**FMRI data pre-processing steps**

1) Slice time correction

3dtshift (AFNI)

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dTshift.html>

2) Fieldmap correction

TopUp (FSL) or unWarpEPI.py (AFNI)

<https://fsl.fmrib.ox.ac.uk/fsl/fslwiki/topup>

3) Motion Correction

3dvolreg (AFNI)

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dvolreg.html>

make sure you save the motion params to use a regressors in your later analyses.

4) Alignment within session (EPI’s to T1w anatomies)

3dTstat

Get mean

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dTstat.html>

N4BiasCorrection

Normalize the images <https://github.com/nipy/nipype/blob/beefe81055649d531a58c950803fe3d2095decca/nipype/interfaces/ants/segmentation.py#L316>

Skull Strip

3dSkullStrip (AFNI)

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dSkullStrip.html>

FSL BET

<https://fsl.fmrib.ox.ac.uk/fslcourse/lectures/practicals/intro2/index.html>

Align Centers

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/@Align_Centers.html>

3dAllineate (AFNI)

-base T1w

-dset EPI

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dAllineate.html>

5) Across session Alignment

Align Centers

3dAllineate (AFNI)

<https://afni.nimh.nih.gov/pub/dist/doc/program_help/3dAllineate.html>

6) Align to NMT template