# CONN Process

**Setup**

* Enter no. of subjects (was 89 for EM)
* Enter no. of sessions (1 for EM, not sure if SW would be two sessions or one session with both tasks)
* Enter repetition time (1.46 for EM)
* Enter acquisition type (continuous for EM)

**Structural**

* Enter T1\_on\_EPI (EM EPI) for each participant

**Functional**

* Enter functional dataset for each participant – for me, this was just EM, but this time it would be EM and then SW (in two blocks so there is a clear point where EM data ends and SW begins)

**ROIs**

* Tick subject-specific ROI
* Enter each ROI for each participant (so one ROI file per participant per ROI)

**Conditions**

* For me, it was just one condition throughout all the functional data
* For the new analysis, there are 2 conditions (EM and SW) and this would be specified here as outlined in the CONN forum post <https://www.nitrc.org/forum/forum.php?thread_id=13005&forum_id=1144>

**Covariates (1st level)**

* I entered two covariates: ‘realignment’ (rp\_auf file for each participant) and ‘physio and task’ (regr\_mat) file for each participant)
* Once you run the preprocessing this updates and adds QC\_timeseries and scrubbing

**Covariates (2nd level)**

* Here you specify the three groups – ‘Healthy Young Adults’, ‘Healthy Older Adults’ and ‘Alzheimer’s Disease’
* Assign the values – 1 means belongs to this group and 0 means does not belong to this group (so there are as many digits as there are participants)
* Similarly, once you run the preprocessing, a number of ‘QC\_’ variables are added

**Options**

* Enabled analyses – ROI-to-ROI and seed-to-voxel
* Analysis space (voxel-level) – volume: same as functionals or same as mask (default 2mm voxels)
* Analysis mask (voxel-level) – explicit mask (mask.volume.brainmask.nii)
* Second-level analyses (voxel-level) – parametric and non-parametric analyses
* BOLD signal units – PSC (percentage signal change)
* Selected all optional output files

**Preprocessing**

* Only selected ‘functional Outlier detection (ART-based identification of outlier scans for scrubbing)’ on the primary dataset for all subjects and sessions
* Use conservative settings
* This is CONN’s movement outlier detection
* Uses the rp\_auf file

**Denoising**

* Confounds: white matter (5P), CSF (5P), realignment (12P0, physio and task (20P), scrubbing (294P)
* Band pass filter: [0.008 0.1] after regression (RegBP)
* Linear detrending, no despiking
* This removes movement-related, physio-related and task-related data, and also selects a filter to represent the data best

**First Level Analysis**

* ROI-to-ROI
* Correlation (bivariate)
* HRF weighting
* Weighted GLM
* All ROIs selected
* Source dimensions: 1, no temporal expansion, no frequency decomposition

**Second Level Analysis**

* Choose contrast or specify own
* 🡪 display results