To preprocess the multi-echo MRI data from each of the seven sessions, we improved our analyzing method from the one used for calculating TMS coordinates. All functional images were first realigned to the 1st volume in the first echo, and the obtained voxel-to-world mapping matrix was applied to the other two echoes volume by volume. All functional images were resliced before they were analyzed in tedana to optimally combine and denoise data. Tedana used the weighted T2\* method, which first estimated the voxel-wise T2\* and S0 maps for each echo by fitting the monoexponential decay model. Then it combines signal across echoes using a weighted average.

Then we used the ME-ICA approach to remove the noise that are less likely to be the bold signal by first reducing the dimensionality and classify components to TE-dependence and independence. I used the *aic* option (the least aggressive option) to do the component selection. In the selected components, PCA explains XX% of the variance on average across participants.

Then we did a series of other preprocessing steps on the optimally combined and denoised data: coregistration, normalization (writing in both 2mm and 3mm space), and smoothing.