

Preregistration

# My fMRI preregistration

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<b>Project Title</b>	Enter your response here.
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<b>Introduction</b>	Enter your response here.
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<b>Aims &amp; Hypotheses</b>	Enter your response here.
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<b>Existing Data</b>	<b>Registration prior to creation of data</b> <b>Registration prior to any human observation of the data</b> <b>Registration prior to accessing the data</b> <b>Registration prior to analysis of the data</b> <b>Registration following analysis of the data</b>
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<b>Explanation of Existing Data</b>	Enter your response here.
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<b>Details of Larger Study</b>	Is your preregistration part of a larger project?
	<b>Yes</b>
	<b>No</b>

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<b>Data Collection Procedures</b>	<ul style="list-style-type: none"> <li>• Population: Enter your response here.</li> <li>• Recruitment efforts: Enter your response here.</li> <li>• Inclusion/Exclusion criteria: Enter your response here.</li> <li>• Clinical criteria (if applicable): Enter your response here.</li> <li>• Matching strategy (if applicable): Enter your response here.</li> <li>• Payment for participation: Enter your response here.</li> <li>• IRB, consent/assent obtained: Enter your response here.</li> <li>• Number of subjects participated and analyzed: Enter your response here.</li> <li>• Age: Enter your response here.</li> <li>• Sex: Enter your response here.</li> <li>• Handedness: Enter your response here.</li> <li>• For group comparisons, what variables (if any) were equated across groups: Enter your response here.</li> <li>• Study timeline: Enter your response here.</li> </ul>
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**Sample Size &  
Stopping Rule****Target sample size:**

To obtain our target sample size, we plan to recruit: Enter your response here.

**Justification of sample size:**

Power analyses:

- Effect size: Enter your response here.
- Source of predicted effect size (prior lit, pilot etc.): Enter your response here.
- Significant level: Enter your response here.
- Target power: Enter your response here.
- Specify the type of outcome used as the basis of power computations, e.g. signal in a prespecified ROI, or whole image voxelwise (or clusterwise, peakwise, etc.): Enter your response here.

**Stopping rule:**

- Time constraints: Enter your response here.
- Money constraints: Enter your response here.
- Personnel constraints: Enter your response here.

**Contingencies for if your target sample size is not met:**

Enter your response here.

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**Measured  
Behavioral  
Variables**

**Outcome measures**

Enter your response here.

**Predictor measures**

Enter your response here.

**Covariate measures**

Enter your response here.

**How was behavioral task performance measured**

Enter your response here.

**Contingency plans for behavioral analysis**

Enter your response here.

E.g., If the X questionnaire is missing for more than 10% of participants we will not use it or if X does not show variability in response (either ceiling or floor effects) in which we cannot look at behavioral pattern of interest, we will not use that questionnaire and use Y questionnaire instead.

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**Additional  
Operational  
Definitions**

**Region Specificity**

Enter your response here.

**Any other definitions used across study**

Enter your response here.

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**Transformations**

Enter your response here.

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**Analysis Data****Exclusion****Outliers**

Enter your response here.

**Reasons for possible rejection**

Enter your response here.

**Dealing with incomplete/missing data**

Enter your response here.

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**Experimental****Design****Design Specifications**

- Design type: Enter your response here.
- Conditions & Stimuli: Enter your response here.
- Number of blocks, trials or experimental units per session and/or subject:  
Enter your response here.
- Timing and Duration: Enter your response here.
- Length of experiment: Enter your response here.
- Was the design optimized for efficiency, and if so, how? Enter your response here.
- Presentation software: Enter your response here.

**Task Specification**

- Instructions to subjects: Enter your response here.
- Stimuli: Enter your response here.
- Stimuli presentation & response collection Randomization/pseudo-randomized:  
Enter your response here.
- Run order: Enter your response here.

**Data acquisition****Subject Preparation**

- Mock scanning: Enter your response here.
- Specific accommodations: Enter your response here.
- Experimental personnel: Enter your response here.

**MRI system**

- Manufacturer, field strength , model name: Enter your response here.

**MRI acquisition**

- Pulse sequence: Enter your response here.
- Image type: Enter your response here.
- *Essential sequence & imaging parameters*
  - For all acquisitions:
    - \* Echo time (TE): Enter your response here.
    - \* Repetition time (TR): Enter your response here.
      - For multishot acquisitions, additionally the time per volume:  
Enter your response here.
    - \* Flip angle (FA): Enter your response here.

- \* Acquisition time : Enter your response here.
- Functional MRI:
  - \* Number of volumes: Enter your response here.
  - \* Sparse sampling delay (delay in TR) if used: Enter your response here.
- Inversion recovery sequences:
  - \* Inversion time (TI): Enter your response here.
- B0 field maps:
  - \* Echo time difference (dTE). Diffusion MRI: Enter your response here.
  - \* Number of directions : Enter your response here.
  - \* b-values: Enter your response here.
  - \* Number of b=0 images: Enter your response here.
  - \* Number of averages (if any): Enter your response here.
  - \* Single shell, multishell : Enter your response here.
  - \* Single or dualspinecho, gradient mode : Enter your response here.
  - \* If cardiac gating used: Enter your response here.
- Imaging parameters:
  - \* Field of view: Enter your response here.
  - \* Inplane matrix size, slice thickness and interslice gap, for 2D acquisitions: Enter your response here.
  - \* Slice orientation : Enter your response here.
  - \* Angulation : Enter your response here.
  - \* 3D matrix size, for 3D acquisitions: Enter your response here.
- Phase encoding: Enter your response here.
- Parallel imaging method & parameters\_\_ Enter your response here.
- Multiband parameters: Enter your response here.
- Readout parameters: Enter your response here.
- Fat suppression: Enter your response here.
- Shimming\_\_ Enter your response here.

- Slice order & timing: Enter your response here.
- Brain coverage: Enter your response here.
- Scanner-side preprocessing: Enter your response here.
- Scan duration (in seconds): Enter your response here.
- Other non-standard procedures: Enter your response here.
- T1 stabilization: Enter your response here.
- Diffusion MRI gradient table: Enter your response here.
- Perfusion: Arterial Spin Labelling MRI
  - ASL Labelling method: Enter your response here.
  - Use of background suppression pulses and their timing: Enter your response here.
  - For either PCASL or CASL report:
    - \* Label Duration: Enter your response here.
    - \* Postlabeling delay (PLD): Enter your response here.
    - \* Location of the labeling plane: Enter your response here.
  - For PCASL also report:
    - \* Average labeling gradient: Enter your response here.
    - \* Sliceselective labeling gradient: Enter your response here.
    - \* Flip angle of B1 pulses: Enter your response here.
    - \* Assessment of inversion efficiency; QC used to ensure off-resonance artifacts not problematic, signal obtained over whole brain: Enter your response here.
  - For CASL also report:
    - \* Use of a separate labeling coil: Enter your response here.
    - \* Control scan/pulse used: Enter your response here.
    - \* B1 amplitude: Enter your response here.
  - For PASL report:
    - \* TI: Enter your response here.



- \* Labeling slab thickness: Enter your response here.
- \* Use of QUIPSS pulses and their timing: Enter your response here.
- For VSASL:
  - \* TI: Enter your response here.
  - \* Choice of velocity selection cutoff (“VENC”): Enter your response here.
- Perfusion: Dynamic Susceptibility Contrast MRI Specify
  - Number of baseline volumes: Enter your response here.
  - Type, name and manufacturer of intravenous bolus: <! –e.g. gadobutrol, Gadavist, Bayer –> Enter your response here.
  - Bolus amount and concentration: Enter your response here.
  - Injection rate: Enter your response here.
  - Postinjection of saline: Enter your response here.
  - Injection method: Enter your response here.

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## Preprocessing

### Preliminary quality control

- Motion monitoring: Enter your response here.
- Incidental findings: Enter your response here.

### Data preprocessing

Enter your response here.

### Pre-processing: general

- Order of preprocessing operations: Enter your response here.
- Data quality control measures: Enter your response here.
- Unwarping of B0 distortions: Enter your response here.

- Slice timing correction: Enter your response here.
- Reference slice and type of interpolation used: Enter your response here.
- Motion correction: Enter your response here.
- Reference scan, image similarity metric, type of interpolation used, degrees-of-freedom and optimization method: Enter your response here.
- Motion susceptibility correction used: Enter your response here.
- Smoothing:

### **Intersubject registration**

- Intersubject registration method used: Enter your response here.
- Illustration of the voxels present in all subjects (“mask image”) or average BOLD sensitivity within each voxel in the mask: Enter your response here.
- Transformation model and optimization: Enter your response here.
- Transformation model: Enter your response here.
- Type of any non-linear transformations: Enter your response here.
- Number of parameters: Enter your response here.
- Regularization: Enter your response here.
- Image-similarity metric: Enter your response here.
- Interpolation method: Enter your response here.
- Object image information: Enter your response here.
- Anatomical MRI? Image properties: Enter your response here.
- Co-planar with functional acquisition? Enter your response here.
- Functional acquisition co-registered to anatomical? if so, how? Enter your response here.
- Segmented gray image? Enter your response here.

- Functional image: Enter your response here.
- Atlas/target information: Enter your response here.
- Brain image template space, name, modality and resolution: Enter your response here.
- Coordinate space: Enter your response here.
- Smoothing: Enter your response here.

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### Statistical modeling

#### Planned comparison

Enter your response here.

#### General issues

Enter your response here.

#### First level (fx) modeling

- Eventrelated design predictors: Enter your response here.
- Block Design predictors: Enter your response here.
- HRF basis: Enter your response here.
- Drift regressors: Enter your response here.
- Movement regressors: Enter your response here.
- Any other nuisance regressors, and whether they were entered as interactions:  
Enter your response here.
- Any orthogonalization of regressors, and set of other regressors used to orthogonalize against: Enter your response here.
- Contrast construction: Enter your response here.
- Autocorrelation model type: Enter your response here.

### **Second level (group) modeling**

- Statistical model and estimation method, inference type: Enter your response here.
- If more than 2-levels, describe the levels and assumptions of the model: Enter your response here.
- Repeated measures? Enter your response here.
- For group model with repeated measures, specify:
  - How condition effects are modeled: Enter your response here.
  - Whether subject effects are modeled: Enter your response here.
- For group effects: clearly state whether or not covariates are split by group: Enter your response here.
- Model type: Enter your response here.
- Model settings:

Enter your response here.

### **ROI analysis**

- How were ROIs defined: Enter your response here.
- How was signal extracted within ROI: Enter your response here.
- If percent signal change reported, how was scaling factor determined: Enter your response here.
- Is change relative to voxel-mean, or whole-brain mean: Enter your response here.
- Justify definition of ROI and analysis conducted with it: Enter your response here.

### **Statistical model**

Enter your response here.

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**Statistical  
inference**
**Inference on statistic image (thresholding)**

- Search region: Enter your response here.
- Statistical type: Enter your response here.
- P value computation: Enter your response here.
- Multiple test correction: Enter your response here.
- False negative discussion: Enter your response here.

**Functional connectivity**

- Confound adjustment & filtering Report: Enter your response here.
- Multivariate method: Enter your response here.
- Dependent variable definition: Enter your response here.
- Functional connectivity measure/ model: Enter your response here.
- Effectivity connectivity: Enter your response here.
- Graph analysis: Enter your response here.

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**Follow-up**      Enter your response here.  
**Analyses:**

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**Exploratory**      Enter your response here.  
**Analyses:**

**References**