$\verb|\USER\Feinberg| lab \Suhyung \GRASE_IV \localizer_200V_nova| \\$ Voxel size: 1.2×1.1×3.0 mm Rel. SNR: 1.00

SIEMENS: gre

TA: 0:27

PAT: Off

Proporties Phase resolution 90 % Prio Recon Off Phase partial Fourier 8/8 Before measurement Inferensaurement 0n Management Load to viewer Inferensaurement On PAT mode None Load to stamp segments Off Distriction Corr. Off Load to stamp segments Off Distriction Corr. Off Auto store images On Prescan Normalize Off Auto open inline display Off B1 filter Off Auto open inline display Off B1 filter Off Auto open inline display Off B1 filter Off Walf or user to start Off B1 filter Off Start measurements on Millisalice mode Sequential Silce group 1 Silce group 1 Substantion Substantion Substantion Silce group 2 System Silces 5 Dist. factor 20 % M	-			
Prior Record Pri		0"		
Deficit Ressurement Load to viewer		Off		
Listed to Verwere Off Inlinge Filter Off Inlinge Filter Off Inline movies Off Of			PAT mode	None
Auto store images	Load to viewer	On		
Auto Strot in Highes Control Prescan Normalize Off Normalize Off Normalize Off Normalize Off Normalize Off Start measurement without Or Start measurement Single Series Interleaved Interl	Inline movie	Off		_
Load to stamp segments	Auto store images	On		_
Load images to graphic segments Auto open inline display Off Raw filter Off Elliptical filter Off Off Elliptical filter Off Elliptical fi		Off		
Segments				
Auto open inline display				
Statt measurement without further preparation Wait for user to start Start measurements Start measurement Start meas		Off		
further preparation Wait for user to start Start measurements single Multi-silice mode Sequential Series Interleaved Series Interleaved Series Interleaved Series Serie			Elliptical filter	Off
Wait for user to start Off Start measurements Single Series Interleaved		3	Geometry	
Start measurements		Off	-	Seguential
Saturation mode Standard				
Silce group 1 Silces 5 Dist. factor 20 % Table position H Table position Off M Table position H Table position H Table position Discenter M Table position Off Table posit	ı	g		
Silces 5			Saturation mode	Standard
Dist. factor		_	Special sat.	None
Position				
Orientation Sagittal Phase enc. dir. A >> P Inline Composing Off Phase enc. dir. A >> P Tim CT mode Off Silce group 2 Silces 5 T1 On Silce group 2 System T1 On Dist. factor 20 % M2 On Position Isocenter B4 On Orientation Coronal M3 On Phase enc. dir. R >> L V32 Off Slice group 3 Silce group 3 Silce group 3 Silce group 3 Silce group 3 FX Slice group 3 Silce group 4 Silce group 4 Silce group 4				Н
Phase enc. dir. A >> P				0 mm
Rotation Slice group 2 System System System System Silces S Silces S T1 On M2 On Position Socenter B4 On M3 M3 M3 On M3 M3 M3 M3 M3 M3 M3 M			Inline Composing	Off
Slice group 2 Slices 5 T1 On			Tim CT mode	Off
Silces 5		0.00 deg	Tim C1 mode	Oli
Dist. factor			System	
Position			T1	On
Orientation Coronal BH Off Phase enc. dir. R >> L V32 Off Rotation 0.00 deg Positioning mode FIX Slice group 3 5 MSMA S - C - T Slices 5 Dist. factor 20 % Sagittal R >> L Position Isocenter Coronal A >> P Orientation Transversal F >> H Phase enc. dir. A >> P Save uncombined On Phase enc. dir. A >> P Save uncombined On Phase oversampling 0 % AutoAldign FoV read 280 mm AutoCoil Select Off FoV phase 100.0 % Shim mode Tune up Slice thickness 3.0 mm Confirm freq. adjustment Off TR 10.0 ms Confirm freq. adjustment Off Averages 1 Rasplictone Auto Adjustment Tolerance Auto Adjustment Tolerance Contrast Off R >> L 350 mm Position			M2	On
Phase enc. dir. R >> L V32			B4	On
Rotation	Orientation		M3	On
Slice group 3 Slices 5			V32	Off
Slices		0.00 deg		— D./
Dist. factor 20 % Sagittal R >> L				
Position			_	
Orientation Transversal F>> H Phase enc. dir. A >> P Save uncombined On Rotation 0.00 deg Coil Combine Mode Sum of Squares Phase oversampling 0 % AutoAlign		20 %		· · · · · =
Phase enc. dir.				
Rotation				
Phase oversampling				_
FoV read		•		-
FoV phase	Phase oversampling			
Fov phase				~ ··
Slice thickness 3.0 mm TR 10.0 ms TE 3.00 ms Averages 1 1.5 Efilter None Coil elements B4;M2,3;T1 TD 0 ms Rotation None Flip angle 10 deg Fat suppr. Water suppr. Water suppr. SWI Off Averaging mode Reconstruction Magnitude Measurements 1 Multiple series Each measurement Inline I				
TR 10.0 ms TE 3.00 ms Averages 1 Concatenations 15 Filter None Coil elements B4;M2,3;T1 Contrast Adjustment Tolerance Adjust volume Position Isocenter Orientation Transversal Rotation 0.00 deg MTC Off Magn. preparation None Flip angle 10 deg Fat suppr. None Water suppr. None SWI Off Averaging mode Short term Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Inline				•
Averages				
Averages Concatenations Filter None Coil elements B4;M2,3;T1 Contrast TD Off Magn. preparation Filp angle Fat suppr. Water suppr. SWI Averaging mode Reconstruction Measurements Multiple series Resolution Isocenter Position Adjust volume Position Florance Adjust volume Position Rotation Position None For the position None Position Florance Adjust volume Position Rotation None Position Florance Adjust volume Position Florance Adjust volume Position Florance Adjust volume Position Florance Adjust volume Position For the position Florance Adjust volume Position Flor				
Concatenations Filter None Coil elements B4;M2,3;T1 Position Orientation Filter Footion Filter Orientation Filter Orientation Filter Footion Filter Orientation Filter Footion Filter Orientation Filter Footion Filter Orientation Footion Footion Filter Orientation Footion Footion Footion Filter Footion Filter Orientation Footion Footion Footion Filter Footion Filter Footion Footio				
Adjust volume				
Contrast TD 0 ms MTC Off R >> L 350 mm Magn. preparation None Flip angle 10 deg Fat suppr. Water suppr. None SWI Off SWI Off Segments 1 Averaging mode Reconstruction Magnitude Resolution Magnitude Measurements 1 Multiple series Each measurement Rotation Isocenter Position Isocenter Orientation Transversal Rotation 0.00 deg R >> L 350 mm Physio From Syll Signal/Mode None Segments 1 Tagging None Off None Dark blood Off Resp. control Off Resolution Inline	1 -			
Contrast Orientation Transversal TD 0 ms Rotation 0.00 deg MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None 1st Signal/Mode None SWI Off Segments 1 Averaging mode Short term Tagging None Resonstruction Magnitude Dark blood Off Measurements 1 Resp. control Off Resolution Inline Off	Coil elements	B4;M2,3;T1		Isocenter
TD 0 ms Rotation 0.00 deg MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None 1st Signal/Mode None SWI Off Segments 1 Averaging mode Short term Tagging None Reconstruction Magnitude Dark blood Off Measurements 1 Resp. control Off Resolution Inline	Contrast			
MTC Off R >> L 350 mm Magn. preparation None A >> P 263 mm Flip angle 10 deg F >> H 350 mm Fat suppr. None Physio Water suppr. None 1st Signal/Mode None SWI Off Segments 1 Averaging mode Short term Tagging None Reconstruction Magnitude Dark blood Off Measurements 1 Resp. control Off Resolution Inline Inline		0 ms	Rotation	0.00 deg
Magn. preparation Flip angleNoneA >> P263 mmFlip angle10 degF >> H350 mmFat suppr.NonePhysioWater suppr.None1st Signal/ModeNoneSWIOffSegments1Averaging mode Reconstruction Measurements Multiple seriesShort term Magnitude Magnitude MeasurementTagging Dark blood Resp. controlNone OffResolutionResp. controlOff				
Flip angle 10 deg F >> H 350 mm Fat suppr. None Water suppr. None SWI Off 1st Signal/Mode None Segments 1 Averaging mode Short term Feconstruction Magnitude Measurements 1 Multiple series Each measurement Resp. control Off Resolution Inline			A >> P	
Fat suppr. None Water suppr. None SWI Off Segments 1 Averaging mode Reconstruction Magnitude Measurements 1 Multiple series Each measurement Resolution Inline Physio Physio Physio 1st Signal/Mode None Segments 1 Tagging None Dark blood Off Resp. control Off Resp. control Off			F >> H	
Water suppr. SWI Off Segments 1 Averaging mode Short term Reconstruction Magnitude Measurements Multiple series Resolution None Tagging None Dark blood Off Resp. control Off Resp. control Off Inline		<u> </u>	Dhysia	
SWI Off Segments 1 Averaging mode Short term Tagging None Park blood Off Multiple series Each measurement Resolution Resolution Inline				Niere
Averaging mode Short term Tagging None Reconstruction Magnitude Dark blood Off Measurements 1 Resp. control Off Resolution Inline				
Reconstruction Magnitude Dark blood Off Measurements 1 Multiple series Each measurement Resp. control Off Resolution Inline	Averaging mode	Short torm		I
Measurements 1 Multiple series Each measurement Resolution Nagnitude Dark blood Off Resp. control Off Inline			Tagging	None
Multiple series Each measurement Resp. control Off Resolution Inline		iviagnitude		Off
Resolution Inline		Took was a service of		O#
	iviuitiple series	⊏acn measurement	Resp. control	OII
Base resolution 256 Subtract Off				
	Base resolution	256	Subtract	Off

Liver registration Std-Dev-Sag Std-Dev-Cor Std-Dev-Tra Std-Dev-Time MIP-Sag MIP-Cor MIP-Tra MIP-Time	Off
Save original images	On
Wash - In	Off
Wash - Out	Off
TTP	Off
PEI	Off
MIP - time	Off
MapIt	None
Contrasts	1

Sequence

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

\\USER\Feinberglab\Suhyung\GRASE_IV\b1map_200V_TR1000_nova

TA: 1:09	Voxel size: 3.9×3.9×5.0 mm	•	: b1map_658
Properties		M3 V22	On Off
Prio Recon	Off	V32	OII
Before measurement		Positioning mode	FIX
After measurement		MSMA	S - C - T
Load to viewer	On	Sagittal	R >> L
Inline movie	Off	Coronal	A >> P
Auto store images	On	Transversal	F >> H
Load to stamp segments	Off	Save uncombined	Off
Load images to graphic	Off	Coil Combine Mode	Adaptive Combine
segments		AutoAlign	
Auto open inline display	Off	Auto Coil Select	Default
Start measurement without	On	Shim mode	Tune up
further preparation	0"	Adjust with body coil	Off
Wait for user to start	Off	Confirm freq. adjustment	Off
Start measurements	single	Assume Silicone	Off
Routine		! Ref. amplitude 1H	200.000 V
Slice group 1		Adjustment Tolerance	Auto
Slices	10	Adjust volume	
Dist. factor	100 %	Position	Isocenter
Position	R0.7 A36.4 H11.5	Orientation	Transversal
Orientation	Transversal	Rotation	0.00 deg
Phase enc. dir.	A >> P	R >> L	350 mm
Rotation	0.00 deg	A >> P	263 mm
FoV read	250 mm	F >> H	350 mm
FoV phase	100.0 %	1	
Slice thickness	5 mm	Composing	
TR	1000 ms	Sequence	
TE 1	14 ms	Contrasts	2
TE 2	14 ms	Bandwidth	260.416667 Hz/Px
Averages	1		
Filter	None	T1 Compensation	Mean T1
Coil elements	B4;M2,3;T1	Mean T1	1000.0 ms
Contract		Angles	1
Contrast	00 da ::	Amplitude Weighting	Linear
Flip angle 1	90 deg	Scale Bar	Enabled
Flip angle 2	120 deg	Raw Data	Disabled
Flip angle 3	60 deg		
Flip angle 4	135 deg		
Flip angle 5	45 deg		
Measurements	1		
Resolution Base resolution	64		
Phase resolution	6 4 100 %		
Raw filter	Off		
Geometry	VII		
Series	Interleaved		
Navigator 1			
Position	R2.0 P26.3 F10.8		
Orientation	Transversal		
Rotation	0.00 deg		
Base size phase	50 mm		
Base size read	119 mm		
Thickness	50 mm		
Table position	Н		
Table position	0 mm		
Inline Composing	Off		
System			
T1	On		
M2	On		
B4	On	3/4	

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Regular_PSF_Par8_SH TA: 0:30 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_SH

Properties		Prescan Normalize	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Geometry	
After measurement		Series	Interleaved
Load to viewer	On	Sat. region 1	
Inline movie	Off	Thickness	22 mm
Auto store images	On	Position	Isocenter
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments			
Auto open inline display	Off	Table position	Н
Start measurement without	On	Table position	0 mm
further preparation	0"	Inline Composing	Off
Wait for user to start	Off	System	
Start measurements	single		On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter	Positioning mode	DEE
Orientation	Transversal	Positioning mode MSMA	REF S - C - T
Phase enc. dir.	A >> P	_	8 - C - 1 R >> L
Rotation	0.00 deg	Sagittal Coronal	K >> L A >> P
Phase oversampling	0 %	Transversal	F >> H
Slice oversampling	0.0 %	Save uncombined	Off
Slices per slab	8	Coil Combine Mode	Adaptive Combine
FoV read	104 mm	AutoAlign	
FoV phase	25.0 %	Auto Coil Select	Default
Slice thickness	0.8 mm		
TR	3000 ms	Shim mode	Standard
TE	41.24 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1 None	Assume Silicone	Off
Filter Coil elements	None B4;M2,3;T1	? Ref. amplitude 1H	0.000 V
Con elements	D4,IVI2,3,1 1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
Magn. preparation	None	Position	Isocenter
Flip angle	180 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
Fat sat. mode	Strong	R >> L A >> P	104 mm 26 mm
Averaging mode	Long term	F >> H	7 mm
Reconstruction	Magnitude		7 111111
Measurements	10	Physio	
Pause after meas. 1	0.0 s	1st Signal/Mode	None
Pause after meas. 2	0.0 s	Composing	
Pause after meas. 3	0.0 s	Composing	
Pause after meas. 4	0.0 s	Sequence	
Pause after meas. 5	0.0 s	Introduction	Off
Pause after meas. 6	0.0 s	Dimension	3D
Pause after meas. 7	0.0 s	Reordering	Centric
Pause after meas. 8	0.0 s	Contrasts	1
Pause after meas. 9	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Resolution		Turbo factor	5
Base resolution	128	EPI factor	32
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice resolution Slice partial Fourier	5/8		
	Off	refocussing type	sinc 2560
I Internolation			11/1
Interpolation		flip angle excit	90
PAT mode	None	phase encoding Maxwell compensation	OFF Off

ICE program	single
prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16.0
refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Regular_PSF_Par20_SH TA: 0:30 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_SH

Properties		Prescan Normalize	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Geometry	
After measurement		Series	Interleaved
Load to viewer	On	Sat. region 1	
Inline movie	Off	Thickness	22 mm
Auto store images	On	Position	Isocenter
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Off	Special sat.	None
segments			
Auto open inline display	Off	Table position	Н
Start measurement without	On	Table position	0 mm
further preparation		Inline Composing	Off
Wait for user to start	Off	System	
Start measurements	single	T1	On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter		
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	MSMA	S-C-T
Rotation	0.00 deg	Sagittal	R >> L
Phase oversampling	0 %	Coronal	A >> P
Slice oversampling	0.0 %	Transversal	F >> H
Slices per slab	20	Save uncombined	Off
FoV read	104 mm	Coil Combine Mode	Adaptive Combine
FoV phase	25.0 %	AutoAlign	Default
Slice thickness	0.8 mm	Auto Coil Select	Default
TR	3000 ms	Shim mode	Standard
TE	41.24 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
Magn. preparation	None	Position	Isocenter
Flip angle	180 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
Fat sat. mode	Strong	R >> L	104 mm
A variation and de	Law at tame	A >> P	26 mm
Averaging mode	Long term	F >> H	16 mm
Reconstruction	Magnitude	Physio	
Measurements Pause after meas. 1	10 0.0 s	1st Signal/Mode	None
Pause after meas. 2	0.0 s 0.0 s	,	
Pause after meas. 3	0.0 s	Composing	
Pause after meas. 4	0.0 s	Sequence	
Pause after meas. 5	0.0 s	Introduction	Off
Pause after meas. 6	0.0 s	Dimension	3D
Pause after meas. 7	0.0 s	Reordering	Centric
Pause after meas. 8	0.0 s	Contrasts	1
Pause after meas. 9	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
		Turbo factor	13
Resolution	400	Turbo factor EPI factor	13 32
Base resolution	128	RF pulse type	32 Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %	Gradient mode	ı ası
Slice partial Fourier	5/8	refocussing type	sinc 2560
latana alatian			
Interpolation	Off	flip angle excit	90
Interpolation PAT mode	Off None	flip angle excit phase encoding Maxwell compensation	90 OFF Off

ICE program	single
prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16.0
refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

 $\verb|\USER\Feinberg| lab| Suhyung \\| GRASE_IV \\| BP_grase_clean_IV_VFL_PSF_SH| \\| SH_IV \\| SH_$

Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00

TA: 0:30

USER: BP_grase_clean_IV_SH

171. 0.00	V 0XC1 3120. 0.0X0.0X0.0 111111	TOIL OTAK: 1.00 GOETK: I	
Properties		Prescan Normalize	Off
Prio Recon	Off	Raw filter	Off
Before measurement		Geometry	
After measurement		Series	Interleaved
Load to viewer	On		
Inline movie	Off	Sat. region 1	
Auto store images	On	Thickness	22 mm
Load to stamp segments	Off	Position	Isocenter
Load images to graphic	Off	Orientation	Coronal
segments	311	Special sat.	None
Auto open inline display	Off	Table position	ш
Start measurement without	On	Table position	H
	Oli	Table position	0 mm
further preparation Wait for user to start	Off	Inline Composing	Off
		System	
Start measurements	single	T1	On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter	V JZ	OII
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	MSMA	S - C - T
		Sagittal	R >> L
Rotation	0.00 deg	Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
Slice oversampling	0.0 %	Save uncombined	Off
Slices per slab	20	Coil Combine Mode	Adaptive Combine
FoV read	104 mm	AutoAlign	
FoV phase	25.0 %	Auto Coil Select	Default
Slice thickness	0.8 mm	Auto Coli Select	Derauit
TR	3000 ms	Shim mode	Standard
TE	41.24 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
		Adjust volume	Auto
Contrast		Position	Isocenter
Magn. preparation	None	Orientation	Transversal
Flip angle	180 deg	Rotation	0.00 deg
Fat suppr.	Fat sat.	R >> L	104 mm
Fat sat. mode	Strong	A >> P	26 mm
Averaging mode	Long term	F >> H	16 mm
Reconstruction		Г >> П	10 111111
Measurements	Magnitude 10	Physio	
Pause after meas. 1	0.0 s	1st Signal/Mode	None
Pause after meas. 2	0.0 s	Composing	
Pause after meas. 3	0.0 s	Sequence	
Pause after meas. 4	0.0 s	Introduction	Off
Pause after meas. 5	0.0 s	Dimension	3D
Pause after meas. 6	0.0 s		Centric
Pause after meas. 7	0.0 s	Reordering Contrasts	1
Pause after meas. 8	0.0 s	Bandwidth	1 1148 Hz/Px
Pause after meas. 9	0.0 s		
Multiple series	Off	Echo spacing	1 ms
Resolution		Turbo factor	13
Base resolution	128	EPI factor	32
	_	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %		. 401
Slice partial Fourier	5/8	refocussing type	variable sinc
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	OFF
		Maxwell compensation	Off
		i ·	

ICE program	single
prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16.0
refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

\\USER\Fein	berglab\Suhyung\GRASE_IV	\BP_grase_clean_IV_TE37	_Regular_SH
TA: 4:39 PAT: Off	Voxel size: 0.8x0.8x0.8 mm	Rel. SNR: 1.00 USER: B	BP_grase_clean_IV_SH
Properties		Orientation	Coronal
Prio Recon	Off	Special sat.	None
Before measurement	Oil	Table position	⊔
After measurement		Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	Inline Composing	Oli
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments	OII	B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	0.11	Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
I	g	Coronal	A >> P
Routine		Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1	Coil Combine Mode	Adaptive Combine
Dist. factor	0 %	AutoAlign	
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal		
Phase enc. dir.	A >> P	Shim mode	Standard
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	8	? Ref. amplitude 1H	0.000 V
FoV read	96 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
ŢĒ	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations	1	A >> P	24 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast Magn. preparation	None	1st Signal/Mode	None
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long torm	Dimension	3D
Averaging mode Reconstruction	Long term Magnitude	Reordering	Centric
Measurements	93	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Resolution	.	Turbo factor	5
Base resolution	128	EPI factor	32
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8		-i 0500
Interpolation	Off	refocussing type	sinc 2560
	OII	flip angle excit	90 ON
PAT mode	None	phase encoding Maxwell compensation	ON Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
Coometry		excite duration	2560
Geometry	lata da aya d	refoc duration	2560
Series	Interleaved	excite BWTP	16.0
Sat. region 1		refoc BWTP	8.0
Thickness	20 mm	Opposite Polarity Crusher	Off

Opposite Polarity Crusher

pre-crusher

Off

38000

Thickness

Position

20 mm

Isocenter

post-crusher1	38000
post-crusher2	38000
post-crusher3	38000
post-crusher4	38000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_TE37_VFL_SH				
TA: 4:39 PAT: Off	Voxel size: 0.8×0.8×0.8 mm	-	P_grase_clean_IV_SH	
Properties		Orientation	Coronal	
Prio Recon	Off	Special sat.	None	
Before measurement		Table position	Н	
After measurement		Table position	0 mm	
Load to viewer	On	Inline Composing	Off	
Inline movie	Off		O.I.	
Auto store images	On	System		
Load to stamp segments	Off	T1	On	
Load images to graphic	Off	M2	On	
segments	Oll	B4	On	
Auto open inline display	Off	M3	On	
Start measurement without	On	V32	Off	
further preparation	Oli	Desitioning mode	DEE	
Wait for user to start	Off	Positioning mode	REF	
Start measurements		MSMA	S-C-T	
Start measurements	single	Sagittal	R >> L	
Routine		Coronal	A >> P	
Slab group 1		Transversal	F >> H	
Slabs	1	Save uncombined	Off	
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine	
Position	Isocenter	AutoAlign		
Orientation	Transversal	Auto Coil Select	Default	
Phase enc. dir.	A >> P	Shim mode	Standard	
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	20	? Ref. amplitude 1H	0.000 V	
FoV read	94 mm	Adjustment Tolerance	Auto	
FoV phase	25.0 %		Auto	
Slice thickness	0.8 mm	Adjust volume	lacacatan	
TR	3000 ms	Position	Isocenter	
TE TE	37.7 ms	Orientation	Transversal	
Averages	1	Rotation	0.00 deg	
Concatenations	1	R >> L	94 mm	
Filter	None	A >> P	24 mm	
Coil elements		F >> H	16 mm	
Con elements	B4;M2,3;T1	Physio		
Contrast		1st Signal/Mode	None	
Magn. preparation	None	Composing		
Flip angle	180 deg			
Fat suppr.	Fat sat.	Sequence		
Fat sat. mode	Strong	Introduction	Off	
Averaging mode	Long term	Dimension	3D	
Reconstruction	Magnitude	Reordering	Centric	
Measurements	93	Contrasts	1	
Pause after meas.	0.0 s	Bandwidth	1144 Hz/Px	
Multiple series	Off	Echo spacing	1 ms	
Resolution		Turbo factor	13	
Base resolution	112	EPI factor	28	
Phase resolution	100 %	RF pulse type	Normal	
Slice resolution	100 %	Gradient mode	Fast	
Slice partial Fourier	5/8	reference to the	voriable size	
Interpolation	Off	refocussing type	variable sinc	
	·····	flip angle excit	90 ON	
PAT mode	None	phase encoding	ON O#	
Process Normaliza	Off	Maxwell compensation	Off	
Prescan Normalize	Off	ICE program	single	
Raw filter	Off	prepscans	0	
Geometry		excite duration	2560	
Series	Interleaved	refoc duration	2560	
		excite BWTP	16.0	
Sat. region 1	00	refoc BWTP	8.0 Off	
Thickness	20 mm	Opposite Polarity Crusher	UIII	

Opposite Polarity Crusher

pre-crusher

Off

40000

Thickness

Position

20 mm

Isocenter

40000
40000
40000
40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Regular_MC_CGR_FA180
TA: 0:15 PAT: Off Voxel size: 1.0×1.0×5.0 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_MC_SH

	Special sat.	None
Off	Table position	Н
		0 mm
		Off
On		
On		On
_		On
		On
		On
Off	V32	Off
	Positioning mode	REF
		S-C-T
Off		R >> L
		A >> P
cg.c		F >> H
		Off
		Adaptive Combine
1		
0 %		 Default
Isocenter	Auto Coll Select	
Transversal	Shim mode	Standard
A >> P	Adjust with body coil	Off
0.00 deg		Off
0 %		Off
112 mm		0.000 V
25.0 %		Auto
5.0 mm		
3000 ms		Isocenter
36.76 ms		Transversal
1		0.00 deg
1		112 mm
None		28 mm
B4:M2.3:T1		5 mm
, ,-,		· · · · · ·
None		None
	1st Signal/Mode	None
•	Composing	
	Casuanas	
Long term		Off
Magnitude		2D
5	_	Centric
0.0 s		1
0.0 s		1144 Hz/Px
0.0 s	Echo spacing	1 ms
0.0 s	Turbo factor	5
		28
On		-0
3		Normal
	RF pulse type Gradient mode	Normal Fast
112	RF pulse type Gradient mode	Fast
112 100 %	RF pulse type Gradient mode refocussing type	Fast sinc 2560
112	RF pulse type Gradient mode refocussing type flip angle excit	Fast sinc 2560 90
112 100 %	RF pulse type Gradient mode refocussing type flip angle excit phase encoding	Fast sinc 2560 90 ON
112 100 % Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Fast sinc 2560 90 ON Off
112 100 % Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Fast sinc 2560 90 ON Off single
112 100 % Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Fast sinc 2560 90 ON Off single 0
112 100 % Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	Fast sinc 2560 90 ON Off single 0 2560
112 100 % Off None Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	Fast sinc 2560 90 ON Off single 0 2560 2560
112 100 % Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Fast sinc 2560 90 ON Off single 0 2560 2560 16.0
112 100 % Off None Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0
112 100 % Off None Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Fast sinc 2560 90 ON Off single 0 2560 2560 16.0
112 100 % Off None Off Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0
	On Off On Off On Off Off Off Off Off On Off On Off Single 1 0 % Isocenter Transversal A >> P 0.00 deg 0 % 112 mm 25.0 % 5.0 mm 3000 ms 36.76 ms 1 1 None B4;M2,3;T1 None B4;M2,3;T1 None Table Tabl	Off Table position Table position Inline Composing On System Off T1 Off M2 Off B4 M3 V32 On Positioning mode MSMA Sagittal Coronal Transversal Save uncombined Coil Combine Mode AutoAlign Auto Coil Select Shim mode Adjust with body coil Confirm freq. adjustment Assume Silicone 12 mm Ref. amplitude 1H 25.0 % Adjust with Derrance Adjust volume 3000 ms Position 36.76 ms Orientation 1 R> > L A > P None A > P B4;M2,3;T1 F > H Physio Tst Signal/Mode Long term Introduction Magnitude Sequence Long term Introduction Magnitude Reordering Contrasts Bandwidth Echo spacing

post-crusher2	37500
post-crusher3	37500
post-crusher4	37500

	\\USER\Fei	inberglab\Suhyung\GRASE_	IV\BP_grase_clea	an_IV_Regular_MC_VGR_FA180
TA: 0:15	PAT: Off	Voxel size: 1.0×1.0×5.0 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_MC_SH

Properties		Special sat.	None
Prio Recon	Off	Table position	H
Before measurement		Table position	0 mm
After measurement		Inline Composing	Off
Load to viewer	On		
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments		M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On	Positioning mode	REF
further preparation		MSMA	S - C - T
Wait for user to start	Off	Sagittal	R >> L
Start measurements	single	Coronal	A >> P
l	3 -	Transversal	F >> H
Routine		Save uncombined	Off
Slice group 1		Coil Combine Mode	Adaptive Combine
Slices	1	AutoAlign	
Dist. factor	0 %	Auto Coil Select	Default
Position	Isocenter		
Orientation	Transversal	Shim mode	Standard
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0 %	Assume Silicone	Off
FoV read	112 mm	? Ref. amplitude 1H	0.000 V
FoV phase	25.0 %	Adjustment Tolerance	Auto
Slice thickness	5.0 mm	Adjust volume	
TR TE	3000 ms	Position	Isocenter
	36.76 ms 1	Orientation	Transversal
Averages Concatenations	1	Rotation	0.00 deg
Filter	None	R >> L	112 mm
Coil elements	B4;M2,3;T1	A >> P	28 mm
Con elements	D4,IVI2,3,11	F >> H	5 mm
Contrast		Physio	
Magn. preparation	None	1st Signal/Mode	None
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Composing	
Fat sat. mode	Strong	Sequence	
Averaging mode			Off
Reconstruction	Long term	Introduction	Off
	•	Dimension	2D
Measurements	Long term Magnitude 5	Dimension Reordering	
	Magnitude	Dimension Reordering Contrasts	2D Centric 1
Measurements	Magnitude 5	Dimension Reordering Contrasts Bandwidth	2D Centric 1 1144 Hz/Px
Measurements Pause after meas. 1	Magnitude 5 0.0 s	Dimension Reordering Contrasts	2D Centric 1
Measurements Pause after meas. 1 Pause after meas. 2	Magnitude 5 0.0 s 0.0 s	Dimension Reordering Contrasts Bandwidth Echo spacing	2D Centric 1 1144 Hz/Px 1 ms
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	Magnitude 5 0.0 s 0.0 s 0.0 s	Dimension Reordering Contrasts Bandwidth	2D Centric 1 1144 Hz/Px
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor	2D Centric 1 1144 Hz/Px 1 ms
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	2D Centric 1 1144 Hz/Px 1 ms 5 28
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.10 s 0.10 s 0.10 s	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 f 112 100 % Off	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s 0.10 s 0.10 s 0.10 s	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Off	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Interleaved	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1 Thickness	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Off Interleaved	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Opposite Polarity Crusher	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0 Off
Measurements Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1	Magnitude 5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Interleaved	Dimension Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	2D Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0

post-crusher2	50000
post-crusher3	25000
post-crusher4	50000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Regular_MC_CGR_FA140
TA: 0:15 PAT: Off Voxel size: 1.0×1.0×5.0 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_MC_SH

Properties		Special sat.	None
Prio Recon	Off	Table position	H
Before measurement		Table position	0 mm
After measurement		Inline Composing	Off
Load to viewer	On		
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	.	M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On	Positioning mode	REF
further preparation	311	MSMA	S-C-T
Wait for user to start	Off	Sagittal	R >> L
Start measurements	single	Coronal	A >> P
l	Single	Transversal	F >> H
Routine		Save uncombined	Off
Slice group 1		Coil Combine Mode	Adaptive Combine
Slices	1	AutoAlign	Adaptive Combine
Dist. factor	0 %	Auto Coil Select	Default
Position	Isocenter	Auto Coli Select	
Orientation	Transversal	Shim mode	Standard
Phase enc. dir.	A >> P	Adjust with body coil	Off
Rotation	0.00 deg	Confirm freq. adjustment	Off
Phase oversampling	0 %	Assume Silicone	Off
FoV read	112 mm	? Ref. amplitude 1H	0.000 V
FoV phase	25.0 %	Adjustment Tolerance	Auto
Slice thickness	5.0 mm	Adjust volume	
TR	3000 ms	Position	Isocenter
TE	36.76 ms	Orientation	Transversal
Averages	1	Rotation	0.00 deg
Concatenations	1	R >> L	112 mm
Filter	None	A >> P	28 mm
Coil elements	B4;M2,3;T1	F >> H	5 mm
Contrast		Physio	
Magn. preparation	None	1st Signal/Mode	None
Flip angle	140 deg	1	None
Fat suppr.	Fat sat.	Composing	
Fat sat. mode	Strong	Sequence	
		Introduction	Off
Averaging mode	Long term		Oli
Reconstruction	Magnitude	Dimension	2D
	Magnitude	Dimension Reordering	2D Centric
Measurements	5	Reordering	2D Centric 1
Pause after meas. 1	5 0.0 s	Reordering Contrasts	Centric 1
Pause after meas. 1 Pause after meas. 2	5 0.0 s 0.0 s	Reordering Contrasts Bandwidth	Centric 1 1144 Hz/Px
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	5 0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth Echo spacing	Centric 1 1144 Hz/Px 1 ms
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	5 0.0 s 0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth Echo spacing Turbo factor	Centric 1 1144 Hz/Px 1 ms
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	5 0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	Centric 1 1144 Hz/Px 1 ms 5 28
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4	5 0.0 s 0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series	5 0.0 s 0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	Centric 1 1144 Hz/Px 1 ms 5 28
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution	5 0.0 s 0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution	5 0.0 s 0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation	5 0.0 s 0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution	5 0.0 s 0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation	5 0.0 s 0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1 Thickness	5 0.0 s 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Off Interleaved	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP Opposite Polarity Crusher	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0 Off
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1	5 0.0 s 0.0 s 0.0 s 0.0 s Off 112 100 % Off None Off Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0

07500
37500
37500
37500

	\\USER\Fe	inberglab\Suhyung\GRASE_	IV\BP_grase_clea	an_IV_Regular_MC_VGR_FA140	
TA: 0:15	DΔT· ∩ff	Vovel size: 1 0v1 0v5 0 mm	Ral SNR: 1 00	LISER: RP grase clean IV Regular MC S	н

Prio Recon Def Table position H Table position Omm Table position Omm Inline Composing Off Table position Omm Inline Composing Off Table position Omm Inline Composing Off Omm Table position Omm Inline Composing Off Omm Table position Omm Inline Composing Off Omm Table position Omm	Properties		Special sat.	None
Before measurement Load to viewer		Off	Table position	Н
After measurement Load to viewer On Inline movie				
Load to viewer				-
Inline movie		On	1	
Auto store images		_		
Load to stamp segments				
Load images to graphic segments Auto open inline display Off W32				_
Segments				_
Auto Open inline display		.		_
Statt measurement without On Wait for user to start Off Sagittal R >> L Coronal A >> P		Off	V32	Off
further preparation Walf for user to start Sagittal R > L			Positioning mode	REF
Walt for user to start Off Start measurements Single Coronal A >> P		011		
Statt measurements		Off		
Routine				
Silice group 1	ı	Single		
Silce group 1 Silces 1	Routine			
Silcas	Slice group 1			
Dist. tectury Desition Secenter				Adaptive Combine
Position Societies	Dist. factor	0 %		Default
Phase enc. dir. A >> P Adjust with body coil Off Rotation 0.00 deg Adjust with body coil Off Phase oversampling 0 % Assume Silicone Off FoV phase 25.0 % Adjustment Tolerance Auto Silice thickness 5.0 mm Adjustment Tolerance Auto Silice thickness 5.0 mm Adjust volume Tolerance TR 3000 ms Position Isocenter TR 3000 ms Position Isocenter Concatenations 1 Rotation 0.00 deg Averages 1 Rotation 0.00 deg Contract Physio Position Isocenter Coll elements B4;M2,3;T1 F > H 5 mm Contrast Physio Ist Signal/Mode None Filip angle 140 deg Composing Ist Signal/Mode None Averaging mode Long term Recondering Centric Averaging mode Long term Recondering Centric	Position	Isocenter	Auto Coil Select	
Rotation			Shim mode	Standard
Rotation 0.00 deg Phase oversampling 0 % Assume Silicone Off	Phase enc. dir.	A >> P	Adjust with body coil	Off
Phase oversampling	Rotation	0.00 deg		Off
FoV phase	Phase oversampling	0 %		Off
FoV phase 25.0 % Adjustment Tolerance Auto	FoV read	112 mm	? Ref. amplitude 1H	0.000 V
Silice thickness TR	FoV phase	25.0 %		Auto
TR 3000 ms Position Isocenter TE 36.76 ms Orientation Transversal Averages 1 Rotation 0.00 deg Concatenations 1 Rotation 0.00 deg Filter None A >> P 28 mm Coil elements B4;M2,3;T1 F >> H 5 mm Contrast Physio Test sat. Test sat. None Test sat. Magn. preparation Flip angle 140 deg Composing None Test sat. None Test sat. Composing None Test sat. Off Description Deff Test sat. Test sat. Contrasts 1 Test sat	Slice thickness	5.0 mm		
Averages	TR	3000 ms		Isocenter
Concatenations 1 R >> L 112 mm Filter None A >> P 28 mm Coil elements B4;M2,3;T1 F >> H 5 mm Contrast Magn. preparation None Physio Flip angle 140 deg Composing Fat sat. mode Strong Sequence Averaging mode Long term Introduction Off Reconstruction Magnitude Sequence Centric Measurements 5 Reordering Centric Pause after meas. 1 0.0 s Contrasts 1 Pause after meas. 2 0.0 s Bandwidth 1144 Hz/Px Pause after meas. 3 0.0 s Echo spacing 1 ms Pause after meas. 4 0.0 s Turbo factor 5 Resolution Turbo factor 5 EPI factor 28 Resolution RF pulse type Normal Gradient mode Fast Phase resolution 110 refocussing type sinc 2560	TE	36.76 ms	Orientation	
Concatenations 1 R > L 112 mm Filter None A >> P 28 mm Coil elements B4;M2,3;T1 F >> H 5 mm Contrast Magn. preparation None Physio Flip angle 140 deg Composing Fat sat. mode Strong Sequence Averaging mode Long term Introduction Off Reconstruction Magnitude Dimension 2D Measurements 5 Reordering Centric Pause after meas. 1 0.0 s Contrasts 1 Pause after meas. 2 0.0 s Bandwidth 1144 Hz/Px Echo spacing 1 ms 1 ms Pause after meas. 3 0.0 s Turbo factor 5 Resolution Turbo factor 5 EPI factor 28 Resolution RF pulse type Normal Gradient mode Fast PAT mode None Maxwell compensation Off Off ICE program si	Averages	1	Rotation	0.00 deg
Coil elements B4;M2,3;T1 F >> H 5 mm Contrast Physio Magn. preparation None 1st Signal/Mode None Flip angle 140 deg Composing Fat suppr. Fat sat. Composing Fat sat. mode Strong Sequence Averaging mode Reconstruction Long term Introduction Off Measurements 5 Reordering Centric Pause after meas. 1 0.0 s Bandwidth 1144 Hz/Px Pause after meas. 2 0.0 s Echo spacing 1 ms Pause after meas. 3 0.0 s Echo spacing 1 ms Pause after meas. 4 0.0 s Echo spacing 1 ms Multiple series Off EPI factor 28 Resolution 112 Fast Fast Phase resolution 10% refocussing type sinc 2560 Interpolation Off ICE program single PAT mode None Maxwell compensation Off	-	1	R >> L	
Contrast Physio Magn. preparation None Filip angle 140 deg Fat suppr. Fat sat. Fat suppr. Fat sat. Fat sat. mode Strong Averaging mode Long term Reconstruction Magnitude Measurements 5 Pause after meas. 1 0.0 s Pause after meas. 2 0.0 s Pause after meas. 3 0.0 s Pause after meas. 4 0.0 s Pause after meas. 4 0.0 s Multiple series Off Resolution 112 Phase resolution 112 Phase resolution 100 % Interpolation 10f PAT mode None Prescan Normalize Off Rew filter Off Geometry Interleaved Series Interleaved Series Interleaved Series Position 15 Interleaved 24 mm Poposition Isoce	Filter	None	A >> P	28 mm
Contrast Physio Magn. preparation None Filip angle 140 deg Fat suppr. Fat sat. Fat suppr. Composing Fat suppr. Sequence Averaging mode Long term Reconstruction Magnitude Measurements 5 Pause after meas. 1 0.0 s Pause after meas. 2 0.0 s Pause after meas. 3 0.0 s Pause after meas. 4 0.0 s Pause after meas. 4 0.0 s Multiple series Off Resolution 112 Phase resolution 112 Phase resolution 100 % Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Geometry Interleaved Series Interleaved Series Interleaved Series Position Isocenter Interleaved Opposite Polarity Crusher Opposi	Coil elements	B4;M2,3;T1	F >> H	_
Magn. preparation None 1st Signal/Mode None Flip angle 140 deg Composing Fat suppr. Fat sat. Composing Fat sat, mode Strong Sequence Averaging mode Long term Introduction Off Reconstruction Magnitude Centric Centric Pause after meas. 1 0.0 s Contrasts 1 Pause after meas. 2 0.0 s Echo spacing 1 ms Pause after meas. 3 0.0 s Echo spacing 1 ms Pause after meas. 4 0.0 s Turbo factor 5 Multiple series Off EPI factor 28 Resolution RF pulse type Normal Base resolution 112 Gradient mode Fast Phase resolution 100 % Interpolation Fast PAT mode None None None Geometry Off Ice program single Raw filter Off Prescan Normalize Off Ice prog	Contract		l .	
Flip angle		None		N.
Fat suppr. Fat sat. Composing			1st Signal/Mode	None
Fat sat. mode Strong Sequence Averaging mode Reconstruction Magnitude Resonstruction Magnitude Measurements 5 Pause after meas. 1 0.0 s Pause after meas. 2 0.0 s Pause after meas. 3 0.0 s Pause after meas. 4 0.0 s Pause after meas. 4 0.0 s Pause after meas. 4 0.0 s Pase resolution Phase resolution Phase resolution 100 % Pat mode None Prescan Normalize Raw filter Off Person Normalize Raw filter Off Series Interleaved Position Interleaved Position Interleaved Position Isocenter Pre-crusher 37500		•	Composina	
Averaging mode				
Reconstruction Magnitude Security Secur	Fat sat. mode	Strong		
MeasurementsMeasurements5ReorderingCentricPause after meas. 10.0 s11144 Hz/PxPause after meas. 20.0 sEcho spacing1 msPause after meas. 30.0 sTurbo factor5Multiple seriesOffEPI factor28ResolutionResolutionFastBase resolution112FastPhase resolution100 %refocussing typesinc 2560InterpolationOffphase encodingONPAT modeNoneMaxwell compensationOffPrescan NormalizeOffICE programsingleRaw filterOffICE programsingleGeometrySeriesInterleavedrefoc duration2560Sat. region 1Thickness24 mmOpposite Polarity CrusherOffPositionIsocenterpre-crusher37500	Averaging mode	Long term		
Pause after meas. 1 0.0 s Pause after meas. 2 0.0 s Pause after meas. 3 0.0 s Pause after meas. 4 0.0 s Pause after meas. 4 0.0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Interpolation Off PAT mode None Prescan Normalize Raw filter Off Raw filter Off Series Interleaved Sat. region 1 Thickness 24 mm Position Isocenter Position Contrasts 1 Bandwidth 1144 Hz/Px Echo spacing 1 Turbo factor 5 EPI factor 28 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 excite duration 2560 excite BWTP 16.0 refoc BWTP 8.0 Opposite Polarity Crusher Off pre-crusher 37500	Reconstruction	Magnitude		
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 3 Pause after meas. 4 Multiple series Off Resolution Base resolution Phase resolution Interpolation Off PAT mode Prescan Normalize Raw filter Off Geometry Series Interleaved Sat. region 1 Thickness Position Bandwidth 1144 Hz/Px Echo spacing 1 ms Turbo factor 5 EPI factor 28 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation ICE program prepscans o excite duration excite duration 2560 excite BWTP refoc BWTP 8.0 Opposite Polarity Crusher Off pre-crusher 37500	Measurements	5		
Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Pause after meas. 4 O.0 s Multiple series Off Resolution Base resolution Interpolation Interpolation PAT mode Prescan Normalize Raw filter Off Geometry Series Interleaved Sat. region 1 Tiuso factor EPI factor 28 RF pulse type Normal Gradient mode Fast refocussing type filip angle excit 90 Maxwell compensation Off ICE program prepscans 0 excite duration excite duration 2560 excite BWTP refoc BWTP 16.0 Soposition Societe Societe Societe Societe So	Pause after meas. 1	0.0 s		·
Pause after meas. 4 0.0 s Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Interpolation Off PAT mode None Prescan Normalize Raw filter Off Geometry Series Interleaved Sat. region 1 Thickness 24 mm Position Isocenter Turbo factor 5 EPI factor 28 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 2560 excite BWTP 16.0 Opposite Polarity Crusher Off pre-crusher 37500	Pause after meas. 2	0.0 s		
Multiple series Off Resolution Base resolution 112 Phase resolution 100 % Interpolation Off PAT mode None Prescan Normalize Raw filter Off Series Interleaved Sat. region 1 Thickness 24 mm Position Isocenter Pase resolution 112 RF pulse type Normal Gradient mode Fast refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 excite duration 2560 excite BWTP 16.0 refoc BWTP 8.0 Opposite Polarity Crusher Off pre-crusher 37500	Pause after meas. 3	0.0 s	Ecno spacing	ı ms
Multiple seriesOffResolutionEPI factor28Base resolution112FastPhase resolution100 %refocussing typesinc 2560InterpolationOffflip angle excit90PAT modeNoneMaxwell compensationOffPrescan NormalizeOffICE programsingleRaw filterOffICE programsingleGeometryexcite duration2560SeriesInterleavedexcite duration2560Sat. region 1refoc BWTP16.0Thickness24 mmOpposite Polarity CrusherOffPositionIsocenterpre-crusher37500	Pause after meas. 4	0.0 s	Turbo factor	5
Resolution Base resolution 112 Phase resolution 100 % Interpolation Off PAT mode None Maxwell compensation Off Prescan Normalize Off ICE program single prepscans o excite duration refoc duration 2560 Geometry Series Interleaved excit pusher off prescriber BWTP 16.0 Sat. region 1 Thickness 24 mm Position Isocenter Off pre-crusher 37500	Multiple series	Off		
Base resolution 112 Phase resolution 100 % Interpolation Off flip angle excit 90 PAT mode None phase encoding ON Maxwell compensation Off Raw filter Off ICE program single prepscans 0 excite duration 2560 Geometry excite duration 2560 Series Interleaved excit 90 Sat. region 1 refocussing type sinc 2560 flip angle excit 90 Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 2560 excite BWTP 16.0 refoc BWTP 8.0 Opposite Polarity Crusher Off pre-crusher 37500	Posolution			
Phase resolution 100 % refocussing type sinc 2560 flip angle excit 90 phase encoding ON Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 2560 excite BWTP 16.0 Sat. region 1 Thickness 24 mm Position Isocenter Off pre-crusher 37500		112		
Interpolation Off flip angle excit 90 phase encoding ON Maxwell compensation Off ICE program single Prescan Normalize Off ICE program single prepscans 0 excite duration 2560 refoc duration 2560 excite BWTP 16.0 Sat. region 1 Thickness 24 mm Position Isocenter Off pre-crusher 37500				
PAT mode None phase encoding ON Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 refoc duration 2560 excite BWTP 16.0 Sat. region 1 Thickness 24 mm Position Isocenter Off pre-crusher 37500				
Maxwell compensation Off Prescan Normalize Off Raw filter Off Geometry Series Interleaved excite BWTP 16.0 Sat. region 1 refoc BWTP 8.0 Position Isocenter Off Maxwell compensation Off ICE program single prepscans 0 excite duration 2560 excite BWTP 16.0 Opposite Polarity Crusher Off pre-crusher 37500	interpolation	OII		
Prescan Normalize Off Off Paw filter Off Prepscans 0 Off Prepscans 0 Off Prepscans 0 Off Off Prepscans Off Off Preform Off Off Preform Off Off Preform Off Off Off Off Off Off Off Off Off Of	PAT mode	None		
Raw filter Off Geometry Series Interleaved excite duration 2560 refoc duration 2560 excite BWTP 16.0 Sat. region 1 refoc BWTP 8.0 Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500	Decom November	O#		
Geometry excite duration 2560 Series Interleaved refoc duration 2560 Sat. region 1 refoc BWTP 16.0 Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500				•
Series Interleaved refoc duration 2560 excite BWTP 16.0 Sat. region 1 refoc BWTP 8.0 Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500	Raw filter	OΠ	1	
Series Interleaved excite BWTP 16.0 Sat. region 1 refoc BWTP 8.0 Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500	Geometry			
Sat. region 1 refoc BWTP 16.0 Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500		Interleaved		
Thickness 24 mm Opposite Polarity Crusher Off Position Isocenter pre-crusher 37500				
Position Isocenter pre-crusher 37500				
Orientation Coronal post-crusher1 25000				
	Orientation	Coronal	post-crusher1	25000

post-crusher2	50000
•	
post-crusher3	25000
post-crusher4	50000

\\USEF	R∖Feinbergla	ab\Suhyung\GRASE_IV\BP_	grase_clean_IV_	TE41_FA180_Regular_CGR
TA: 6:03	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH

Properties Properties	O#	Orientation - Special sat.	Coronal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		- Transversal	F >> H
Slab group 1	4	Save uncombined	Off
Slabs Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Oh:	Otendend
Rotation	0.00 deg	Shim mode	Standard
Phase oversampling	0.00 deg 0 %	Adjust with body coil	Off Off
Slice oversampling	0.0 %	Confirm freq. adjustment Assume Silicone	Off
Slices per slab	8		Off
FoV read	90 mm	? Ref. amplitude 1H	0.000 V
FoV fead FoV phase	25.0 %	Adjustment Tolerance	Auto
Slice thickness	0.8 mm	Adjust volume	laaaamtan
TR	3000 ms	Position Orientation	Isocenter Transversal
TE	37.74 ms		
Averages	1	Rotation R >> L	0.00 deg 90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	г>>п	7 111111
I	51,1112,0,11	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	121	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Echo spacing	1 ms
•		Turbo factor	5
Resolution	440	- EPI factor	28
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 % 5/8		
Slice partial Fourier	5/8	refocussing type	sinc 2560
Interpolation			
	Off	flip angle excit	90
PAT mode		flip angle excit phase encoding	ON
	Off None	flip angle excit phase encoding Maxwell compensation	ON Off
Prescan Normalize	Off None Off	flip angle excit phase encoding Maxwell compensation ICE program	ON Off single
	Off None	flip angle excit phase encoding Maxwell compensation ICE program prepscans	ON Off single 0
Prescan Normalize Raw filter	Off None Off	flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	ON Off single 0 2560
Prescan Normalize Raw filter Geometry	Off None Off Off	flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration - refoc duration	ON Off single 0 2560 2560
Prescan Normalize Raw filter Geometry Series	Off None Off	flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	ON Off single 0 2560 2560 16.0
Prescan Normalize Raw filter Geometry Series Sat. region 1	Off None Off Off Interleaved	flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	ON Off single 0 2560 2560 16.0 8.0
Prescan Normalize Raw filter Geometry Series	Off None Off Off	flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	ON Off single 0 2560 2560 16.0

post-crusher1	37500
post-crusher2	37500
post-crusher3	37500
post-crusher4	37500

\\USEF	R∖Feinbergla	ab\Suhyung\GRASE_IV\BP_	grase_clean_IV_	TE41_FA180_Regular_VGR	
TA: 6:03	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH	ł

Properties Properties	0#	Orientation Special sat.	Coronal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		Transversal	F >> H
Slab group 1	4	Save uncombined	Off
Slabs Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Chim made	Standard
Rotation	0.00 deg	Shim mode	Standard
Phase oversampling	0.00 deg 0 %	Adjust with body coil	Off Off
Slice oversampling	0.0 %	Confirm freq. adjustment Assume Silicone	Off
Slices per slab	8		0.000 V
FoV read	90 mm	? Ref. amplitude 1H	
FoV read FoV phase	25.0 %	Adjustment Tolerance	Auto
Slice thickness	0.8 mm	Adjust volume Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.74 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	ļ	7 111111
1	,,.,.	Physio	
Contrast	N	1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg		
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode			
	Long term	Dimension	3D
Reconstruction	Long term Magnitude	Reordering	3D Centric
Measurements		Reordering Contrasts	Centric 1
	Magnitude	Reordering Contrasts Bandwidth	Centric 1 1144 Hz/Px
Measurements	Magnitude 121	Reordering Contrasts	Centric 1
Measurements Pause after meas. Multiple series	Magnitude 121 0.0 s	Reordering Contrasts Bandwidth	Centric 1 1144 Hz/Px
Measurements Pause after meas. Multiple series Resolution	Magnitude 121 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing	Centric 1 1144 Hz/Px 1 ms
Measurements Pause after meas. Multiple series Resolution Base resolution	Magnitude 121 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	Centric 1 1144 Hz/Px 1 ms
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution	Magnitude 121 0.0 s Off 112 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor	Centric 1 1144 Hz/Px 1 ms 5 28
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution	Magnitude 121 0.0 s Off 112 100 % 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution	Magnitude 121 0.0 s Off 112 100 % 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry Series	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None Off Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry Series Sat. region 1	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None Off Off Interleaved	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0 8.0
Measurements Pause after meas. Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry Series	Magnitude 121 0.0 s Off 112 100 % 100 % 5/8 Off None Off Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0

post-crusher1	50000
post-crusher2	25000
post-crusher3	50000
post-crusher4	25000

\\USEF	R\Feinbergla	ab\Suhyung\GRASE_IV\BP_	grase_clean_IV_	TE41_FA140_Regular_CGR
TA: 4:39	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH

Properties Prio Recon	Off	Orientation Special sat.	Coronal None
Before measurement After measurement	Oll	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
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	8	? Ref. amplitude 1H	0.000 V
FoV read	96 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Auto
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations	1	A >> P	24 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	I	
Contrast		Physio	N
	None	1st Signal/Mode	None
Magn. preparation Flip angle	140 deg	Composing	
Fat suppr.	Fat sat.	Commence	
Fat sat. mode	Strong	Sequence	0"
		Introduction	Off
Averaging mode	Long term	Dimension Reordering	3D Centric
Reconstruction	Magnitude	Reordering Contrasts	1
Measurements	93	Bandwidth	ı 1148 Hz/Px
Pause after meas.	0.0 s	Echo spacing	1 146 HZ/PX 1 ms
Multiple series	Off		1 1110
Resolution		Turbo factor	5
Base resolution	128	EPI factor	32
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode		phase encoding	ON
14/1 1 200000	None		Off
		Maxwell compensation	Oli
Prescan Normalize	Off	Maxwell compensation ICE program	
		ICE program	single 0
Prescan Normalize Raw filter	Off	ICE program prepscans	single 0
Prescan Normalize Raw filter Geometry	Off Off	ICE program	single
Prescan Normalize Raw filter	Off	ICE program prepscans excite duration	single 0 2560
Prescan Normalize Raw filter Geometry Series	Off Off	ICE program prepscans excite duration refoc duration	single 0 2560 2560
Prescan Normalize Raw filter Geometry	Off Off	ICE program prepscans excite duration refoc duration excite BWTP	single 0 2560 2560 16.0

post-crusher1	38000
post-crusher2	38000
post-crusher3	38000
post-crusher4	38000

\\USEF	R∖Feinbergla	ab\Suhyung\GRASE_IV\BP_	_grase_clean_IV_	TE41_FA180_Regular_VGR
TA: 4:39	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH

Properties		Orientation Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	System	0:-
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	3.1	Positioning mode	REF
Wait for user to start	Off	Positioning mode MSMA	S-C-T
Start measurements	single	_	R >> L
Start measurements	Sirigie	Sagittal Coronal	A >> P
Routine			
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
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	8		
FoV read	96 mm	? Ref. amplitude 1H	0.000 V
		Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations	1	A >> P	24 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	TSt Signal/Mode	None
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Coguence	
Fat sat. mode	Strong	Sequence	0"
		Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	93	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Resolution		Turbo factor	5
	400	EPI factor	32
Base resolution	128	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %	·····	
Slice partial Fourier	5/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	ON
		Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
Goomotry		excite duration	2560
Geometry	Interlegyed	refoc duration	2560
Series	Interleaved	excite BWTP	16.0
Sat. region 1		refoc BWTP	8.0
Thickness	20 mm	Opposite Polarity Crusher	Off
Position	Isocenter	pre-crusher	38000

post-crusher1	50000
post-crusher2 post-crusher3	26000 50000
post-crusher4	26000

\\USEF	R∖Feinbergla	ab\Suhyung\GRASE_IV\BP_	grase_clean_IV_	TE41_FA140_Regular_VGR
TA: 4:39	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH

Properties Prio Recon	Off	Orientation Special sat.	Coronal None
Before measurement After measurement	Oll	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
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	8	? Ref. amplitude 1H	0.000 V
FoV read	96 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Auto
Slice thickness	0.8 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations	1	A >> P	24 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	ļ	
Contrast		Physio	N
	None	1st Signal/Mode	None
Magn. preparation Flip angle	140 deg	Composing	
Fat suppr.	Fat sat.	Casuanaa	
Fat sat. mode	Strong	Sequence	0"
		Introduction	Off
Averaging mode	Long term	Dimension Reardering	3D Centric
Reconstruction	Magnitude	Reordering Contrasts	1
Measurements	93	Bandwidth	ı 1148 Hz/Px
Pause after meas.	0.0 s	Echo spacing	1 146 HZ/FX 1 ms
Multiple series	Off		. 1110
Resolution		Turbo factor	5
Base resolution		EPI factor	32
1	128		
Phase resolution	128 100 %	RF pulse type	Normal
Phase resolution Slice resolution			
	100 %	RF pulse type Gradient mode	Normal Fast
Slice resolution	100 % 100 %	RF pulse type Gradient mode refocussing type	Normal
Slice resolution Slice partial Fourier Interpolation	100 % 100 % 5/8 Off	RF pulse type Gradient mode refocussing type flip angle excit	Normal Fast sinc 2560 90
Slice resolution Slice partial Fourier	100 % 100 % 5/8	RF pulse type Gradient mode refocussing type flip angle excit phase encoding	Normal Fast sinc 2560
Slice resolution Slice partial Fourier Interpolation	100 % 100 % 5/8 Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Normal Fast sinc 2560 90 ON Off
Slice resolution Slice partial Fourier Interpolation PAT mode	100 % 100 % 5/8 Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Normal Fast sinc 2560 90 ON
Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter	100 % 100 % 5/8 Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Normal Fast sinc 2560 90 ON Off single
Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry	100 % 100 % 5/8 Off None Off Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Normal Fast sinc 2560 90 ON Off single 0
Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter	100 % 100 % 5/8 Off None	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration	Normal Fast sinc 2560 90 ON Off single 0 2560
Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry	100 % 100 % 5/8 Off None Off Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	Normal Fast sinc 2560 90 ON Off single 0 2560 2560
Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter Geometry Series	100 % 100 % 5/8 Off None Off Off	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP	Normal Fast sinc 2560 90 ON Off single 0 2560 2560 16.0

post-crusher1	50000
post-crusher2	26000
post-crusher3	50000
post-crusher4	26000
post-crusher4	26000

\\USER\Feinberglab\Suhyung\GRASE_IV\AV_ep2d_bold_sd1ipat2mb1_1mm_tSNR_32

TA: 1:12 PAT: 2 Voxel size: 1.0×1.0×1.0 mm Rel. SNR: 1.00 USER: AV_ep2d_bold_sd_20140727

Properties		Special sat.	None
Prio Recon	Off	Table position	Н
Before measurement		Table position	0 mm
After measurement		Inline Composing	Off
Load to viewer	On	System	
Inline movie	Off	T1	On
Auto store images	On	M2	On
Load to stamp segments	Off	B4	On
Load images to graphic	Off	M3	On
segments		V32	Off
Auto open inline display	Off		
Start measurement without	On	Positioning mode	FIX
further preparation	a	MSMA	S - C - T
Wait for user to start	Off	Sagittal	R >> L
Start measurements	single	Coronal	A >> P
Routine		Transversal	F >> H
Slice group 1		 Coil Combine Mode 	Sum of Squares
Slices	30	AutoAlign	
Dist. factor	0 %	Auto Coil Select	Default
Position	L0.0 P12.1 H17.5	Shim mode	Standard
Orientation	T > C-43.9	Adjust with body coil	Off
Phase enc. dir.	A >> P	Confirm freq. adjustment	On
Rotation	0.00 deg	Assume Silicone	Off
Phase oversampling	0 %	! Ref. amplitude 1H	0.000 V
FoV read	128 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume	
Slice thickness	1.00 mm	Position	L0.0 P12.1 H17.5
TR	3000 ms	Orientation	T > C-43.9
TE	24.4 ms	Rotation	0.00 deg
Multi-band accel. factor	1	R >> L	128 mm
Filter	None	A >> P	128 mm
Coil elements	B4;M2,3;T1	F >> H	30 mm
Contrast		Physio	
MTC	Off	1st Signal/Mode	None
Magn. preparation	None		None
Flip angle	80 deg	BOLD	
Fat suppr.	Fat sat.	GLM Statistics	Off
		Dynamic t-maps	Off
Averaging mode	Long term	Starting ignore meas	0
Reconstruction	Magnitude	Ignore after transition	0
Measurements	20	Model transition states	On
Delay in TR	0 ms	Temp. highpass filter	On
Multiple series	Off	Threshold	4.00
Resolution		Paradigm size	20
Base resolution	128	- Meas[1]	Baseline
Phase resolution	100 %	Meas[2]	Baseline
Phase partial Fourier	6/8	Meas[3]	Baseline Baseline
Interpolation	0/0		
	Off	Meas[4]	
DAT	Off	Meas[5]	Baseline
PAT mode	Off GRAPPA	Meas[5] Meas[6]	Baseline Baseline
Accel. factor PE	Off GRAPPA 2	Meas[5] Meas[6] Meas[7]	Baseline Baseline Baseline
Accel. factor PE Ref. lines PE	Off GRAPPA 2 24	Meas[5] Meas[6] Meas[7] Meas[8]	Baseline Baseline Baseline Baseline
Accel. factor PE	Off GRAPPA 2	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9]	Baseline Baseline Baseline Baseline Baseline
Accel. factor PE Ref. lines PE	Off GRAPPA 2 24	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10]	Baseline Baseline Baseline Baseline Baseline Baseline Baseline
Accel. factor PE Ref. lines PE Reference scan mode	Off GRAPPA 2 24 Segmented	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11]	Baseline Baseline Baseline Baseline Baseline Baseline Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter	Off GRAPPA 2 24 Segmented Off Off On	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize	Off GRAPPA 2 24 Segmented Off Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter	Off GRAPPA 2 24 Segmented Off Off On	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming	Off GRAPPA 2 24 Segmented Off Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14] Meas[15]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming Geometry	Off GRAPPA 2 24 Segmented Off Off Off On Off Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14] Meas[15] Meas[16]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming	Off GRAPPA 2 24 Segmented Off Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14] Meas[15]	Baseline Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active

Meas[20]	Active
Motion correction	Off
Spatial filter	Off

Sequence	
Introduction Bandwidth Flow comp. Free echo spacing Echo spacing	Off 1086 Hz/Px No Off 1.03 ms
SIR accel. factor EPI factor Gradient mode RF spoiling	1 128 Normal Off
Excite pulse duration Slice multiplier Fake MB factor for SB No. of interleaved TEs RF pulse shape EPI noise scans EPI full reference scan SENSE1 coil combine Log physiology to file Invert RO/PE polarity Save reduced raw data Readout slice trace Disable ramp sampling PF omits higher k-space FFT scale factor Send B1 shim trigger Triggering scheme Starting ignore meas Paradigm size Multiplier Step [1] Step [2]	5820 us 1 1 0 1 0 Off Off Off Off Off

\\USER\Feinberglab\Suhyung\GRASE_IV\AV_ep2d_bold_sd1ipat2mb1_p8mm_tSNR_32
TA: 4:54 PAT: 2 Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: AV_ep2d_bold_sd_20140727

Properties		Special sat.	None
Prio Recon	Off	Table position	Н
Before measurement		Table position	0 mm
After measurement		Inline Composing	Off
Load to viewer	On	System	
Inline movie	Off	T1	On
Auto store images	On	M2	On
Load to stamp segments	Off	B4	On
Load images to graphic	Off	M3	On
segments		V32	Off
Auto open inline display	Off		
Start measurement without	On	Positioning mode	FIX
further preparation		MSMA	S - C - T
Wait for user to start	Off	Sagittal	R >> L
Start measurements	single	Coronal	A >> P
Routine		Transversal	F >> H
Slice group 1		Coil Combine Mode	Sum of Squares
Slices	36	AutoAlign	
Dist. factor	0 %	Auto Coil Select	Default
Position	L0.0 P12.1 H17.5	Shim mode	Standard
Orientation	T > C-43.9	Adjust with body coil	Off
Phase enc. dir.	A >> P	Confirm freq. adjustment	On
Rotation	0.00 deg	Assume Silicone	Off
Phase oversampling	0 %	! Ref. amplitude 1H	0.000 V
FoV read	108 mm	Adjustment Tolerance	Auto
FoV phase	100.0 %	Adjust volume	
Slice thickness	0.80 mm	Position	L0.0 P12.1 H17.5
TR	3000 ms	Orientation	T > C-43.9
TE	25.4 ms	Rotation	0.00 deg
Multi-band accel. factor	1	R >> L	108 mm
Filter	None	A >> P	108 mm
Coil elements	B4;M2,3;T1	F >> H	29 mm
Contrast		Physio	
MTC	Off	1st Signal/Mode	None
Magn. preparation	None	1	140110
Flip angle	80 deg	BOLD	
Fat suppr.	Fat sat.	GLM Statistics	Off
		Dynamic t-maps	Off
Averaging mode	Long term	Starting ignore meas	0
Reconstruction	Magnitude	Ignore after transition	0
Measurements	95	Model transition states	On
Delay in TR	0 ms	Temp. highpass filter	On
Multiple series	Off	Threshold	4.00
Resolution		Paradigm size	20
Base resolution	128	— Meas[1]	Baseline
Phase resolution	100 %	Meas[2]	Baseline
Phase partial Fourier	6/8	Meas[3]	Baseline
Interpolation		Meas[4]	Baseline
DAT	Off		Decelies
		Meas[5]	Baseline
PAT mode	GRAPPA	Meas[5] Meas[6]	Baseline
Accel. factor PE	GRAPPA 2	Meas[5] Meas[6] Meas[7]	Baseline Baseline
Accel. factor PE Ref. lines PE	GRAPPA 2 24	Meas[5] Meas[6] Meas[7] Meas[8]	Baseline Baseline Baseline
Accel. factor PE	GRAPPA 2	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9]	Baseline Baseline Baseline Baseline
Accel. factor PE Ref. lines PE	GRAPPA 2 24	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10]	Baseline Baseline Baseline Baseline Baseline
Accel. factor PE Ref. lines PE Reference scan mode	GRAPPA 2 24 Single-shot	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11]	Baseline Baseline Baseline Baseline Baseline Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter	GRAPPA 2 24 Single-shot Off Off On	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12]	Baseline Baseline Baseline Baseline Baseline Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize	GRAPPA 2 24 Single-shot Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13]	Baseline Baseline Baseline Baseline Baseline Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter	GRAPPA 2 24 Single-shot Off Off On	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14]	Baseline Baseline Baseline Baseline Baseline Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming	GRAPPA 2 24 Single-shot Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[12] Meas[13] Meas[14] Meas[15]	Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming Geometry	GRAPPA 2 24 Single-shot Off Off Off On Off Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[13] Meas[14] Meas[15] Meas[16]	Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active Active Active Active
Accel. factor PE Ref. lines PE Reference scan mode Distortion Corr. Prescan Normalize Raw filter Elliptical filter Hamming	GRAPPA 2 24 Single-shot Off Off On Off	Meas[5] Meas[6] Meas[7] Meas[8] Meas[9] Meas[10] Meas[11] Meas[12] Meas[12] Meas[13] Meas[14] Meas[15]	Baseline Baseline Baseline Baseline Baseline Active Active Active Active Active Active

Meas[20]	Active
Motion correction	Off
Spatial filter	Off

Sequence	
Introduction Bandwidth	Off 1086 Hz/Px
Flow comp.	No
Free echo spacing	Off
Echo spacing	1.05 ms
	1.00 1113
SIR accel. factor	1
EPI factor	128
Gradient mode	Normal
RF spoiling	Off
Excite pulse duration	5820 us
Slice multiplier	1
Fake MB factor for SB	1
No. of interleaved TEs	0
RF pulse shape	1
EPI noise scans	0
EPI full reference scan	0
SENSE1 coil combine	Off
Log physiology to file	Off
Invert RO/PE polarity	Off
Save reduced raw data	Off
Readout slice trace	Off Off
Disable ramp sampling PF omits higher k-space	Off
FFT scale factor	0.02
Send B1 shim trigger	Never
Triggering scheme	Standard
Starting ignore meas	0
Paradigm size	2
Multiplier	<u></u>
Step [1]	1
Step [2]	0
1	

\\USER\Feinberglab\Suhyung\GRASE_IV\cmrr_mbep2d_se

Properties		Series	Interleaved
Prio Recon	Off	Special sat.	None
Before measurement			
After measurement		Table position	H
Load to viewer	On	Table position	0 mm
Inline movie	Off	Inline Composing	Off
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	0"	Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slice group 1		Transversal	F >> H
Slices	30	Coil Combine Mode	Sum of Squares
Dist. factor	0 %	AutoAlign	
Position	Isocenter	Auto Coil Select	Default
Orientation	Transversal	Chim mada	Ctondord
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0.00 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment Assume Silicone	Off Off
FoV read	108 mm		
FoV phase	100.0 %	! Ref. amplitude 1H Adjustment Tolerance	230.000 V Auto
Slice thickness	0.80 mm	Adjust volume	Auto
TR	3000 ms	Position	Isocenter
TE	38.8 ms	Orientation	Transversal
Multi-band accel. factor	1	Rotation	0.00 deg
Filter	None	R >> L	108 mm
Coil elements	B4;M2,3;T1	A >> P	108 mm
Contrast		F >> H	25 mm
MTC	Off		
Magn. preparation	None	Physio	
Flip angle	90 deg	1st Signal/Mode	None
Refocus flip angle	180 deg	BOLD	
Fat suppr.	Fat sat.	GLM Statistics	On
Grad. rev. fat suppr.	Enabled	Dynamic t-maps	On
Averaging mode	Long term	Starting ignore meas	0
Reconstruction	Magnitude	Ignore after transition	0
Measurements	95	Model transition states	On
Delay in TR	0 ms	Temp. highpass filter	On
Multiple series	Off	Threshold	4.00
		Paradigm size	10
Resolution	400	Meas[1]	Baseline
Base resolution	128	Meas[2]	Baseline
Phase resolution	100 %	Meas[3]	Baseline
Phase partial Fourier	6/8	Meas[4]	Baseline
Interpolation	Off	Meas[5]	Baseline
PAT mode	GRAPPA	Meas[6]	Active
Accel. factor PE	2	Meas[7]	Active
Ref. lines PE	24	Meas[8]	Active
Reference scan mode	Single-shot	Meas[9]	Active
Distortion Corr.	Off		Active Off
Prescan Normalize	Off		Off
Raw filter	On	Spatial filter	Oii
Elliptical filter	Off	Sequence	
Hamming	Off	Introduction	Off
Hamming	OII	Contrasts	1
Geometry		Bandwidth	1086 Hz/Px
Multi-slice mode	Interleaved	Free echo spacing	Off

Echo spacing	1.03 ms
EPI factor	128
Gradient mode	Fast
Excite pulse duration	2560 us
Refocus pulse duration	5120 us
Slice multiplier	1
SENSE1 coil combine	Off
Invert RO/PE polarity	Off
PF omits higher k-space	Off
Force equal slice timing	Off
FFT scale factor	1.00
Physio recording	Off
Triggering scheme	Standard

\\US	ER\Feinber	⁻ glab\Suhyung\GRASE_IV\BF	P_grase_clean_IV_TE37_S	STE_Regular_SH
TA: 6:03	PAT: Off	Voxel size: 0.8×0.8×0.8 mm	Rel. SNR: 1.00 USER: E	BP_grase_clean_IV_SH
Properties			Orientation	C > T39.8
Prio Recon		Off	Special sat.	None
Before measure	mont	Oli	Table position	Н
After measuren			Table position	0 mm
Load to viewer	ieni	On	Inline Composing	Off
Inline movie		Off	milite Composing	Oli
Auto store imag	100	On	System	
Load to stamp		Off	T1	On
Load images to		Off	M2	On
segments	grapriic	Oli	B4	On
Auto open inline	a display	Off	M3	On
Start measuren		On	V32	Off
further preparat		Oli	Positioning mode	FIX
Wait for user to		Off	Positioning mode MSMA	S - C - T
Start measuren		single	Sagittal	8 - C - 1 R >> L
	icitio	Single	Coronal	A >> P
Routine			Transversal	F >> H
Slab group 1			Save uncombined	Off
Slabs		1	Coil Combine Mode	Adaptive Combine
Dist. factor		0 %	AutoAlign	
Position		L0.0 P37.9 F40.3	Auto Coil Select	Default
Orientation		T > C-39.8	······	
Phase enc. di	r.	A >> P	Shim mode	Standard
Rotation		0.00 deg	Adjust with body coil	Off
Phase oversam		0 %	Confirm freq. adjustment	Off
Slice oversamp	ling	0.0 %	Assume Silicone	Off
Slices per slab		8	! Ref. amplitude 1H	250.000 V
FoV read		96 mm	Adjustment Tolerance	Auto
FoV phase		25.0 %	Adjust volume	
Slice thickness		0.8 mm	Position	L0.0 P37.9 F40.3
TR		3000 ms	Orientation	T > C-39.8
TE		41.32 ms	Rotation	0.00 deg
Averages		1	R >> L	96 mm
Concatenations	5	1	A >> P	24 mm
Filter		None	F >> H	7 mm
Coil elements		B4;M2,3;T1	Physio	
Contrast			1 hysio	None

Orientation	I > C-39.8		
Phase enc. dir.	A >> P	Shim mode	Standard
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	8	! Ref. amplitude 1H	250.000 V
FoV read	96 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	0.8 mm	Position	L0.0 P37.9 F40.3
TR	3000 ms	Orientation	T > C-39.8
TE	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations	1	A >> P	24 mm
Filter	None	F >> H	7 mm
Coil elements	B4;M2,3;T1	ļ.	
•	, ,-,	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	121	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
·	OII	Turbo factor	
Resolution		EPI factor	5 32
Base resolution	128	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
PAT mode	None	phase encoding	ON
		Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
Geometry		excite duration	2560
Series	Interleaved	refoc duration	2560
		excite BWTP	16.0
Sat. region 1		refoc BWTP	8.0
Thickness	21 mm	Opposite Polarity Crusher	Off
Position	L0.0 P37.9 F40.3	pre-crusher	38000

	pnase encoding	ON
-	Maxwell compensation	Off
	ICE program	single
	prepscans	0
	excite duration	2560
	refoc duration	2560
-	excite BWTP	16.0
	refoc BWTP	8.0
	Opposite Polarity Crusher	Off
	pre-crusher	38000
38	8/+	

post-crusher1	38000
post-crusher2	38000
post-crusher3	38000
post-crusher4	38000

 $\verb|\USER| Feinberglab| Suhyung \\| GRASE_IV \\| BP_grase_clean_IV_TE37_nSTE_Regular_SH_re$

TA: 6:03 PAT: Off	Voxel size: 0.8×0.8×0.8 mm		BP_grase_clean_IV_SH
Properties		Orientation Special sat.	C > T39.8 None
Prio Recon	Off		
Before measurement		Table position	H
After measurement	_	Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments		M3	On
Auto open inline display	Off	V32	Off
Start measurement without	On	V 32	
further preparation		Positioning mode	FIX
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	L0.0 P37.9 F40.3	AutoAlign	
Orientation	T > C-39.8	Auto Coil Select	Default
Phase enc. dir.	A >> P	Chim modo	Standard
Rotation	0.00 deg	Shim mode	Standard
Phase oversampling	0.00 deg 0 %	Adjust with body coil	Off
Slice oversampling	0.0 %	Confirm freq. adjustment	Off
	8	Assume Silicone	Off
Slices per slab FoV read	96 mm	! Ref. amplitude 1H	250.000 V
		Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	100 507 0 540 0
Slice thickness	0.8 mm	Position	L0.0 P37.9 F40.3
TR TE	3000 ms	Orientation	T > C-39.8
	41.32 ms	Rotation	0.00 deg
Averages	1	R >> L	96 mm
Concatenations Filter	None	A >> P	24 mm
Coil elements	None B4;M2,3;T1	F >> H	7 mm
Con elements	D4,IVIZ,3,1 1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg		
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
Averaging mode	Long term	Dimension	3D
Reconstruction	Magnitude	Reordering	Centric
Measurements	121	Contrasts	1
Pause after meas.	0.0 s	Bandwidth	1148 Hz/Px
Multiple series	Off	Echo spacing	1 ms
Resolution		Turbo factor	5
Base resolution	128	EPI factor	32
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8	references type	aina 2560
Interpolation	Off	refocussing type	sinc 2560 90
		flip angle excit	ON STATE OF THE ST
PAT mode	None	phase encoding Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
	<u></u>	excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	excite BWTP	16.0
Sat. region 1		refoc BWTP	8.0
Thickness	21 mm	Opposite Polarity Crusher	Off
Position	L0.0 P37.9 F40.3	pre-crusher	38000
1	_0.0 1 0.1.0 1 10.0	pro ordanor	2000

post-crusher1 post-crusher2	50000 26000
post-crusher3	50000 26000
post-crusher4	20000

\\L	JSER\Feinb	erglab\Sunyung\GRASE_IV\	BP_grase_clean_	_IV_FA180_Regular_SH
TA: 0:15	PAT: Off	Voxel size: 0.8x0.8x0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH

Properties	Raw filter Geometry		excite duration	2560
Prickness	Raw filter	Off	1	
Price Pric		()ff	nranecana	
Price Pric	i itootaii inulliali2t		·	-
Price Pric	Prescan Normalize	Off		
Price Pric	PAT mode	None		
Price Pric	Interpolation	Ο Π		
Price Pric				
Prickness 20 mm Prickness 20 mm Prostition Social sat. None			Gradient mode	rasi
Thickness				
Thickness		112		_
Price Recon Off Position Isocenter Or Position Isocenter Or Position Isocenter Or Position Isocenter Or Or Or Or Or Or Or	Resolution			
Prior Recorn Prior Recorn Prior Recorn Prior Recorn Prior Recorn Prior Recorn Position Isocenter Orientation Coronal After measurement Cand to viewer On Table position H Table position H Table position Orientation	Multiple series	Off	Ecno spacing	1 1112
Prio Recon Off Prio Recon Off Position Isocenter Ornal After measurement Load to viewer On Inline movie Off Table position H Table position Ornal Ornal Table position H Table position Ornal Ornal Table position Ornal Table position Ornal				
Price Recorn				1
Prio Recon Prio Recon Prio Recon Before measurement After measurement Load to viewer On Inline movie Off Table position Special sat. None			_	Centric
Prior Recon Off Before measurement After measurement Load to viewer On Inline movie Off Table position Hability Table position Onm Inline Composing Off Table position Hability Table position Onm Inline Composing Off Table position Onm O			Dimension	3D
Properties Pr		•		
Priorities Pri			Sequence	
Prio Recon			Composing	
Price Pric				
Prio Recon Prio Recon Prio Recon Before measurement After measurement Load to viewer On Inline movie Off Table position H Table position One Table position One Table position One Table position One				None
Prio Recon Prio Recon Before measurement After measurement Load to viewer On Inline movie Off Table position Orientation On On On On On On On			Physio	
Prio Recon Prio Recon Before measurement After measurement Load to viewer On Inline movie On Inline Composing Off Inline Composing Off On Inline Composing Off On Inline Composing Off On Inline Composing Off On On Inline Composing Off On On On On On On O		None	F >> H	7 mm
Prio Recon	Contrast		A >> P	
Prio Recon	Coil elements	B4;M2,3;T1	R >> L	94 mm
Prio Recon Before measurement After measurement Load to viewer Inline movie Load to stamp segments Auto store images to graphic segments Auto open inline display Auto pen inline display Off Start measurement Wait for user to start Slab group 1 Slabs Slabs I Dist, factor Orientation Slice sper slab Slice sper slab Slice thickness Off Slice thickness Off Orientation				
Price Pric		1	Orientation	Transversal
Prio Recon Off Prio Recon Off Position Isocenter Orientation Special sat. None Non	_	1		Isocenter
Price Pric	TE	37.7 ms		
Prio Recon Before measurement After measurement Load to viewer Inline movie Off Auto store images Load images to graphic segments Auto open inline display Start measurement without further preparation Wait for user to start Slabs Dist. factor Position Orientation Orient				
Prio Recon Before measurement After measurement Load to viewer Inline movie Off Auto store images On Load to stamp segments Off Load images to graphic segments Auto open inline display Start measurement without further preparation Wait for user to start Slabs Slabs Dist. factor Orientation Ori		0.8 mm		
Prio Recon Before measurement After measurement Load to viewer Inline movie Off Auto store images Con Load images to graphic segments Auto open inline display Guiter preparation Wait for user to start Start measurements Start measurements Start measurement Start measurements Single Routine Routine Slabs 1 Dist. factor Orientation Orientation Phase enc. dir. Rotation Phase oversampling Slices per slab Sices per slab Sice	FoV phase	25.0 %		
Prio Recon Before measurement After measurement Load to viewer Inline movie Load to stamp segments Auto open inline display Start measurement Wait for user to start Start measurements Stabs Dist. factor Position Slabs Dist. factor Position Slabs Orientation Orientation Syecial sat. None Table position Inline Composing Off System Tight position Inline Composing Off System Tight position Inline Composing Off System Tight position Inline Composing Off System Tight position Inline Composing Off M2 On M2 On B4 On M3 On M3 On Wait for user to start Start measurements Single Routine Routine Slabs I Dist. factor Orientation Transversal Position Isocenter Orientation Transversal Position Isocenter Transversal Positioning mode REF MSMA S-C-T Sagittal R >> L Coronal Transversal Transversal F >> H Save uncombined Off Coil Combine Mode Adaptive Combine Auto Align Auto Coil Select Default Shim mode Standard	1	94 mm		_
Prio Recon Before measurement After measurement Load to viewer Inline movie Auto store images Load inline display Load inline display Segments Auto open inline display Grither preparation Wait for user to start Start measurements Slabs Dist. factor Position Seconter Orientation Orientation Orientation Special sat. None Table position Inline Composing Off System Ti On M2 System Ti On M2 On B4 On M3 On M3 On M3 On M3 On W32 Off Start measurement without On Start measurements Single Routine Slabs Openition Orientation Position Isocenter Orientation Transversal Position Isocenter Orientation Transversal Position Orientation Transversal Save uncombined Off Coil Combine Mode Adaptive Combine Auto Coil Select Default				
Prio Recon Before measurement After measurement Load to viewer Inline movie Auto store images Auto open inline display Start measurement without further preparation Wait for user to start Slabs Routine Slabs Routine Slabs Slabs I Dist. factor Prio Recon Off Before measurement After measurement After measurement After measurement Off Auto sore images On Table position Inline Composing Off System T1 On M2 On M42 On M42 On M44 On M3 On M3 On Wait for user to start Off Start measurements Slabs I Dist. factor Position Orientation Transversal Position System T1 On M2 On M3 On Was As On Was As C - T Sagittal R >> L Coronal A >> P Transversal F >> H Save uncombined Coil Combine Mode Adaptive Combine Auto Coil Solect Posfult			Shim mode	Standard
Prio Recon Before measurement After measurement Load to viewer On Inline movie Coronal Auto store images Auto store images Auto open inline display Start measurement Wait for user to start Slabs Start measurements Slabs Dist. factor Prio Recon Off Before measurement After measurement Coronal Special sat. None Table position Inline Composing Off System Ti On M2 On M2 On M3 On Start measurements Slabs Start measurements Slabs Dist. factor Orientation Vait for user to start Slabs Dist. factor Orientation Transversal Position Orientation Orientation Transversal Position Isocenter Orientation Orientation Orientation Phase enc. dir. Postation Orientation Orienta			Auto Coil Select	Default
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load to stamp segments Auto open inline display Off Start measurement without further preparation Wait for user to start Start measurements Slab group 1 Slabs 1 Dist. factor Orientation Off Seprice Market Start Slabs Start Market Start Slabs Start Incomposition Incomposition Off Souther Start Start Slabs Start Market Start None Thickness Start None Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position Special sat. None Table position				
Prio Recon Before measurement After measurement Load to viewer Inline movie Auto store images Load to stamp segments Auto open inline display Auto open inline display Start measurement without Wait for user to start Slabs Routine Routine Silab group 1 Slabs Slaccenter Off Auto orientation Orientation Special sat. None Table position H Table position Inline Composing Off System System T1 On M2 On B4 On M3 On M3 On M3 On W32 Off Start measurements Single Positioning mode REF MSMA S - C - T Sagittal R >> L Coronal A >> P Transversal Save uncombined Off				
Prio Recon Before measurement After measurement Load to viewer Inline movie Auto store images Coronal Load to stamp segments Auto open inline display Start measurement without on further preparation Wait for user to start Slabs Slabs Dist. factor Orientation Orientation Special sat. None Table position H Table position On Table position On Table position On Table position On Ma On Ma On M2 On M3 On M3 On V32 Off Positioning mode MSA S - C - T Sagittal R >> L Coronal A >> P Transversal F >> H				
Prio Pettes Prio Recon Before measurement After measurement Load to viewer Inline movie Auto store images Con Load to stamp segments Off Segments Auto open inline display Off Start measurement without further preparation Wait for user to start Start measurements Routine Routine Prio Recon Off Before measurement Off Orientation Special sat. None Table position H Table position O mm Inline Composing Off System T1 On M2 On M2 On M3 On W3 On W3 On W3 On V32 Off Start measurements Single Routine Slab group 1 Slabs Special sat. None Table position O m MA On MB A System T1 On MB A Son MB A Son MB A Son Son Sagittal R Sol Sagittal R Sol Sagittal R Sol Coronal A >> P				
Prio Recon Before measurement After measurement Load to viewer Inline movie Load to stamp segments Load images to graphic segments Auto open inline display Start measurement without for start measurements Slabs group 1 Slabs Position Isocenter Orientation Special sat. None Table position Inline Composing Inline Composing Off System Table position Inline Composing Off System Table position Inline Composing Off System Thickness 20 mm Position Isocenter Orientation Orientation Special sat. None Table position Inline Composing Off System Thickness Position Isocenter Orientation Orientation Special sat. None Table position Inline Composing Off Off System Thickness Position Isocenter Orientation Orientation Special sat. None Table position Isole On MM Inline Composing Off On M2 On M3 On M3 On M3 On V32 Off Start measurements Single Positioning mode MSMA S-C-T Sagittal R >> L				
Prio Recon Before measurement After measurement Load to viewer On Inline movie Off Auto store images Con Load to stamp segments Auto open inline display Auto open inline display Off Start measurement without further preparation Wait for user to start Start measurements Routine Prio Recon Off Before measurement Off Orientation Special sat. None Table position H Table position Off Table position Off System Table position Off Table position Off System Table position Off Table position Off Table position Off System Table position Off Off Off System Table position Off Off Off Off Off Off On Ma Na On Na Na Na On Na Na Na On Na Na Na On Na		1		
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Load to stamp segments Off Load images to graphic segments Auto open inline display Off Start measurement without on further preparation Wait for user to start Start measurements Routine Thickness 20 mm Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On M2 On M2 On M3 On M3 On V32 Off Start measurements single Positioning mode REF			_	
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Load to stamp segments Off Load images to graphic segments Auto open inline display Off Start measurement without on further preparation Wait for user to start Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On M2 On B4 On M3 On V32 Off	Routine			
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load to stamp segments Off Load images to graphic segments Auto open inline display Off Start measurement without On further preparation Wait for user to start Proi Recon Off Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On M2 On B4 On M3 On	Start measurements	single	V 32	OII
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load images to graphic segments Auto open inline display Off Start measurement without On Frostion Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On M2 On B4 On				_
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load images to graphic Segments Auto open inline display Off Start measurement without Off Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On M2 T1 On On	further preparation			_
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load to stamp segments Load images to graphic segments Auto open inline display Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off System T1 On T1 On		On		
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load images to graphic Sprio Recon Off Before measurement Coronal Special sat. None Table position Inline Composing Off System Thickness 20 mm Position Isocenter Orientation Special sat. None Table position Inline Composing Off System	Auto open inline display	Off		_
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images On Load to stamp segments Load images to graphic Off Thickness 20 mm Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm Inline Composing Off				On
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Auto store images Off Prio Recon Off Position Isocenter Orientation Coronal Special sat. None Table position H Table position 0 mm				
Prio Recon Off Before measurement After measurement Load to viewer On Inline movie Off Prio Recon Off Position Isocenter Orientation Coronal Special sat. None Table position H				
Prio Recon Off Before measurement After measurement Load to viewer On Thickness 20 mm Position Isocenter Orientation Coronal Special sat. None				
Prio Recon Off Before measurement After measurement Off Off Special sat None		Off	Table position	Н
Prio Recon Off Before measurement After measurement Off Off Orientation Orientation Orientation Orientation Orientation Orientation		On	Special sat.	INONE
Prio Recon Off Position Isocenter				
Prio Recon Off Thickness 20 mm		÷		
		Off		
Sat ragion 1	Properties		Sat. region 1	

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_FA180_nSTE_CurrentPT_SH TA: 0:15 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_SH

Properties		Sat. region 1	
Prio Recon	Off	Thickness	20 mm
Before measurement	OII	Position	Isocenter
After measurement		Orientation	Coronal
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off	Inline Composing	Oil
	Oil	System	
segments	0#	T1	On
Auto open inline display	Off	M2	On
Start measurement without	On	B4	On
further preparation		M3	On
Wait for user to start	Off	V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		- MSMA	S - C - T
Slabs	1	Sagittal	R >> L
Dist. factor	0 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Transversal	Save uncombined	Off
Phase enc. dir.	A >> P	Coil Combine Mode	Adaptive Combine
		AutoAlign	 '
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %		
Slice oversampling	0.0 %	Shim mode	Standard
Slices per slab	8	Adjust with body coil	Off
FoV read	94 mm	Confirm freq. adjustment	Off
FoV phase	25.0 %	Assume Silicone	Off
Slice thickness	0.8 mm	? Ref. amplitude 1H	0.000 V
TR	3000 ms	Adjustment Tolerance	Auto
TE	37.7 ms	Adjust volume	7.000
Averages	1	Position	Isocenter
Concatenations	1	Orientation	Transversal
Filter	None	Rotation	
Coil elements	B4;M2,3;T1		0.00 deg
Con elements	D4,IVIZ,3,1 1	R >> L	94 mm
Contrast		A >> P	24 mm
Magn. preparation	None	F >> H	7 mm
Flip angle	180 deg	Physio	
Fat suppr.	Fat sat.	1st Signal/Mode	None
Fat sat. mode	Strong	-	110110
		Composing	
Averaging mode Reconstruction	Long term Magnitude	Sequence	
Measurements		Introduction	Off
	5	Dimension	3D
Pause after meas. 1	0.0 s	Reordering	Centric
Pause after meas. 2	0.0 s	Contrasts	1
Pause after meas. 3	0.0 s	Bandwidth	1144 Hz/Px
Pause after meas. 4	0.0 s	Echo spacing	1 ms
Multiple series	Off	spacify	i ilio
Resolution		Turbo factor	5
Base resolution	112	EPI factor	28
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8	references type	sino 2560
Interpolation	Off	refocussing type	sinc 2560
	••••••••••••••••••••••••••••••••••••••	flip angle excit	90
PAT mode	None	phase encoding	ON Off
Drease Nove - 15	O#	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
		excite duration	2560
Geometry			
Geometry Series	Interleaved	refoc duration	2560

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	20000
post-crusher2	40000
post-crusher3	20000
post-crusher4	40000

\\L	JSER\Feinb	erglab\Sunyung\GRASE_IV\	BP_grase_clean_	_IV_FA140_Regular_SH
TA: 0:15	PAT: Off	Voxel size: 0.8x0.8x0.8 mm	Rel SNR: 1.00	USER BP grase clean IV SH

Slice partial Fourier 5/8 Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off Geometry Series Interleaved	RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration	Normal Fast sinc 2560 90 ON Off single 0 2560 2560
Interpolation Off PAT mode None Prescan Normalize Off Raw filter Off	Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Normal Fast sinc 2560 90 ON Off single 0
Interpolation Off PAT mode None Prescan Normalize Off	Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Normal Fast sinc 2560 90 ON Off single
Interpolation Off PAT mode None	Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Normal Fast sinc 2560 90 ON Off
Interpolation Off	Gradient mode refocussing type flip angle excit phase encoding	Normal Fast sinc 2560 90 ON
	Gradient mode refocussing type flip angle excit	Normal Fast sinc 2560 90
	Gradient mode	Normal Fast
		Normal
Slice resolution 100 %		Normal
Phase resolution 100 %		
Base resolution 112	EPI factor	28
Resolution	Turbo factor	5
Multiple series Off	Echo spacing	1 ms
Pause after meas. 4 0.0 s	Bandwidth	1144 Hz/Px
Pause after meas. 3 0.0 s	Contrasts	1
Pause after meas. 2 0.0 s	Reordering	Centric
Pause after meas. 1 0.0 s	Dimension	3D
Measurements 5	Introduction	Off
Averaging mode Long term Reconstruction Magnitude	Sequence	
	Composing	
Fat sat. mode Strong	1	. 10.110
Fat suppr. Fat sat.	1st Signal/Mode	None
Flip angle 140 deg	Physio	
Magn. preparation None	— F >> H	7 mm
Contrast	A >> P	24 mm
Coil elements B4;M2,3;T1	R >> L	94 mm
Filter None	Rotation	0.00 deg
Concatenations 1	Orientation	Transversal
Averages 1	Position	Isocenter
TE 37.7 ms	Adjust volume	
TR 3000 ms	Adjustment Tolerance	Auto
Slice thickness 0.8 mm	? Ref. amplitude 1H	0.000 V
FoV phase 25.0 %	Assume Silicone	Off
FoV read 94 mm	Confirm freq. adjustment	Off
Slices per slab 8	Adjust with body coil	Off
Slice oversampling 0.0 %	Shim mode	Standard
Phase oversampling 0 %	Auto Coil Select	Default
Rotation 0.00 deg	AutoAlign	
Phase enc. dir. A >> P	Coil Combine Mode	Adaptive Combine
Orientation Transversal	Save uncombined	Off
Position Isocenter	Transversal	F >> H
Dist. factor 0 %	Coronal	A >> P
Slabs 1	Sagittal	R >> L
Slab group 1	— MSMA	S - C - T
Routine	Positioning mode	REF
Start measurements single	V 3∠ 	OII
Wait for user to start Off	M3 V32	On Off
further preparation	B4	On
Start measurement without On	M2	On
Auto open inline display Off	T1	On
segments	System	0
Load images to graphic Off		- · ·
Load to stamp segments Off	Inline Composing	Off
Auto store images On	Table position	0 mm
Inline movie Off	Table position	Н
Load to viewer On	Special sat.	None
After measurement	Orientation	Coronal
Before measurement	Position	Isocenter
Prio Recon Off	— Thickness	20 mm
Properties	Sat. region 1	

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_FA140_nSTE_CurrentPT_SH TA: 0:15 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_SH

-		Sat. region 1	
Properties		Thickness	20 mm
Prio Recon	Off	Position	Isocenter
Before measurement		Orientation	Coronal
After measurement		Special sat.	None
Load to viewer	On		
Inline movie	Off	Table position	H
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off	System	
segments		T1	On
Auto open inline display	Off	M2	On
Start measurement without	On	B4	On
further preparation		M3	On
Wait for user to start	Off	V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		—— MSMA	S - C - T
Slabs	1	Sagittal	R >> L
Dist. factor	0 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Transversal	Save uncombined	Off
Phase enc. dir.	A >> P	Coil Combine Mode	Adaptive Combine
Rotation	0.00 dea	AutoAlign	
Phase oversampling	0.00 deg 0 %	Auto Coil Select	Default
Slice oversampling	0.0 %	Shim mode	Standard
Slices per slab	8		
FoV read	94 mm	Adjust with body coil	Off
FoV read FoV phase	25.0 %	Confirm freq. adjustment	Off
Slice thickness	0.8 mm	Assume Silicone	Off
TR	3000 ms	? Ref. amplitude 1H	0.000 V
TE	37.7 ms	Adjustment Tolerance	Auto
		Adjust volume	
Averages	1	Position	Isocenter
Concatenations	1	Orientation	Transversal
Filter	None	Rotation	0.00 deg
Coil elements	B4;M2,3;T1	R >> L	94 mm
Contrast		A >> P	24 mm
Magn. preparation	None	—— F >> H	7 mm
Flip angle	140 deg	Physio	
Fat suppr.	Fat sat.	1st Signal/Mode	None
Fat sat. mode	Strong	1	110110
		Composing	
Averaging mode Reconstruction	Long term	Sequence	
	Magnitude	Introduction	Off
Measurements	5	Dimension	3D
Pause after meas. 1	0.0 s	Reordering	Centric
Pause after meas. 2	0.0 s	Contrasts	1
Pause after meas. 3	0.0 s	Bandwidth	1144 Hz/Px
Pause after meas. 4	0.0 s	Echo spacing	1 ms
Multiple series	Off		
Resolution		Turbo factor	5
Base resolution	112	EPI factor	28
Phase resolution	100 %	RF pulse type	Normal
Slice resolution	100 %	Gradient mode	Fast
Slice partial Fourier	5/8	refocussing type	sinc 2560
Interpolation	Off	flip angle excit	90
	NI	phase encoding	ON ON
PAT mode	None	Maxwell compensation	Off
Prescan Normalize	Off	ICE program	single
Raw filter	Off	prepscans	0
ı	-	excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	excite BWTP	16.0
		EXCITE DAY I F	10.0

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	20000
post-crusher2	40000
post-crusher3	20000
post-crusher4	40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_FA160_Regular_SH					
TA: 0:15	PAT: Off	Voxel size: 0.8x0.8x0.8 mm	Rel. SNR: 1.00	USER: BP grase clean IV SH	

Series	Interleaved	refoc duration	2560
Geometry			
Raw filter	Off	prepscans excite duration	0 2560
Prescan Normalize	Off	ICE program	single
		Maxwell compensation	Off
PAT mode	None	phase encoding	ON
Interpolation	Off	flip angle excit	90
Slice partial Fourier	5/8	refocussing type	sinc 2560
Slice resolution	100 %	Gradient mode	Fast
Phase resolution	100 %	RF pulse type	Normal
Base resolution	112	EPI factor	28
Resolution		Turbo factor	5
Multiple series	Off		
Pause after meas. 4	0.0 s	Bandwidth Echo spacing	1144 Hz/Px 1 ms
Pause after meas. 3	0.0 s	Contrasts	1 1144 H z /Dy
Pause after meas. 2	0.0 s	Reordering	Centric
Pause after meas. 1	0.0 s	Dimension	3D
Measurements	5	Introduction	Off
Reconstruction	Magnitude	Sequence	0"
Averaging mode	Long term	· · · · · · · · · · · · · · · · · · ·	
Fat sat. mode	Strong	Composing	
Fat suppr.	Fat sat.	1st Signal/Mode	None
Flip angle	160 deg	Physio	
Magn. preparation	None	—— F >> H	7 mm
Contrast		A >> P	24 mm
Coil elements	B4;M2,3;T1	R >> L	94 mm
Filter	None	Rotation	0.00 deg
Concatenations	1 Name	Orientation	Transversal
Averages	1	Position	Isocenter
TE	37.7 ms	Adjust volume	
TR	3000 ms	Adjustment Tolerance	Auto
Slice thickness	0.8 mm	? Ref. amplitude 1H	0.000 V
FoV phase	25.0 %	Assume Silicone	Off
FoV read	94 mm	Confirm freq. adjustment	Off
Slices per slab	8	Adjust with body coil	Off
Slice oversampling	0.0 %	Shim mode	Standard
Phase oversampling	0 %		
Rotation	0.00 deg	Auto Coil Select	Default
Phase enc. dir.	A >> P	AutoAlign	
Orientation	Transversal	Coil Combine Mode	Adaptive Combine
Position	Isocenter	Save uncombined	Off
Dist. factor	0 %	Transversal	F >> H
Slabs	1	Coronal	A >> P
Slab group 1	4	Sagittal	R >> L
Routine		MSMA	S-C-T
l	3.11g10	Positioning mode	REF
Start measurements	single	V32	Off
Wait for user to start	Off	M3	On
further preparation	OII	B4	On
Start measurement without	On	M2	On
Auto open inline display	Off	T1	On
segments	Oil	System	
Load in stamp segments Load images to graphic	Off	,	OII
Load to stamp segments	Off	Inline Composing	Off
Auto store images	On	Table position	П 0 mm
Inline movie	Off	Table position	 Н
Load to viewer	On	Special sat.	None
Before measurement After measurement		Orientation	Coronal
	Oli	Position	Isocenter
Prio Recon	Off	Thickness	20 mm
Properties		Sat. region 1	

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	40000
post-crusher2	40000
post-crusher3	40000
post-crusher4	40000

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_FA160_nSTE_CurrentPT_SH TA: 0:15 PAT: Off Voxel size: 0.8×0.8×0.8 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_SH

Properties		Sat. region 1	20
Prio Recon	Off	Thickness Position	20 mm
Before measurement			Isocenter
After measurement		Orientation	Coronal
Load to viewer	On	Special sat.	None
Inline movie	Off	Table position	Н
Auto store images	On	Table position	0 mm
Load to stamp segments	Off	Inline Composing	Off
Load images to graphic	Off		5
segments	5	System	
Auto open inline display	Off	T1	On
Start measurement without	On	M2	On
	OII	B4	On
further preparation Wait for user to start	Off	M3	On
		V32	Off
Start measurements	single		
Routine		Positioning mode	REF
Slab group 1		——— MSMA	S - C - T
Slabs	1	Sagittal	R >> L
Dist. factor	0 %	Coronal	A >> P
Position	Isocenter	Transversal	F >> H
Orientation	Transversal	Save uncombined	Off
Phase enc. dir.	A >> P	Coil Combine Mode	Adaptive Combine
		AutoAlign	
Rotation	0.00 deg	Auto Coil Select	Default
Phase oversampling	0 %		
Slice oversampling	0.0 %	Shim mode	Standard
Slices per slab	8	Adjust with body coil	Off
FoV read	94 mm	Confirm freq. adjustment	Off
FoV phase	25.0 %	Assume Silicone	Off
Slice thickness	0.8 mm	? Ref. amplitude 1H	0.000 V
TR	3000 ms	Adjustment Tolerance	Auto
TE	37.7 ms	Adjust volume	
Averages	1	Position	Isocenter
Concatenations	1	Orientation	Transversal
Filter	None	Rotation	0.00 deg
Coil elements	B4;M2,3;T1	R >> L	94 mm
Con dicinionto	D 1,1412,0,1 1	A >> P	24 mm
Contrast		—— F>> H	7 mm
Magn. preparation	None		7 111111
Flip angle	160 deg	Physio	
Fat suppr.	Fat sat.	1st Signal/Mode	None
Fat sat. mode	Strong	1	
		Composing	
Averaging mode	Long term	Sequence	
Reconstruction	Magnitude	Introduction	Off
Measurements	5		
		Dimension	3D
Pause after meas. 1	0.0 s	Dimension Reordering	3D Centric
Pause after meas. 1 Pause after meas. 2	0.0 s	Reordering	3D Centric
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3		Reordering Contrasts	Centric 1
Pause after meas. 1 Pause after meas. 2	0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth	Centric 1 1144 Hz/Px
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3	0.0 s 0.0 s	Reordering Contrasts	Centric 1
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series	0.0 s 0.0 s 0.0 s	Reordering Contrasts Bandwidth	Centric 1 1144 Hz/Px
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution	0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing	Centric 1 1144 Hz/Px 1 ms
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution	0.0 s 0.0 s 0.0 s Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	Centric 1 1144 Hz/Px 1 ms 5 28
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution	0.0 s 0.0 s 0.0 s Off 112 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution	0.0 s 0.0 s 0.0 s Off 112 100 % 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor	Centric 1 1144 Hz/Px 1 ms 5 28
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice partial Fourier	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution	0.0 s 0.0 s 0.0 s Off 112 100 % 100 %	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8 Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice partial Fourier	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8 Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize Raw filter	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8 Off	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single 0
Pause after meas. 1 Pause after meas. 2 Pause after meas. 3 Pause after meas. 4 Multiple series Resolution Base resolution Phase resolution Slice resolution Slice partial Fourier Interpolation PAT mode Prescan Normalize	0.0 s 0.0 s 0.0 s Off 112 100 % 100 % 5/8 Off None	Reordering Contrasts Bandwidth Echo spacing Turbo factor EPI factor RF pulse type Gradient mode refocussing type flip angle excit phase encoding Maxwell compensation ICE program	Centric 1 1144 Hz/Px 1 ms 5 28 Normal Fast sinc 2560 90 ON Off single

refoc BWTP	8.0
Opposite Polarity Crusher	Off
pre-crusher	40000
post-crusher1	20000
post-crusher2	40000
post-crusher3	20000
post-crusher4	40000

 $\verb|\USER| Feinberglab| Suhyung | GRASE_IV | BP_grase_clean_IV_Reg_For Comparison| | GRASE_IV | BP_grase_clean_IV_Reg_For Comparison| | GRASE_IV | GRASE_I$

	oxel size: 0.8×0.8×1.5 mm Rel	•	rase_clean_IV_Regular_SH
D (1)		Pause after meas. 20	0 s
Properties		Pause after meas. 21	0 s
Prio Recon	Off	Pause after meas, 22	0 s
Before measurement		Pause after meas. 23	0 s
After measurement		Pause after meas, 24	0 s
Load to viewer	On	Pause after meas. 25	0 s
Inline movie	Off	Pause after meas. 26	0 s
Auto store images	On	Pause after meas. 27	0 s
Load to stamp segments	Off		
Load images to graphic	Off	Pause after meas. 28	0 s
segments		Pause after meas. 29	0 s
Auto open inline display	Off	Multiple series	Off
Start measurement without	On	Resolution	
further preparation	311	Base resolution	112
Wait for user to start	Off	Phase resolution	100 %
Start measurements	single	Slice resolution	100 %
Start measurements	Single		
Routine		Slice partial Fourier	5/8
Slab group 1		Interpolation	Off
Slabs	1	PAT mode	None
Dist. factor	0 %		
Position	Isocenter	Prescan Normalize	Off
Orientation	Transversal	Raw filter	Off
Phase enc. dir.	A >> P	Geometry	
Rotation			lataria accad
	0 deg 0 %	Series	Interleaved
Phase oversampling		Sat. region 1	
Slice oversampling	0.0 %	Thickness	20 mm
Slices per slab	8	Position	Isocenter
FoV read	90 mm	Orientation	Coronal
FoV phase	25.0 %		
Slice thickness	1.5 mm	Special sat.	None
TR	3000 ms	Table position	Н
TE	37.58 ms	Table position	0 mm
Averages	1	Inline Composing	Off
Concatenations	1	minic composing	Oli
Filter	None	System	
Coil elements	B4;M2,3;T1	T1	On
Ton cloments	2 1,1112,0,1 1	M2	On
Contrast		B4	On
Magn. preparation	None	M3	On
Flip angle	180 deg	V32	Off
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Positioning mode	REF
		MSMA	S - C - T
Averaging mode	Long term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	30	Transversal	F >> H
Pause after meas. 1	0 s	Save uncombined	Off
Pause after meas. 2	0 s	Coil Combine Mode	Adaptive Combine
Pause after meas. 3	0 s	AutoAlign	
Pause after meas. 4	0 s	Auto Coil Select	Default
Pause after meas. 5	0 s	Auto Coli Select	Delault
Pause after meas. 6	0 s	Shim mode	Standard
Pause after meas. 7	0 s	Adjust with body coil	Off
Pause after meas. 7 Pause after meas. 8	0 S 0 S	Confirm freq. adjustment	Off
		Assume Silicone	Off
Pause after meas. 9	0 s	? Ref. amplitude 1H	0.000 V
Pause after meas. 10	0 s	·	Auto
Pause after meas. 11	0 s	Adjustment Tolerance	Auto
Pause after meas. 12	0 s	Adjust volume	laasantan
Pause after meas. 13	0 s	Position	Isocenter
Pause after meas. 14	0 s	Orientation	Transversal
Pause after meas. 15	0 s	Rotation	0.00 deg
Pause after meas. 16	0 s	R >> L	90 mm
Pause after meas. 17	0 s	A >> P	23 mm
Pause after meas. 18	0 s	F >> H	12 mm
Pause after meas. 19	0 s	Dhysio	
. 225 2101 1110401 10	- •	Physio	

1st Signal/Mode	None			
Composing				
Sequence				
Introduction Dimension Reordering Contrasts Bandwidth	Off 3D Centric 1 1144 Hz/Px			
Turbo factor EPI factor RF pulse type Gradient mode	5 28 Normal Fast			
refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP T2 Validation pre-crusher post-crusher1 post-crusher2 post-crusher3 post-crusher4 Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 15 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 16 Variable Flip Angle 16 Variable Flip Angle 17	sinc 2560 90 ON Off single 0 2560 2560 16 8 On 37500 37500 37500 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			
Variable Flip Angle 18 Variable Flip Angle 19 Variable Flip Angle 20	0 0 0			

 $\label{lem:local_continuous} $$ \USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Reg_nSTE_T2Map $$ $$ \Color on the property of the prop$

	oxel size: 0.8×0.8×1.5 mm Rel	•	rase_clean_IV_Regular_SH
ъ		Pause after meas. 20	0 s
Properties		Pause after meas. 21	0 s
Prio Recon	Off	Pause after meas, 22	0 s
Before measurement		Pause after meas. 23	0 s
After measurement		Pause after meas. 24	0 s
Load to viewer	On	Pause after meas. 25	0 s
Inline movie	Off	Pause after meas. 26	0 s
Auto store images	On	Pause after meas. 27	0 s
Load to stamp segments	Off		
Load images to graphic	Off	Pause after meas. 28	0 s
segments		Pause after meas. 29	0 s
Auto open inline display	Off	Multiple series	Off
Start measurement without	On	Resolution	
further preparation	.	Base resolution	112
Wait for user to start	Off	Phase resolution	100 %
Start measurements	single	Slice resolution	100 %
Otan measurements	Single	Slice partial Fourier	5/8
Routine		•	Off
Slab group 1		Interpolation	OII
Slabs	1	PAT mode	None
Dist. factor	0 %		
Position	Isocenter	Prescan Normalize	Off
Orientation	Transversal	Raw filter	Off
Phase enc. dir.	A >> P	Geometry	
Rotation	0 deg		Interlegued
Phase oversampling	0 %	Series	Interleaved
		Sat. region 1	
Slice oversampling	0.0 %	Thickness	20 mm
Slices per slab	8	Position	Isocenter
FoV read	90 mm	Orientation	Coronal
FoV phase	25.0 %	Special sat.	None
Slice thickness	1.5 mm	Special Sat.	
TR	3000 ms	Table position	Н
TE	37.58 ms	Table position	0 mm
Averages	1	Inline Composing	Off
Concatenations	1		.
Filter	None	System	
Coil elements	B4;M2,3;T1	T1	On
1	, , ,	M2	On
Contrast		B4	On
Magn. preparation	None	M3	On
Flip angle	180 deg	V32	Off
Fat suppr.	Fat sat.		
Fat sat. mode	Strong	Positioning mode	REF
		MSMA	S - C - T
Averaging mode	Long term	Sagittal	R >> L
Reconstruction	Magnitude	Coronal	A >> P
Measurements	30	Transversal	F >> H
Pause after meas. 1	0 s	Save uncombined	Off
Pause after meas. 2	0 s	Coil Combine Mode	Adaptive Combine
Pause after meas. 3	0 s	AutoAlign	·
Pause after meas. 4	0 s	Auto Coil Select	Default
Pause after meas. 5	0 s		
Pause after meas. 6	0 s	Shim mode	Standard
Pause after meas. 7	0 s	Adjust with body coil	Off
Pause after meas. 8	0 s	Confirm freq. adjustment	Off
Pause after meas. 9	0 s	Assume Silicone	Off
Pause after meas. 10	0 s	? Ref. amplitude 1H	0.000 V
Pause after meas. 11		Adjustment Tolerance	Auto
	0 s	Adjust volume	
Pause after meas. 12	0 s	Position	Isocenter
Pause after meas. 13	0 s		
Pause after meas. 14	0 s	Orientation	Transversal
Pause after meas. 15	0 s	Rotation	0.00 deg
Pause after meas. 16	0 s	R >> L	90 mm
Pause after meas. 17	0 s	A >> P	23 mm
Pause after meas. 18	0 s	F >> H	12 mm
Pause after meas. 19	0 s	Physio	
•	_	, 5	

1st Signal/Mode	None
Composing	
Sequence	
Introduction Dimension Reordering Contrasts Bandwidth	Off 3D Centric 1 1144 Hz/Px
Turbo factor EPI factor RF pulse type Gradient mode	5 28 Normal Fast
refocussing type flip angle excit phase encoding Maxwell compensation ICE program prepscans excite duration refoc duration excite BWTP refoc BWTP T2 Validation pre-crusher post-crusher1 post-crusher2 post-crusher3 post-crusher4 Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 05 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 13 Variable Flip Angle 15 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 19	sinc 2560 90 ON Off single 0 2560 2560 16 8 On 37500 50000 25000 50000 0 0 0 0 0 0 0 0 0

\\LISER\Feinherglah\Suhvung\GRASE	= IV/\RP arase clean IV/ Re	חב

TA: 0:00 PAT: Off Voxel size: 0.8×0.8×1.5 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Properties	O#	Orientation Special sat.	Coronal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O"
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
		Transversal	F >> H
Slab group 1	4	Save uncombined	Off
Slabs Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Chim made	Standard
Rotation	0 deg	Shim mode	Standard Off
Phase oversampling	0 deg 0 %	Adjust with body coil Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	8	? Ref. amplitude 1H	0.000 V
FoV read	90 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Auto
Slice thickness	1.5 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.58 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	12 mm
Coil elements	B4;M2,3;T1	I	
Operation		Physio	
Contrast	Ness	1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle	180 deg Fat sat.		
Fat suppr. Fat sat. mode	0.	Sequence	~
	Strong	Introduction	Off
Averaging mode	Long term	Dimension Boardering	3D Contrin
Reconstruction	Magnitude	Reordering Contrasts	Centric
Measurements	122	Bandwidth	1 1144 Hz/Px
Pause after meas.	0 s	Dariuwiuiii	1 144 1 12/ C X
Multiple series	Off	Turbo factor	5
Resolution		EPI factor	28
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %	refocussing type	sinc 2560
Slice partial Fourier	5/8	flip angle excit	90
Interpolation	Off	phase encoding	ON ON
		Maxwell compensation	Off
PAT mode	None	ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	excite duration	2560
Coomotini		refoc duration	2560
Geometry	lata da aya d	- excite BWTP	16
Series	Interleaved	refoc BWTP	8
Sat. region 1		T2 Validation	Off
Thickness	20 mm	pre-crusher	37500
Position	Isocenter	post-crusher1	37500
1		1	

post-crusher2	37500
post-crusher3	37500
post-crusher4	37500
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0

	\\USE	ER\Feinberglab\Suhyung\GR	ASE_IV\BP_grase	e_clean_IV_Reg_nSTE
TA: 0:00	PAT: Off	Voxel size: 0.8×0.8×1.5 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_SH

Properties		Orientation Special sat.	Coronal None
Prio Recon	Off		
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	System	0.5
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On
Start measurement without	On	V32	Off
further preparation	•	Positioning mode	REF
Wait for user to start	Off	MSMA	S-C-T
Start measurements	single	Sagittal	R >> L
l	on igio	Coronal	A >> P
Routine		— Transversal	F >> H
Slab group 1		Save uncombined	Off
Slabs	1		- · · ·
Dist. factor	0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	Defectit
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	8	? Ref. amplitude 1H	0.000 V
FoV read	90 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Adio
Slice thickness	1.5 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.58 ms	Rotation	
Averages	1	R >> L	0.00 deg 90 mm
Concatenations	1		
Filter	None	A >> P	23 mm
Coil elements	None	F >> H	12 mm
Con elements	B4;M2,3;T1	Physio	
Contrast		1st Signal/Mode	None
Magn. preparation	None	<u> </u>	
Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Sequence	
Fat sat. mode	Strong	Introduction	Off
		Dimension	3D
Averaging mode	Long term	Reordering	Centric
Reconstruction	Magnitude	Contrasts	1
Measurements	122	Bandwidth	ı 1144 Hz/Px
Pause after meas.	0 s	Danuwiuii	I 1 44 I IZ/下入
Multiple series	Off	Turbo factor	5
Resolution		EPI factor	28
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution			
	100 % 5/8	refocussing type	sinc 2560
Slice partial Fourier		flip angle excit	90
Interpolation	Off	phase encoding	ON
PAT mode	None	Maxwell compensation	Off
		ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	— excite BWTP	16
Octics	mileneaveu	refoc BWTP	8
Sat. region 1		T2 Validation	Off
Thickness	20 mm	pre-crusher	37500
Position	Isocenter	post-crusher1	50000
I		1 '	

post-crusher2	25000
post-crusher3	50000
post-crusher4	25000
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0
. •	

\\USER\Feinberglab\Suhv	una\GRASE IV\BP	_grase_clean_IV_Reg_VFA

TA: 0:00 PAT: Off Voxel size: 0.8×0.8×1.5 mm Rel. SNR: 1.00 USER: BP_grase_clean_IV_Regular_SH

Properties Properties	O#	Orientation Special sat.	Coronal None
Prio Recon Before measurement After measurement	Off	Table position Table position	H 0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off		
Auto store images	On	System	
Load to stamp segments	Off	T1	On
Load images to graphic	Off	M2	On
segments		B4	On
Auto open inline display	Off	M3	On O#
Start measurement without	On	V32	Off
further preparation		Positioning mode	REF
Wait for user to start	Off	MSMA	S - C - T
Start measurements	single	Sagittal	R >> L
Routine		Coronal	A >> P
Slab group 1		Transversal	F >> H
Slabs	1	Save uncombined	Off
Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	Isocenter	AutoAlign	
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	20	? Ref. amplitude 1H	0.000 V
FoV read	90 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	Adio
Slice thickness	1.5 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.58 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations	1	A >> P	23 mm
Filter	None	F >> H	30 mm
Coil elements	B4;M2,3;T1	l	33
Contract		Physio	
Contrast	None	1st Signal/Mode	None
Magn. preparation Flip angle	180 deg	Composing	
Fat suppr.	Fat sat.	Commence	
Fat sat. mode	Strong	Sequence	2"
		Introduction	Off
Averaging mode	Long term	Dimension Reordering	3D Centric
Reconstruction	Magnitude	Reordering Contrasts	1
Measurements	122	Bandwidth	ı 1144 Hz/Px
Pause after meas.	0 s		1 177 114/FX
Multiple series	Off	Turbo factor	13
Resolution		EPI factor	28
Base resolution	112	RF pulse type	Normal
Phase resolution	100 %	Gradient mode	Fast
Slice resolution	100 %	refocussing type	variable sinc
Slice partial Fourier	5/8	flip angle excit	90
Interpolation	Off	phase encoding	ON
	None	Maxwell compensation	Off
PAT mode	None	ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	excite duration	2560
I .		refoc duration	2560
Coomotry		excite BWTP	16
Geometry	Interlegued		
Geometry Series	Interleaved	refoc BWTP	8
	Interleaved		8 Off
Series	Interleaved 20 mm	refoc BWTP	

post-crusher2	37500
post-crusher3	37500
post-crusher4	37500
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0
	post-crusher3 post-crusher4 Variable Flip Angle 01 Variable Flip Angle 02 Variable Flip Angle 03 Variable Flip Angle 04 Variable Flip Angle 05 Variable Flip Angle 06 Variable Flip Angle 07 Variable Flip Angle 07 Variable Flip Angle 09 Variable Flip Angle 10 Variable Flip Angle 11 Variable Flip Angle 12 Variable Flip Angle 13 Variable Flip Angle 14 Variable Flip Angle 15 Variable Flip Angle 16 Variable Flip Angle 17 Variable Flip Angle 18 Variable Flip Angle 18 Variable Flip Angle 19

	\\USER\	.Feinberglab\Suhyung\GRAS	E_IV\BP_grase_o	clean_IV_Reg_nSTE_VFA
TA: 0:00	PAT: Off	Voxel size: 0.8×0.8×1.5 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_SH

Properties		Orientation	Coronal None
Prio Recon	Off	— Special sat.	None
Before measurement		Table position	Н
After measurement		Table position	0 mm
Load to viewer	On	Inline Composing	Off
Inline movie	Off	System	
Auto store images	On	T1	On
Load to stamp segments	Off	M2	On
Load images to graphic	Off	B4	On
segments	0#	M3	On
Auto open inline display Start measurement without	Off On	V32	Off
further preparation	OII	Desitioning mode	DEE
Wait for user to start	Off	Positioning mode MSMA	REF S - C - T
Start measurements	single	Sagittal	R >> L
ı	519.0	Coronal	A >> P
Routine		— Transversal	F >> H
Slab group 1	4	Save uncombined	Off
Slabs Dist. factor	1 0 %	Coil Combine Mode	Adaptive Combine
Position	lsocenter	AutoAlign	·
Orientation	Transversal	Auto Coil Select	Default
Phase enc. dir.	A >> P	Shim mode	Standard
Rotation	0 deg	Adjust with body coil	Off
Phase oversampling	0 %	Confirm freq. adjustment	Off
Slice oversampling	0.0 %	Assume Silicone	Off
Slices per slab	20	? Ref. amplitude 1H	0.000 V
FoV read	90 mm	Adjustment Tolerance	Auto
FoV phase	25.0 %	Adjust volume	
Slice thickness	1.5 mm	Position	Isocenter
TR	3000 ms	Orientation	Transversal
TE	37.58 ms	Rotation	0.00 deg
Averages	1	R >> L	90 mm
Concatenations Filter	1 None	A >> P	23 mm
Coil elements	B4;M2,3;T1	F >> H	30 mm
ı	D 1,1412,0,11	Physio	
Contrast	N	1st Signal/Mode	None
Magn. preparation	None	Composing	
Flip angle Fat suppr.	180 deg Fat sat.	Commence	_
Fat sat. mode	Strong	Sequence Introduction	Off
		Dimension	3D
Averaging mode	Long term	Reordering	Centric
Reconstruction Measurements	Magnitude	Contrasts	1
Pause after meas.	122 0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Touch a factor	40
i .	-	Turbo factor EPI factor	13 28
Resolution		RF pulse type	Normal
Base resolution Phase resolution	112 100 %	Gradient mode	Fast
Slice resolution	100 %		
Slice resolution Slice partial Fourier	5/8	refocussing type	variable sinc
Interpolation	Off	flip angle excit phase encoding	90 ON
		Maxwell compensation	Off
PAT mode	None	ICE program	single
Prescan Normalize	Off	prepscans	0
Raw filter	Off	excite duration	2560
Geometry		refoc duration	2560
Series	Interleaved	— excite BWTP	16
		refoc BWTP	8
Sat. region 1 Thickness	20 mm	T2 Validation pre-crusher	Off 37500
Position	lsocenter	pre-crusher1	50000
1 OSITION	1300611161	post-ordaneri	30000

post-crusher2	25000
post-crusher3	50000
post-crusher4	25000
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0

	\\USER'	\Feinberglab\Suhyung\GRAS	SE_IV\BP_grase_o	clean_IV_Reg_PSF_20slc
TA: 0:00	PAT: Off	Voxel size: 0.8×0.8×1.5 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_SH

Properties		Prescan Normalize Raw filter	Off Off
Prio Recon	Off	Coomatru	
Before measurement		Geometry	Interlegued
After measurement Load to viewer	On	Series	Interleaved
Inline movie	Off	Sat. region 1	
Auto store images	On	Thickness	20 mm
Load to stamp segments	Off	Position	Isocenter
Load images to graphic	Off	Orientation	Coronal
segments	Oli	Special sat.	None
Auto open inline display	Off	Table position	 Н
Start measurement without	On	Table position Table position	П 0 mm
further preparation	Oll	Inline Composing	Off
Wait for user to start	Off	Inline Composing	Oli
Start measurements	single	System	
I	Sirigio	T1	On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter	Positioning mode	REF
Orientation	Transversal	Positioning mode MSMA	S-C-T
Phase enc. dir.	A >> P		8 - C - 1 R >> L
Rotation	0 deg	Sagittal Coronal	K >> L A >> P
Phase oversampling	0 %	Transversal	F >> H
Slice oversampling	0.0 %	Save uncombined	Off
Slices per slab	20	Coil Combine Mode	Adaptive Combine
FoV read	90 mm	AutoAlign	
FoV phase	25.0 %	Auto Coil Select	Default
Slice thickness	1.5 mm	Auto Coli Select	Delault
TR	3000 ms	Shim mode	Standard
TE	37.58 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
Magn. preparation	None	Position	Isocenter
Flip angle	180 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
Fat sat. mode	Strong	R >> L	90 mm
Averaging parents	Langutanus	A >> P	23 mm
Averaging mode	Long term	F >> H	30 mm
Reconstruction	Magnitude	Physio	
Measurements	10	1st Signal/Mode	None
Pause after meas. 1 Pause after meas. 2	0 s 0 s	1	
Pause after meas. 2 Pause after meas. 3	0 s 0 s	Composing	
Pause after meas. 4	0 S	Sequence	
Pause after meas. 5	0 S	Introduction	Off
Pause after meas. 6	0 S	Dimension	3D
Pause after meas. 7	0 s	Reordering	Centric
Pause after meas. 8	0 s	Contrasts	1
Pause after meas. 9	0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Turbo foster	
ı		Turbo factor	13
Resolution		EPI factor	28 Normal
Base resolution	112	RF pulse type	Normal Fact
Phase resolution	100 %	Gradient mode	Fast
			oine 2560
Slice resolution	100 %	refocussing type	sinc 2560
Slice partial Fourier	5/8		90
		flip angle excit phase encoding	
Slice partial Fourier	5/8	flip angle excit	90

prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16
refoc BWTP	8
T2 Validation	Off
pre-crusher	37500
post-crusher1	37500
post-crusher2	37500
post-crusher3	37500
post-crusher4	37500
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0

	\\US	ER\Feinberglab\Suhyung\GF	RASE_IV\BP_gras	e_clean_IV_Reg_PSF
TA: 0:00	PAT: Off	Voxel size: 0.8×0.8×1.5 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_SH

Properties		Prescan Normalize Raw filter	Off Off
Prio Recon	Off	Coordina	-
Before measurement		Geometry	lotodo e con d
After measurement	0.5	Series	Interleaved
Load to viewer	On Off	Sat. region 1	
Inline movie	On	Thickness	20 mm
Auto store images	Off	Position	Isocenter
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic segments	Oii	Special sat.	None
Auto open inline display	Off	Table position	
Start measurement without	On	Table position	H
further preparation	Oli	Table position	0 mm
Wait for user to start	Off	Inline Composing	Off
Start measurements	single	System	
Start measurements	Single	T1	On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter	Positioning mode	REF
Orientation	Transversal	Positioning mode MSMA	S-C-T
Phase enc. dir.	A >> P		8 - C - 1 R >> L
Rotation	0 deg	Sagittal Coronal	A >> P
Phase oversampling	0 %	Transversal	F >> H
Slice oversampling	0.0 %	Save uncombined	Off
Slices per slab	8	Coil Combine Mode	Adaptive Combine
FoV read	90 mm	AutoAlign	
FoV phase	25.0 %	Auto Coil Select	Default
Slice thickness	1.5 mm	Auto Coli Select	
TR	3000 ms	Shim mode	Standard
TE	37.58 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contrast		Adjust volume	
Magn. preparation	None	Position	Isocenter
Flip angle	180 deg	Orientation	Transversal
Fat suppr.	Fat sat.	Rotation	0.00 deg
Fat sat. mode	Strong	R >> L	90 mm
Averaging mode	Long torm	A >> P	23 mm
Averaging mode Reconstruction	Long term Magnitude	F >> H	12 mm
Measurements	10	Physio	
Pause after meas. 1	0 s	1st Signal/Mode	None
Pause after meas. 2	0 s		
Pause after meas. 3	0 s	Composing	
Pause after meas. 4	0 s	Sequence	
Pause after meas. 5	0 s	Introduction	Off
Pause after meas. 6	0 s	Dimension	3D
Pause after meas. 7	0 s	Reordering	Centric
Pause after meas. 8	0 s	Contrasts	1
Pause after meas. 9	0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Turbo factor	5
		EPI factor	5 28
Resolution	440	RF pulse type	20 Normal
Base resolution	112	Gradient mode	Fast
Phase resolution	100 %	·····	. uut
Slice resolution	100 %	refocussing type	sinc 2560
			0.0
Slice partial Fourier	5/8	flip angle excit	90
Interpolation	5/8 Off	phase encoding	OFF

prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16
refoc BWTP	8
T2 Validation	Off
pre-crusher	37500
post-crusher1	37500
post-crusher2	37500
post-crusher3	37500
post-crusher4	37500
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0

\\USER\Feinberglab\Suhyung\GRASE_IV\BP_grase_clean_IV_Reg_VFA_PSF				
TA: 0:00	PAT: Off	Voxel size: 0.8×0.8×1.5 mm	Rel. SNR: 1.00	USER: BP_grase_clean_IV_Regular_SH

Properties		Prescan Normalize Raw filter	Off Off
Prio Recon	Off	Coordina	-
Before measurement		Geometry	latada arad
After measurement	0-	Series	Interleaved
Load to viewer	On Off	Sat. region 1	
Inline movie	On	Thickness	20 mm
Auto store images	Off	Position	Isocenter
Load to stamp segments	Off	Orientation	Coronal
Load images to graphic	Oii	Special sat.	None
segments	Off	T. 1.1	
Auto open inline display		Table position	H
Start measurement without	On	Table position	0 mm
further preparation Wait for user to start	Off	Inline Composing	Off
Start measurements		System	
Start measurements	single		On
Routine		M2	On
Slab group 1		B4	On
Slabs	1	M3	On
Dist. factor	0 %	V32	Off
Position	Isocenter		
Orientation	Transversal	Positioning mode	REF
Phase enc. dir.	A >> P	MSMA	S-C-T
Rotation	0 deg	Sagittal	R >> L
Phase oversampling	0 %	Coronal	A >> P
Slice oversampling	0.0 %	Transversal	F >> H
Slices per slab	20	Save uncombined	Off
FoV read	90 mm	Coil Combine Mode	Adaptive Combine
FoV phase	25.0 %	AutoAlign	
Slice thickness	1.5 mm	Auto Coil Select	Default
TR	3000 ms	Shim mode	Standard
TE	37.58 ms	Adjust with body coil	Off
Averages	1	Confirm freq. adjustment	Off
Concatenations	1	Assume Silicone	Off
Filter	None	? Ref. amplitude 1H	0.000 V
Coil elements	B4;M2,3;T1	Adjustment Tolerance	Auto
Contract		Adjust volume	, 1010
Contrast	None	Position	Isocenter
Magn. preparation	180 deg	Orientation	Transversal
Flip angle	· ·	Rotation	0.00 deg
Fat suppr.	Fat sat.	R >> L	90 mm
Fat sat. mode	Strong	A >> P	23 mm
Averaging mode	Long term	F >> H	30 mm
Reconstruction	Magnitude	T .	
Measurements	10	Physio	
Pause after meas. 1	0 s	1st Signal/Mode	None
Pause after meas. 2	0 s	Composing	
Pause after meas. 3	0 s		
Pause after meas. 4	0 s	Sequence	
Pause after meas. 5	0 s	Introduction	Off
Pause after meas. 6	0 s	Dimension	3D
Pause after meas. 7	0 s	Reordering	Centric
Pause after meas. 8	0 s	Contrasts	1
Pause after meas. 9	0 s	Bandwidth	1144 Hz/Px
Multiple series	Off	Turbo factor	13
Resolution		EPI factor	28
Base resolution	112	RF pulse type	Normal
	100 %	Gradient mode	Fast
Phase resolution			
Slice resolution	100 %	refocussing type	variable sinc
Slice partial Fourier	5/8 Off	flip angle excit	90
Interpolation	Off	phase encoding OFF	
PAT mode	None	Maxwell compensation ICE program	Off single

prepscans	0
excite duration	2560
refoc duration	2560
excite BWTP	16
refoc BWTP	8
T2 Validation	Off
pre-crusher	37500
post-crusher1	37500
post-crusher2	37500
post-crusher3	37500
post-crusher4	37500
Variable Flip Angle 01	0
Variable Flip Angle 02	0
Variable Flip Angle 03	0
Variable Flip Angle 04	0
Variable Flip Angle 05	0
Variable Flip Angle 06	0
Variable Flip Angle 07	0
Variable Flip Angle 08	0
Variable Flip Angle 09	0
Variable Flip Angle 10	0
Variable Flip Angle 11	0
Variable Flip Angle 12	0
Variable Flip Angle 13	0
Variable Flip Angle 14	0
Variable Flip Angle 15	0
Variable Flip Angle 16	0
Variable Flip Angle 17	0
Variable Flip Angle 18	0
Variable Flip Angle 19	0
Variable Flip Angle 20	0