

Parameters and Trade-offs

Parameter	Benefit	Limitation
TR increased	Increase SNR Increase number of slices	Increases scan time Decreases T1 weighting
TR decreased	Decrease scan time Increase T1 weighting	Decrease SNR Decrease Number of slices
TE increased	Increase T2-weighting	Decrease SNR
TE decreased	Increase SNR	Decrease T2-weighting
NEX increased	Increase SNR More signal averaging	Direct proportional increase in scan time
NEX decreased	Direct proportion decrease in scan time	Decrease SNR, less signal averaging
Slice thickness increased	Increases SNR Increase coverage of anatomy	Decreased spatial resolution More partial voluming
Slice thickness decreased	Increase spatial resolution Reduced partial voluming	Decrease SNR, decrease coverage
FOV increased	Increase SNR Increase coverage of anatomy	Decrease spatial resolution Decrease potential for aliasing
FOV decreased	Increase spatial resolution Increase potential for aliasing	Decrease SNR, decrease coverage of anatomy
Matrix increased	Increase spatial resolution	Increase scan time, decrease SNR if pixel is reduced
Matrix Decreased	Decrease scan time Increase SNR if pixel size incre.	Decrease spatial resolution
Receive bandwidth increased	Decrease in chemical shift Decrease in minimum TE	Decrease SNR
Receive Bandwidth decreased	Increase in SNR	Increase in chemical shift Increase in minimum TE
Large Coil	Increase area of received signal	Lower SNR, increase potential for artifacts and aliasing
Small Coil	Increase SNR	Decrease ROI and signal rec.

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