotation	0.00 deg
Contrast	0.77	_ R >> L	350 mm
TD	0 ms	A >> P	263 mm
MTC	Off	F >> H	350 mm
Magn. preparation	None	Physic	
Flip angle	20 deg	Physio	None
Fat suppr.	None	1st Signal/Mode	None
Water suppr.	None	Segments	1
Averaging mode	Short term	Dark blood	Off
Reconstruction	Magnitude		
Measurements	1	Resp. control	Off
Multiple series	Each measurement	Inline	
•		Subtract	Off
Resolution	256	Liver registration	Off
Base resolution	· 11= ()		

Std-Dev-Cor	Off
Std-Dev-Tra	Off
Std-Dev-Time	Off
MIP-Sag	Off
MIP-Cor	Off
MIP-Tra	Off
MIP-Time	Off
Save original images	On
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off

Sequence

Introduction	On
Dimension	2D
Phase stabilisation	Off
Asymmetric echo	Allowed
Contrasts	1
Bandwidth	320 Hz/Px
Flow comp.	No
Allowed delay	0 s
RF pulse type	Normal
Gradient mode	Normal
Excitation	Slice-sel.
RF spoiling	On
. •	

Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation		Table position	Н
Wait for user to start	On	Table position	0 mm
Start measurements	single	MSMA	S - C - T
Davidia a	<u> </u>	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	
Position	L0.0 P0.0 H36.0	Auto Coil Select	Default
Orientation	Transversal	Shim mode	Tune up
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0 %	Assume Silicone	Off
Slice oversampling	0.0 %	? Ref. amplitude 1H	0.000 V
Slices per slab	12	Adjustment Tolerance	Auto
FoV read	200 mm	Adjust volume	71010
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.00 mm	Orientation	Transversal
TR	74.85 ms	Rotation	0.00 deg
TE	5.85 ms	Rotation R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1	F >> H	350 mm
Filter	None		550 IIIII
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	None
Flip angle	12 deg	Segments	2
Averaging mode	Short term	Angio	
Reconstruction	Magnitude	Flow mode	Single vel.
Measurements	1	Encodings	3
Multiple series	Each measurement	Velocity enc.	90 cm/s
•	Lacii ilicasulcilicili	Direction 1	Through plane
Resolution		Direction 2	A >> P
Base resolution	128	Direction 3	R >> L
Phase resolution	100 %	Rephased images	On
Slice resolution	100 %	Magnitude images	On
Phase partial Fourier	Off	Magnitude sum	Off
Interpolation	Off	Phase images	On
PAT mode	GRAPPA	Subtract	Off
Accel. factor PE	2	Std-Dev-Sag	Off
Ref. lines PE	24	Std-Dev-Cor	Off
Accel. factor 3D	1	Std-Dev-Col	Off
Ref. lines 3D	12	Std-Dev-Time	Off
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off
Reference scan mode	Separate	MIP-Cor	Off
		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off	Save original images	Oil
Normalize	Off	Sequence	
B1 filter	Off	Introduction	On
Raw filter	Off	Dimension	3D

Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	1
FOV Shift	1

TA: 0:30 PAT: 2	Voxel size: 1.6×1.6×3.0 mm	Rel. SNR: 1.00 USER: f	fl_fq_mb_gre_3D_seg
Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation		Table position	Н
Wait for user to start	On	Table position	0 mm
Start measurements	single	MSMA	S - C - T
	5g.5	Sagittal	R >> L
outine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	
Position	L0.0 P0.0 F36.0	Auto Coil Select	Default
Orientation	Transversal	Chim mada	Tuna un
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	12	? Ref. amplitude 1H	0.000 V
FoV read	200 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume	
Slice thickness	3.00 mm	Position	Isocenter
TR	74.85 ms	Orientation	Transversal
TE	5.85 ms	Rotation	0.00 deg
Averages	1	R >> L	350 mm
Concatenations	1	A >> P	263 mm
Filter	None	F >> H	350 mm
Coil elements	HEA;HEP	Physio	
		1st Signal/Mode	None
ontrast	12 dog	Segments	2
Flip angle	12 deg		-
Averaging mode	Short term	Angio	
Reconstruction	Magnitude	Flow mode	Single vel.
Measurements	1	Encodings	3
Multiple series	Each measurement	Velocity enc.	90 cm/s
esolution		Direction 1	Through plane
Base resolution	120	Direction 2	A >> P
	128	Direction 3	R >> L
Phase resolution	100 %	Rephased images	On
Slice resolution	100 %	Magnitude images	On
Phase partial Fourier	Off	Magnitude sum	Off
Interpolation	Off	Phase images	On
PAT mode	GRAPPA	Subtract	Off
Accel. factor PE	2	Std-Dev-Sag	Off
Ref. lines PE	24	Std-Dev-Cor	Off
Accel. factor 3D	1	Std-Dev-Tra	Off
Ref. lines 3D	12	Std-Dev-Time	Off
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off
Reference scan mode	Separate	MIP-Cor	Off
		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off		Oli
Normalize	Off	Sequence	
B1 filter	Off	Introduction	On
Raw filter	Off		

	Elliptical scanning	Off
	Asymmetric echo	Off
	Contrasts	1
	Bandwidth	260 Hz/Px
	Flow comp.	No
-		
	RF pulse type	Normal
	RF pulse type Gradient mode	Normal Fast
-	Gradient mode RF spoiling	Fast
-	Gradient mode	Fast

 $\label{lowfl_fq_mb2f2_gre_3D_seg2} $$ \USER\AMRIT\Jen\4d_flow\fl_fq_mb2f2_gre_3D_seg2 $$$

USER: fl_fq_mb_gre_3D_seg

Voxel size: 1.6×1.6×3.0 mm Rel. SNR: 1.00

TA: 1:33

PAT: 2

Properties				
Prio Recon Defense measurement After measurement After measurement After measurement And	Proportios		Elliptical filter	Off
Before measurement Load to viewer On Inline movie Off Special sat. None		O#	Goometry	
After measurement Load to viewer On Inline movie Off Special sat. None S		Oli		Cognestial
Load to viewer				
Inline movie		On	Series	Ascending
Auto Store images		_	Special sat.	None
Load insages to graphic Off HEP			Custom	
Load images to graphic segments Auto open inline display Off	•			
Segments		_		
Auto Open inline display Off Start measurement without further preparation On Table position H Table position H Table position Tabl		Oπ		
Start measurement without further preparation Wait for user to start On Start measurements Start measurement Start measureme		0"	HEA	On
Table position H MSMA S - C - T		-	Positioning mode	RFF
Wait for user to start Single Si		On		
Nation Salar Sal		_		
Sagital R >> L				-
Slab group 1	Start measurements	single		
Slab group 1 Slabs 2 Dist. factor 100 % AutoAlign Au	Routine			
Slabs 2				
Dist factor		2		
Position				-
Orientation Transversal Phase enc. dir. A >> P Rotation 0.00 deg Phase oversampling 0 % Slice oversampling 0.0 % Slice sper slab 12 FoV read 200 mm FoV phase 100.0 % Slice thickness 3.00 mm TR 75.30 ms TE 5.91 ms Averages 1 Concatenations 2 Filter None Filter None Filiangle 12 deg Averages 1 Averages 1 Filiangle 12 deg Average ing mode Short term Averaging mode Short term Averaging mode Short term Averaging mode Short term Averaging mode Anotective in terpolation Phase resolution 10 % Base resolution 100 % Phase resolution 100 % Phase partial Fourier Off <td></td> <td></td> <td></td> <td></td>				
Phase enc. dir. A >> P Rotation			Auto Coil Select	Default
Prisse etric. off. A >> F Adjust with body coil Off			Shim mode	Tune un
No. Confirm freq. adjustment Off				•
Slice oversampling		3		
Silice Oversampling				=
Adjustment Tolerance				
FoV phase 100.0 % Slice thickness 3.00 mm Position Slocenter	Slices per slab	12		
Slice thickness 3.00 mm	FoV read	200 mm		Auto
Since tritickness Stort min Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transversal Transver	FoV phase	100.0 %	1 -	
TE	Slice thickness	3.00 mm		
R	TR	75.30 ms		
Averages	TE	5.91 ms		•
Concatenations	Averages	1		
Coll elements	_	2		
Contrast Filip angle 12 deg 2 deg Averaging mode Short term Acquisition window 240 ms Trigger pulse 1 Trigger delay 0 ms Segments 2 Phases 3 Segments 2 Phase partial Fourier Off Sice Ires De Lactor PE Acquisition 12 Acquisition 100 % Flow mode Single vel. Sing	Filter	None	F >> H	350 mm
Contrast Filip angle 12 deg 2 deg Averaging mode Short term Acquisition window 240 ms Trigger pulse 1 Trigger delay 0 ms Segments 2 Phases 3 Segments 2 Phase partial Fourier Off Sice Ires De Lactor PE Acquisition 12 Acquisition 100 % Flow mode Single vel. Sing	Coil elements	HEA:HEP	Physio	
Filip angle 12 deg Captured cycle -not set- Averaging mode Short term Reconstruction Magnitude Resonstruction Magnitude Measurements 1 Trigger pulse 1 Trigger delay 0 ms Multiple series Each measurement Segments 2 Phases 3 Resolution 128 Angio Flow mode Single vel. Slice resolution 100 % Flow mode Single vel. Slice resolution 100 % Flow mode Single vel. Slice resolution Off Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane Direction 1 Through plane Direction 1 Through plane Direction 2 A >> P Accel. factor PE 2 Ref. lines PE 24 Rephased images On Magnitude images On Magnitude images On Magnitude sum Off Phase images On Magnitude sum Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Cor Off Std-Dev-Tria Off Std-Dev-Tri	1	,		Pulse/Trigger
Averaging mode Reconstruction Measurements Multiple series Resolution Base resolution Phase partial Fourier Interpolation PAT mode Accel. factor PE Ref. lines PE Accel. factor 3D Accel. factor 3D Ref. lines 3D Matrix Coil Mode Reference scan mod				
Averaging mode Reconstruction Magnitude Trigger pulse 1 Measurements 1 Trigger pulse 1 Multiple series Each measurement Segments 2 Resolution 128 Phase resolution 100 % Flow mode Single vel. Slice resolution 100 % Flow mode Single vel. Slice resolution 100 % Flow mode Single vel. Slice resolution 0ff Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane Direction 2 A >> P Accel. factor PE 2 Ref. lines PE 24 Ref. lines PE 24 Ref. lines SD 12 Matrix Coil Mode Reference scan mode Separate Separate Subtract Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Cor Off Std-Dev-Tra Off S	Flip angle	12 deg		-
Reconstruction Magnitude Trigger pulse 1 Trigger pulse 1 Trigger pulse 1 Trigger delay 0 ms Segments 2 Phases 3 Phases 3 Phase resolution 128 Phase resolution 100 % Flow mode Single vel. Single	Averaging mode	Short term		
Measurements 1 Trigger delay 0 ms Multiple series Each measurement Segments 2 Resolution 128 Angio Phase resolution 100 % Flow mode Single vel. Slice resolution 100 % Encodings 3 Phase partial Fourier Off Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane PAT mode GRAPPA Direction 2 A >> P Accel. factor PE 2 Rephased images On Accel. factor 3D 1 Magnitude images On Ref. lines 3D 12 Magnitude sum Off Matrix Coil Mode Auto (Triple) Phase images On Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Tra Off Normalize Off Std-Dev-Time Off Normalize Off MIP-Sag Off B1 filter Off MIP-Sag Off MIP-Cor Off				
Multiple series Each measurement Segments 2 Resolution 128 Angio Phase resolution 100 % Flow mode Single vel. Slice resolution 100 % Encodings 3 Phase partial Fourier Off Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane PAT mode GRAPPA Direction 2 A >> P Accel. factor PE 2 Rephased images On Ref. lines PE 24 Rephased images On Accel. factor 3D 1 Magnitude images On Matrix Coil Mode Auto (Triple) Phase images On Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Cor Off Normalize Off Std-Dev-Time Off Normalize Off MIP-Sag Off B1 filter Off MIP-Cor Off		_		
Resolution Phases 3 Base resolution 128 Angio Phase resolution 100 % Flow mode Single vel. Slice resolution 100 % Encodings 3 Phase partial Fourier Off Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane PAT mode GRAPPA Direction 2 A >> P Accel. factor PE 2 Direction 3 R >> L Ref. lines PE 24 Rephased images On Accel. factor 3D 1 Magnitude images On Matrix Coil Mode Auto (Triple) Magnitude sum Off Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Cor Off Normalize Off Std-Dev-Time Off Normalize Off MIP-Sag Off B1 filter Off MIP-Sag Off MIP-Cor Off		•		
Base resolution 128	Waltiple Series	Lacii illeasarement		
Phase resolution 100 % Slice resolution 100 % Slice resolution 100 % Phase partial Fourier Off Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Accel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Image Filter Off Distortion Corr. Prescan Normalize Off B1	Resolution		Filases	3
Slice resolution 100 % Encodings 3 Phase partial Fourier Off Velocity enc. 90 cm/s Interpolation Off Direction 1 Through plane PAT mode GRAPPA Direction 2 A >> P Ref. lines PE 24 Ref. lines PE 24 Ref. lines 3D 12 Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Normalize Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Time Off MIP-Sag Off MIP-Cor Off MIP-Cor Off	Base resolution	128	Angio	
Slice resolution 100 % Phase partial Fourier Off Interpolation Off PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Accel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Reference scan mode Separate Image Filter Off Distortion Corr. Prescan Normalize Off Bay filter Bay filter Bay filter Bay filter Corr. Bay filter Corr. Bay filter Corr.	Phase resolution	100 %	Flow mode	Single vel.
Interpolation Off Direction 1 Through plane PAT mode GRAPPA Direction 2 A >> P Accel. factor PE 2 Ref. lines PE 24 Rephased images On Magnitude images On Magnitude sum Off Phase images On Magnitude sum Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Cor Off Std-Dev-Cor Off Std-Dev-Cor Off Std-Dev-Tra Off MIP-Sag Off MIP-Cor Off MIP-Co	Slice resolution	100 %	Encodings	
Interpolation Off Direction 1 Through plane PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Accel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Image Filter Off Std-Dev-Sag Off Std-Dev-Cor Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Tra Off Std-Dev-Time Off MIP-Sag Off MIP-Sag Off MIP-Sag Off MIP-Sag Off MIP-Cor Off MIP-Sag Off MIP-Cor Off MIP-Co	Phase partial Fourier	Off	Velocity enc.	90 cm/s
PAT mode GRAPPA Accel. factor PE 2 Ref. lines PE 24 Recel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Image Filter Off Distortion Corr. Prescan Normalize Off Normalize Off B1 filter Off B1 filter Off B2 w filter B2 birection 2 Direction 2 A >> P Direction 3 B >> L Rephased images On Magnitude sum Off Phase images On Magnitude sum Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Cor Std-Dev-Tra Off Std-Dev-Tra Off MIP-Sag Off MIP-Sag Off MIP-Cor Off	Interpolation	Off		Through plane
Accel. factor PE Ref. lines PE Accel. factor 3D Ref. lines 3D Ref. lines 3D Reference scan mode Reference				
Ref. lines PE 24 Accel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Subtract Off Distortion Corr. Off Prescan Normalize Off Normalize Off B1 filter Off B1 filter Off Raw filter Off MRephased images On Magnitude sum Off Phase images On Magnitude sum Off Phase images On Magnitude sum Off Std-Dev-Sag Off Std-Dev-Sag Off Std-Dev-Tag Off Std-Dev-Trag Off Std-Dev-Trag Off MIP-Sag Off MIP-Sag Off MIP-Sag Off MIP-Cor Off				
Accel. factor 3D 1 Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Subtract Off Distortion Corr. Off Prescan Normalize Off Normalize Off B1 filter Off B1 filter Off B2 Magnitude images On Magnitude sum Off Phase images On Magnitude sum Off Subtract Off Std-Dev-Sag Off Std-Dev-Cor Off Std-Dev-Tra Off Std-Dev-Tra Off MIP-Sag Off MIP-Sag Off MIP-Cor Off				
Ref. lines 3D 12 Matrix Coil Mode Auto (Triple) Reference scan mode Separate Subtract Off Image Filter Off Distortion Corr. Off Prescan Normalize Off Normalize Off B1 filter Off B1 filter Off MIP-Sag Off MiP-Cor Off MIP-Cor Off MIP-Cor Off				
Matrix Coil Mode Auto (Triple) Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Tra Off Normalize Off Std-Dev-Time Off B1 filter Off MIP-Sag Off MIP-Sag Off MIP-Cor Off		•		
Reference scan mode Separate Subtract Off Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Tra Off Prescan Normalize Off Std-Dev-Tra Off Normalize Off Std-Dev-Time Off B1 filter Off MIP-Sag Off MIP-Sag Off MIP-Cor Off				_
Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Cor Off Prescan Normalize Off Std-Dev-Tra Off Normalize Off Std-Dev-Time Off B1 filter Off MIP-Sag Off Raw filter Off MIP-Cor Off	Matrix Coil Mode		i nase inages	
Image Filter Off Std-Dev-Sag Off Distortion Corr. Off Std-Dev-Cor Off Prescan Normalize Off Std-Dev-Tra Off Normalize Off Std-Dev-Time Off B1 filter Off MIP-Sag Off Raw filter Off MIP-Cor Off	Reference scan mode	Separate	Subtract	Off
Distortion Corr. Off Prescan Normalize Off Normalize Off B1 filter Off Raw filter Off MIP-Sag Off MIP-Cor Off MIP-Cor Off				_
Prescan Normalize Off Normalize Off B1 filter Off Raw filter Off MIP-Cor Off MIP-Cor Std-Dev-Tra Off Std-Dev-Time Off MIP-Sag Off MIP-Cor Off			· ·	
Normalize Off Normalize Off B1 filter Off Raw filter Off MIP-Sag Off MIP-Cor Off				
Normalize Off B1 filter Off Raw filter Off MIP-Sag Off MIP-Cor Off				
Raw filter Off MIP-Cor Off				
	Raw filter	Off		
MIP-11a	•			Oil

MIP-Time Save original images	Off On
Sequence	
Introduction	On
Dimension	3D
Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	2
FOV Shift	2

Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement	Oll	Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off		Off
Load images to graphic	Off	Body HEP	
segments	Oll	HEA	On On
Auto open inline display	Off	ПСА	
Start measurement without	On	Positioning mode	REF
further preparation	Oll	Table position	Н
Wait for user to start	On	Table position	0 mm
Start measurements		MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
outine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	
Position	L0.0 P0.0 H32.4	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	12	? Ref. amplitude 1H	0.000 V
FoV read	200 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume	
Slice thickness	3.00 mm	Position	Isocenter
TR	74.85 ms	Orientation	Transversal
TE		Rotation	0.00 deg
	5.85 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1	F >> H	350 mm
Filter	None	l	
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode Segments	None 2
Flip angle	12 deg	1	_
Averaging mode	Short term	Angio	
Reconstruction	Magnitude	Flow mode	Single vel.
Measurements	1	Encodings	3
Multiple series	Each measurement	Velocity enc.	90 cm/s
•		Direction 1	Through plane
Resolution		Direction 2	A >> P
Base resolution	128	Direction 3	R >> L
Phase resolution	100 %	Rephased images	On
Slice resolution	100 %	Magnitude images	On
Phase partial Fourier	Off	Magnitude sum	Off
Interpolation	Off	Phase images	On
PAT mode	GRAPPA	Subtract	Off
Accel. factor PE	2	Std-Dev-Sag	Off
Ref. lines PE	24	Std-Dev-Cor	Off
Accel. factor 3D	1	Std-Dev-Tra	Off
Ref. lines 3D	12	Std-Dev-Time	Off
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off
Reference scan mode	Separate	MIP-Cor	Off
		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	Save original images	On
Prescan Normalize	Off		Oil
Normalize	Off	Sequence	
B1 filter	Off	Introduction	On
Raw filter	Off	•	3D

Elliptical scanning	Off Off
Asymmetric echo Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	1
FOV Shift	1

TA: 0:30 PAT: 2	Voxel size: 1.6×1.6×3.0 mm	Rel. SNR: 1.00 USER: f	fl_fq_mb_gre_3D_seg
roperties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation	Oli	Table position	Н
Wait for user to start	On	Table position	0 mm
Start measurements	single	MSMA	S - C - T
Start measurements	Sirigle	Sagittal	R >> L
outine		Coronal	A >> P
Slab group 1	_	Transversal	F >> H
Slabs	1	Coil Combine Mode	Sum of Squares
Dist. factor	100 %	AutoAlign	
Position	L0.0 P0.0 F32.4	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0.00 deg 0 %	Confirm freq. adjustment	Off
	0.0 %	Assume Silicone	Off
Slice oversampling	12	? Ref. amplitude 1H	0.000 V
Slices per slab		Adjustment Tolerance	Auto
FoV read	200 mm	Adjust volume	
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.00 mm	Orientation	Transversal
TR	74.85 ms	Rotation	0.00 deg
TE	5.85 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	1	F >> H	
Filter	None	Г >> П	350 mm
Coil elements	HEA;HEP	Physio	
ontrast		1st Signal/Mode	None
Flip angle	12 deg	Segments	2
		Angio	
Averaging mode	Short term	Flow mode	Single vel.
Reconstruction	Magnitude	Encodings	3
Measurements	1	Velocity enc.	90 cm/s
Multiple series	Each measurement	Direction 1	Through plane
esolution		Direction 1 Direction 2	A >> P
Base resolution	128		A >> P R >> L
Phase resolution	100 %	Direction 3	
Slice resolution	100 %	Rephased images	On
		Magnitude images	On O#
Phase partial Fourier	Off	Magnitude sum	Off
Interpolation	Off	Phase images	On
PAT mode	GRAPPA	Subtract	Off
Accel. factor PE	2	Std-Dev-Sag	Off
Ref. lines PE	24	Std-Dev-Cor	Off
Accel. factor 3D	1	Std-Dev-Tra	Off
Ref. lines 3D	12	Std-Dev-Time	Off
Matrix Coil Mode	Auto (Triple)	MIP-Sag	Off
Reference scan mode	Separate	MIP-Cor	Off
		MIP-Tra	Off
Image Filter	Off	MIP-Time	Off
Distortion Corr.	Off	_	On
Prescan Normalize	Off	Save original images	Oli
Normalize	Off	Sequence	
B1 filter	O#		
DT IIILEI	Off	Introduction	On

Elliptical scanning	Off
Asymmetric echo	Off
Contrasts	1
Bandwidth	260 Hz/Px
Flow comp.	No
RF pulse type	Normal
Gradient mode	Fast
RF spoiling	On
MB Number	1
FOV Shift	1

 $\label{lowfl_fq_mb2f2_gre_3D_seg2} $$\USER\AMRIT\searrow_{d_flow}fl_fq_mb2f2_gre_3D_seg2$$

USER: fl_fq_mb_gre_3D_seg

Voxel size: 1.6×1.6×3.0 mm Rel. SNR: 1.00

TA: 1:33

PAT: 2

Properties		Elliptical filter	Off
Prio Recon	Off	Geometry	
Before measurement		Multi-slice mode	Sequential
After measurement		Series	Ascending
Load to viewer	On		
Inline movie	Off	Special sat.	None
Auto store images	On	System	
Load to stamp segments	Off	Body	Off
Load images to graphic	Off	HEP	On
segments		HEA	On
Auto open inline display	Off		
Start measurement without	On	Positioning mode	REF
further preparation	3.1	Table position	Н
Wait for user to start	On	Table position	0 mm
Start measurements	single	MSMA	S - C - T
Start measurements	Sirigie	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	2	Coil Combine Mode	Sum of Squares
Dist. factor	80 %	AutoAlign	
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Tune up
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0.00 deg 0 %	Confirm freq. adjustment	Off
	0.0 %	Assume Silicone	Off
Slice oversampling		? Ref. amplitude 1H	0.000 V
Slices per slab	12	Adjustment Tolerance	Auto
FoV read	200 mm	Adjust volume	7 1010
FoV phase	100.0 %	Position	Isocenter
Slice thickness	3.00 mm	Orientation	Transversal
TR	75.30 ms	Rotation	0.00 deg
TE	5.91 ms	R >> L	350 mm
Averages	1	A >> P	263 mm
Concatenations	2		
Filter	None	F >> H	350 mm
Coil elements	HEA;HEP	Physio	
Contrast		1st Signal/Mode	Pulse/Trigger
	10 dog	Average cycle	No Signal ms
Flip angle	12 deg	Captured cycle	-not set-
Averaging mode	Short term	Acquisition window	240 ms
Reconstruction	Magnitude	Trigger pulse	1
Measurements	1	Trigger delay	0 ms
Multiple series	Each measurement	Segments	2
•		Phases	3
Resolution			•
Base resolution	128	Angio	
Phase resolution	100 %	Flow mode	Single vel.
Slice resolution	100 %	Encodings	3
Phase partial Fourier	Off	Velocity enc.	90 cm/s
Interpolation	Off	Direction 1	Through plane
DAT da	CDADDA	Direction 2	A >> P
PAT mode	GRAPPA	Direction 3	R >> L
Accel. factor PE	2	Rephased images	On
Ref. lines PE	24	Magnitude images	On
Accel. factor 3D	1	Magnitude sum	Off
Ref. lines 3D	12	Phase images	On
Matrix Coil Mode	Auto (Triple)	······	
Reference scan mode	Separate	Subtract	Off
Image Filter	Off	Std-Dev-Sag	Off
		Std-Dev-Cor	Off
Distortion Corr.	Off	Std-Dev-Tra	Off
Prescan Normalize	Off	Std-Dev-Time	Off
Normalize	Off	MIP-Sag	Off
B1 filter	Off		
Raw filter	Off	MIP-Cor	Off

	MIP-Time Save original images	Off On	
Sequence			
	Introduction	On	
	Dimension	3D	
	Elliptical scanning	Off	
	Asymmetric echo	Off	
	Contrasts	1	
	Bandwidth	260 Hz/Px	
	Flow comp.	No	
-	RF pulse type	Normal	
	Gradient mode	Fast	
	RF spoiling	On	
1.			
	MB Number	2	
	FOV Shift	2	