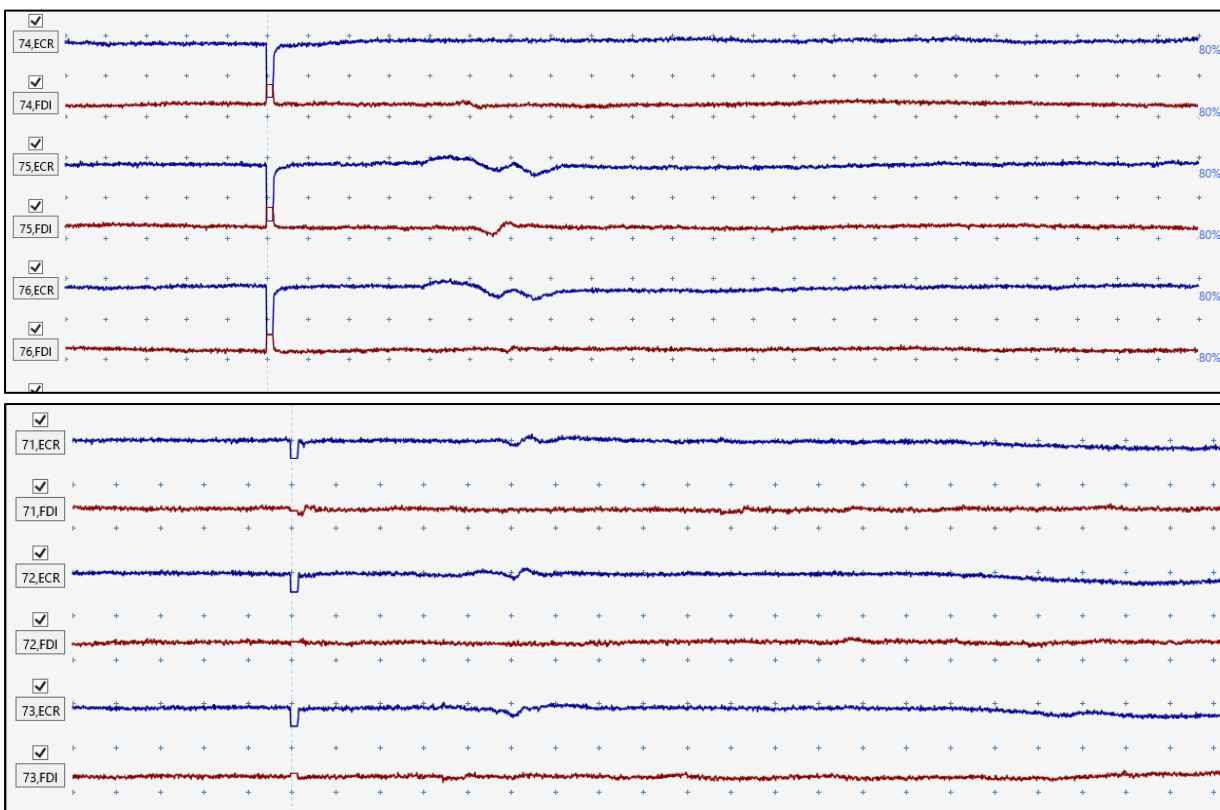




## Small or Uncertain Responses

- Recently we've been receiving datasets from VERIFY patients with small or uncertain MEPs elicited at low stimulus intensities and the TMS session is ended. Although there's no amplitude criteria for MEPs, the larger the response size the more confident we can be that they're MEPs. It's useful to increase the intensity if:
  - The responses are extremely small such as in the pictures below, <math>< 50\mu\text{V}</math> amplitude.
  - EMG noise issues are present that obscure parts of the response.
- The TMS protocol is that **if you see a MEP or a response that may be an MEP then you should hold the coil in that position and deliver 9 more stimuli at that same intensity**. If you see MEPs in one or both muscles in at least 3 out of 10 traces then the patient can be classified as MEP+ and you have finished the test. If you're still uncertain about MEP status then increase **the stimulator intensity another 10%**.
- You don't need to precisely determine the stimulator intensity that first produced MEPs when answering the "Stimulator intensity for MEP status determination" question. The priority is to get a clear and definitive MEP status.



## MEGA-TMS Reminders

- In a few instances the laptop supplied with the MEGA-TMS machine has become unresponsive when trying to use it with VERIFY patients. We recommend installing the MEGA-TMS software and settings on a second laptop for situations like this, and they can be downloaded from <https://verifytraining.blogs.auckland.ac.nz/resources/>.
- How TMS traces are viewed can influence MEP status determination. For sites with MEGA-TMS stimulators we recommend watching the "[MEGA-TMS Traces Viewing Options](#)" video on the MEGA-TMS Information page of the training website which shows how traces can be moved, overlaid, or hidden to help determine MEP status.

## Situations it's best to go straight to 100% MSO with bilateral facilitation

- If you get the sense the patient is uncomfortable and may ask to stop the TMS session prematurely then you have the option to skip the remaining intensities and move straight to 100% MSO with active bilateral facilitation. This will hopefully allow you to determine MEP status without a second TMS session.
  - You would still need to perform systematic coil positioning by delivering at least 1 stimulus at a minimum of 5 different scalp sites at 100% along with bilateral facilitation to be sure the patient is MEP-
  - Remember you only need 1 MEP in 1 muscle to confirm MEP+ status at 100% MSO with bilateral facilitation.
  - If no MEPs are present but you haven't used the following together **(1) 100% MSO and (2) bilateral facilitation and (3) systematic movement of the TMS coil, then the MEP status is undetermined** and the patient can't be included in the primary analysis.
- **Only ~5 stimulations need to be delivered at low intensities of 30-50%. Eliciting MEPs in stroke patients at these low intensities is unlikely and these low intensities are mainly used to ease the patient into receiving TMS. The low intensities should be moved through quickly if possible to prevent the participant becoming fatigued.**
- Ideally, the greatest number of stimulations will be given at 100% MSO during bilateral facilitation while systematically moving the TMS coil around if required as this is the most likely situation MEPs will be elicited.

## Miscellaneous reminders

- Please get in contact with the VERIFY TMS team if you would like to know what questions you got incorrect in any of the online TMS training quizzes, regardless of how long ago you completed them.
- The VERIFY TMS safety checklist can only be used with stroke patients by a trained VERIFY staff member who has received a certificate for completing the TMS Safety Checklist module.
- When you finish a patient TMS session and save the data please immediately reopen and check the data looks correct. If the data didn't save correctly then you can quickly re-test the patient as they are still present and prepped for TMS. If the VERIFY TMS team cannot make a MEP status determination due to the data not saving correctly then the patient will have an unusable MEP status and can't be included in the primary analysis.
- Even if both the ECR and FDI traces contain electrical noise please still conduct the TMS session as there's a decent chance the patient will produce MEPs that can be detected during electrical noise. Noisy data is better than no data!
- Remember to keep the patient, their family, and their clinical team blinded to the patient's MEP status.
- Keep the VERIFY TMS team blinded to MEP status when contacting them regarding a patient.
- It is important to accurately record the time of last stimulation for stroke patients because clinical monitoring of the patient for seizures and syncope should be performed 15 and 30 minutes after the final stimulation. Also continue observing the participant while you pack up the TMS equipment.

## Urgent assistance or advice needed during a TMS session?

Call/text the TMS hotline at (833)337-2227 (Mon-Fri 8am-9pm ET)

Please email [verify.study.tms@gmail.com](mailto:verify.study.tms@gmail.com) if you have any questions or comments about VERIFY TMS.