

Supplementary Fig. 1. Euclidean distance between fASL and BOLD in the individual space. A)

Euclidean distance between fASL and BOLD for MAX (red line) and CoG (orange line) for each subject. **B)** Boxplots of the Euclidian distances between the MRI modalities for each hand, in terms of CoG and MAX.

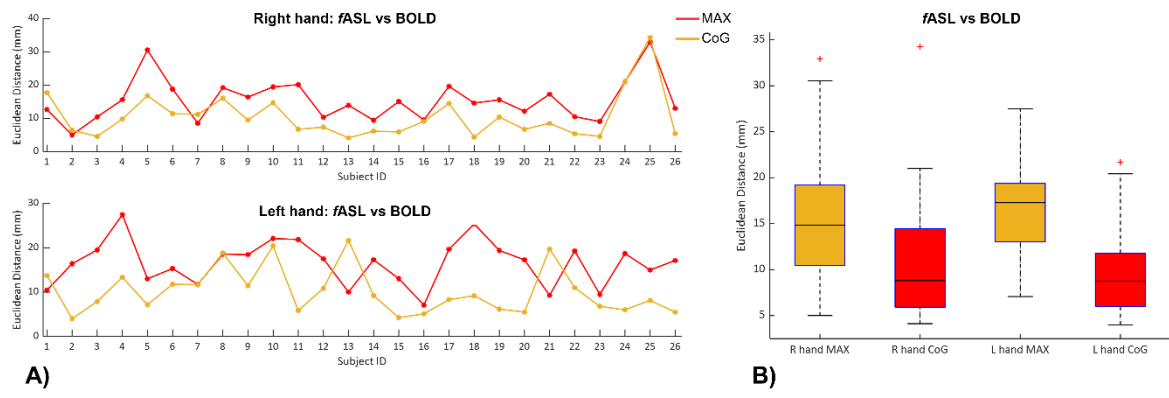
Supplementary Fig. 2. fASL versus BOLD. Violin plots represent the localization across all brain directions of MAX and CoG obtained from fASL and BOLD activation maps during clenching Fi hand task. *:p<0.05; ***:p<0.001.

Supplementary Fig. 3. TMS-MRI comparison. The Euclidean distance between TMS and *f*ASL is lower than the Euclidean distance between TMS and BOLD. Significance is achieved only for the left hand when the MAX value of activation was taken into consideration. * $p < 0.05$.

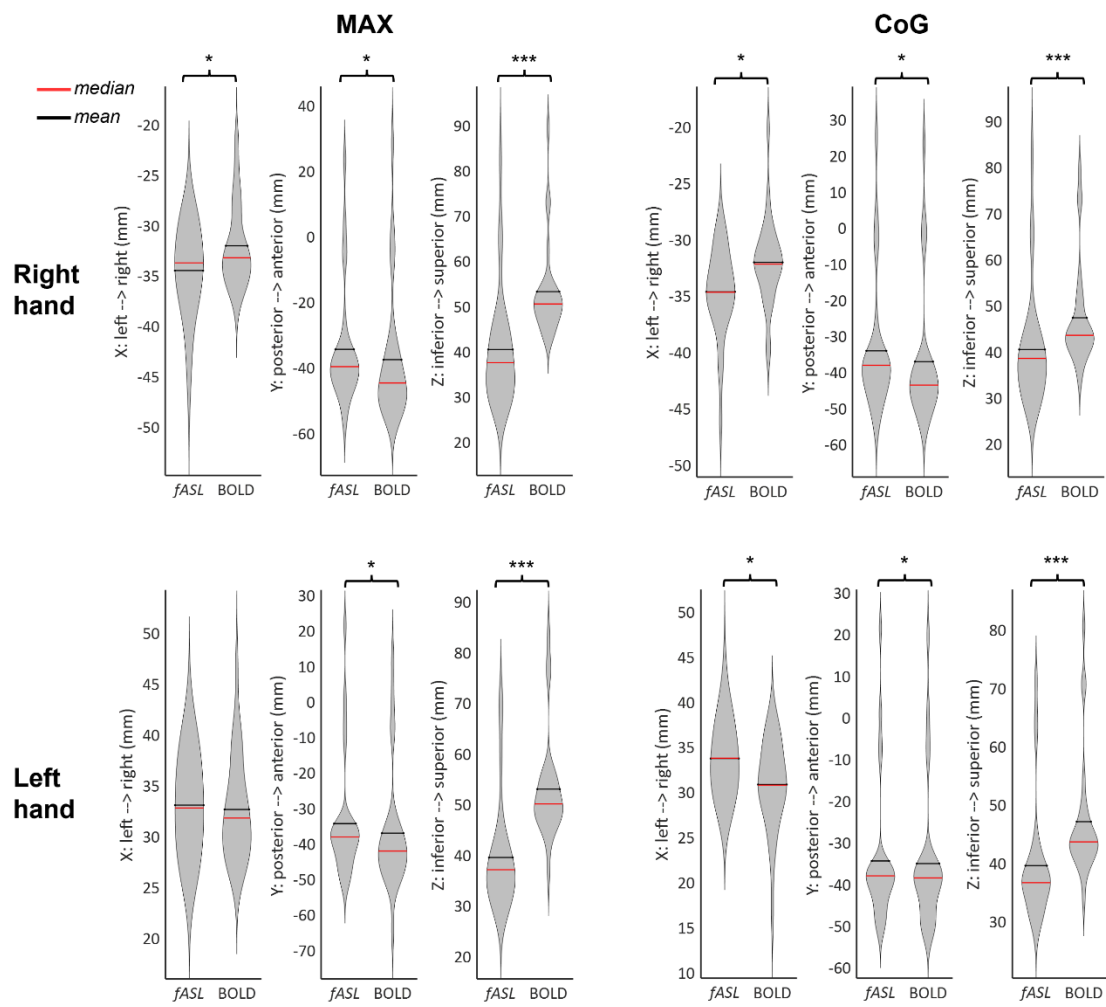
Supplementary Fig. 4. TMS-MRI comparison along brain anatomical directions. Each violin plot represents the distance to TMS of *f*ASL/BOLD along each coordinate. Results are shown for both MAX and CoG and each hand. * $p < 0.05$.

Supplementary Fig. 5. Results of pneumatic stimulation. Activations at group level are shown for the BOLD and *f*ASL for right (top row) and left (bottom row) thumb. The location of the global maximum of activation are specified in MNI coordinates.

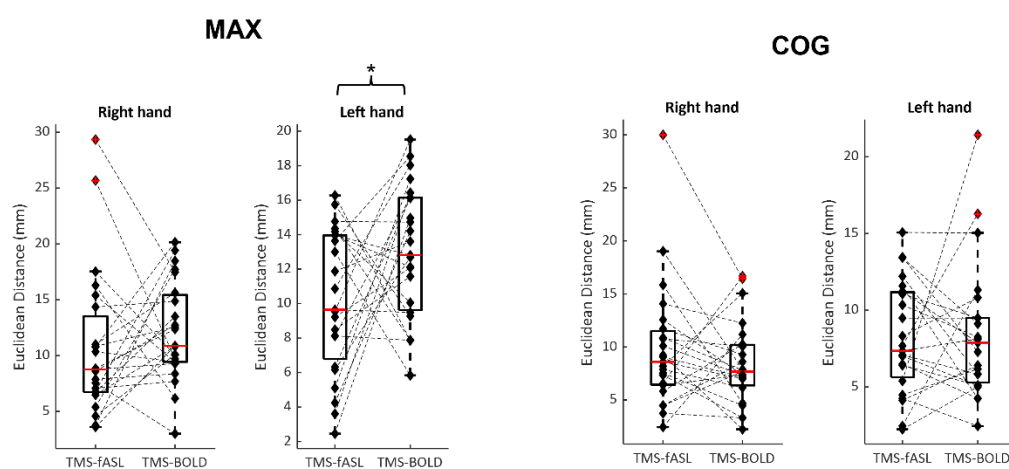
Supplementary Fig. 1



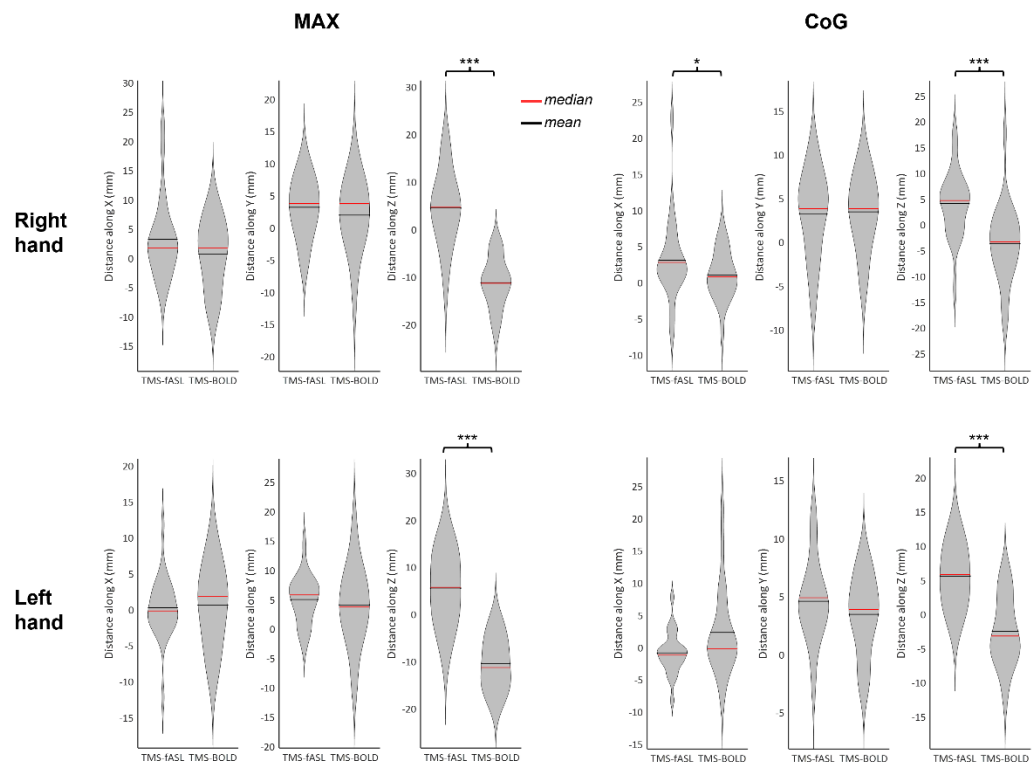
Supplementary Fig. 2



Supplementary Fig. 3



Supplementary Fig. 4



Supplementary Fig. 5

