Tractography under the microscope: Data extraction manual for a systematic review/meta-analysis

**Notes**

* If information is missing, please write “NA”. Do not leave the field blank.
* Please report all numbers to two decimals (e.g., 12.37)
* If multiple tracts were mapped, only extract the values pertaining to the corticospinal tract

**Patient demographics**

* Sample size
  + This refers to the final number of patients recruited for surgery of motor-eloquent lesions
  + If a study reports that N=X patients were recruited for surgery for motor-eloquent lesions, N=Y patients were recruited for surgery for non-motor lesions, and 3 patients with motor-eloquent lesions dropped out, only extract N=X-3
* Age
  + Please extract values for the final sample. E.g., if 20 patients were recruited and 3 dropped out, report the age for the remaining 17 patients and not of the original sample of 20
  + Age\_mean: mean age
  + Age\_sd: standard deviation
  + Age\_median: median age
  + Age\_min: if an age range is given, extract the minimum age
  + Age\_max: if an age range is given, extract the maximum age
* Sex\_f
  + Extract number of females in the final sample
* Sex\_m
  + Extract number of males in the final sample
* Pathology
  + Path: Extract the diagnoses. Select from the following: tumours, glioma, meningioma, astrocytoma, space-occupying lesions, other
    - Select other if (1) none of the other categories apply, or (2) multiple categories apply
  + Path\_o: if you selected “other”, please list the pathology/pathologies here.

**Methodology**

* Diffusion imaging parameters
  + Grad\_dir: Extract the number of gradient directions
  + b\_val: Extract the b-value. It is provided in the unit sec/mm2
  + vox\_1: Extract the dMRI voxel size (width)
  + vox\_2: Extract the dMRI voxel size (height)
  + vox\_3: Extract the dMRI voxel size (depth)
* Tractography
  + Soft: extract the tractography software as described in the paper, e.g., “DTI Studio software version 2.02”
  + model: extract whether the tractography followed an FOD- or DTI-based approach as follows: “FOD”, “DTI”, “both”, “unclear”
  + roi: extract the ROIs used for tractography
  + anat\_tms: was the tractography performed using nTMS or anatomical landmarks? Please enter, “tms” or “anatomical”
* Mapping set-up
  + Mus: what muscles were monitored intraoperatively?
  + Shift: method for brain shift correction. Select from the following: ultra-sound; not mentioned; iMRI, post-op MRI; other
  + Shift\_comment: copy and paste relevant quotes or write a summary specifying how the brain shift correction method was employed, e.g., “US and MRI image were displayed next to each other, a screenshot was taken, and the distance between stimulation point and CST was measured in the MR image using photoshop "after correction by the analogous US scan"”
* Cortical mapping parameters
  + C\_probe: what stimulation probe was used? Select from the following: monopolar, bipolar, unclear
  + C\_stim\_str: What was the range (in mA) of the stimulation strength? Enter, e.g., 1-10, 8-12. If not specified, enter “unclear”
  + C\_stim\_freq: what was the stimulation frequency (in Hz)?
  + C\_stim\_dur: what was the duration of each pulse (in ms)? This may also be referred to as “pulse-width”
  + C\_stim\_int: what was the interstimulus interval (in ms)?
  + C\_stim\_train: was stimulation conducted in train form? E.g., train of 5, no
* Subcortical mapping parameters
  + Sub\_probe: what stimulation probe was used? Select from the following: monopolar, bipolar, unclear
  + Sub\_stim\_str: What was the range (in mA) of the stimulation strength? Enter, e.g., 1-10, 8-12. If not specified, enter “unclear”
  + Sub\_stim\_freq: what was the stimulation frequency (in Hz)?
  + Sub\_stim\_dur: what was the duration of each pulse (in ms)? This may also be referred to as “pulse-width”
  + Sub\_stim\_int: what was the interstimulus interval (in ms)?
  + Sub\_stim\_train: was stimulation conducted in train form? E.g., train of 5, no
* Conflicts of interest
  + Confl: Do the authors report a conflict of interest? Enter “yes”, “no”, “unclear”

**Primary outcome**

* Sens\_dti: Sensitivity for DTI
  + Sens\_fod: Sensitivity for FOD
* Spec\_dti: Specificity for DTI
  + Spec\_fod: Specificity for FOD
* Ppv\_dti: Positive predictive value for DTI
  + Ppv\_fod: Positive predictive value for FOD
* Npv\_dti: Negative predictive value for DTI
  + Npv\_fod: Negative predictive value for FOD
* tp\_dti: number of true positives for DTI
  + tp\_fod: number of true positives for FOD
* tn\_dti: number of true negatives for DTI
  + tn\_fod: number of true negatives for FOD
* fp\_dti: number of false positives for DTI
  + fp\_fod: number of false positives for FOD
* fn\_dti: number of false negatives for DTI
  + fn\_fod: number of false negatives for FOD
* c\_total: total number of cortical stimulation points; this information may only be presented in tables or figures
* sub\_total: total number of subcortical stimulation points; this information may only be presented in tables or figures
* total: total number of cortical and subcortical stimulation points; this information may only be presented in tables or figures

**Secondary outcome**

* Mean distance between tract and stimulation points
  + Dist: mean distance between tract and stimulation points
  + Dist\_pos: mean distance between tract and positive stimulation points
  + Dist\_neg: mean distance between tract and negative stimulation points
* Correlation between stimulation strength and measured distances
  + Cor\_typ: e.g., Pearson or Spearman correlation
  + Cor\_r: correlation coefficient
  + Cor\_ci\_low: lower bound of the confidence interval
  + Cor\_ci\_hi: upper bound of the confidence interval
  + Cor\_eff: effect size
  + Cor\_eff\_typ: e.g., Cohen’s d, Hedges’s g
* Motor function
  + Motor\_test: what motor test(s) was conducted?
  + Pre\_motor: enter the score from the pre-operative motor test(s)
  + Pre\_motor\_time: select from the following depending on whether the time of the motor test was less than 5 days before the operation, more than 5 days before the operation, not specified: ≥5 days, <5 days, unspecified
  + Post\_motor: enter the score from the pre-operative motor test(s) (from the latest follow-up conducted)
  + Post\_motor\_time: select from the following depending on whether the time of the motor test was less than 1 month after the operation, more than 1 month before the operation, not specified: ≥1 month, <1 month, unspecified
  + Motot\_change: did motor function(s) change from pre- to post-op testing? Select from: “improve”, “decrease”, “same”
    - If multiple tests were used, summarise as follows, e.g.: NIHSS improve, mRS decrease, grip strength same