

PROTOCOLS FOR EEG RECORDING

Total Recording time.

EEG recordings should be a minimum 20 minutes of total recording time. The client should be alert but relaxed at all times.

Montages used.

The ear lobes must be recorded as well as the standard 19 EEG electrode sites. Use an ipsilateral ear reference montage for eyes closed, eyes opened, and mental task recordings. Use a bipolar longitudinal montage for Hyperventilation and Photic Stimulation.

Keep client alert and minimize artifacts.

If signs of drowsiness are apparent, pause the recording and alert patient. Check for artifacts, excessive eye blink, muscle tension (jaw, neck, forehead), movement, etc. Coach the client to minimize any artifacts seen in the recording. During the eyes open recording have the client stare at one spot on the wall and let them take breaks every couple of minutes. If the client is unable to keep eyes still while they are closed, then have them lightly touch their eye lids with their finger tips.

Make separate files for different recording conditions.

Save recordings for different conditions as separate files. Do not simply pause or stop the recording after each condition. Close the recording after each task and start a new recording. For example, Eyes Closed “EC” is save in one file and Eyes Open “EO” is saved in a separate file. If tasks are performed, save each to a separate file as suggested below.

Two different protocols are suggested, the “neurological EEG” is most useful for adults with suspected neurological or psychiatric disorders, such as epilepsy, head trauma, depression, dementia. The “psychological EEG” is most useful for children with learning disabilities or developmental disorders. The most appropriate set of recording conditions for a given client is decided by the referring clinician.

NEUROLOGICAL TYPE EEG RECORDING PROTOCOL:

- 1) Eye movements and alpha blocking (2 minutes) and Eyes Closed resting “EC” (10 minutes):** Start recording while asking client to be still and only to move eyes up and down and then to the left and right. To check for alpha blocking ask the client to close eyes for 10 seconds and open eyes for 10 seconds, repeat this 2-3 times. Follow this two minute period with a 10 minute recording of eyes closed resting and label this file “EC”. **TOTAL TIME: 10-12 minutes.**
- 2) Eyes Open resting “EO”:** Have the client open eyes and focus on a point. Monitor for eye blink and EMG artifact. Pause after two minutes to rest eyes. **TOTAL TIME: 5-10 minutes.**

- 3) **Hyperventilation “HV”:** With eyes closed have the client breathe deeply and quickly for a period of three minutes and then rest for three minutes. The client should be instructed that they may feel light-headed and that this is a normal response. DO NOT hyperventilate individuals with a history of cardiovascular disease, high blood pressure, COPD, or a recent cerebrovascular accident (Stroke). Many labs do not HV individuals over the age of 70. Rate the patient effort as “poor”, “fair”, “good” or “excellent” **TOTAL TIME: 6 minutes.**
- 4) **Photic Stimulation “Photic”:** If available, run a photic strobe stimulator at varying flash rates with a 10-second rest period between flash frequencies. The flash lamp should be placed directly in front of the client pointed toward the eyes and about 30 cm. from the eyes. If photic stimulation is not available record an additional eyes closed resting EEG and let the client become drowsy/sleepy if possible. **TOTAL TIME: 4 minutes.**

PSYCHOLOGICAL TYPE EEG RECORDING PROTOCOL:

- 1) **Eye movements and alpha blocking (2 minutes) and Eyes Closed resting “EC” (10 minutes):** Start recording while asking client to be still and only to move eyes up and down and then to the left and right. To check for alpha blocking ask the client to close eyes for 10 seconds and open eyes for 10 seconds, repeat this 2-3 times. Follow this two minute period with a 10 minute recording of eyes closed resting and label this file “EC”. **TOTAL TIME: 10-12 minutes.**
- 2) **Eyes Open resting “EO”:** Have the client open eyes and focus on a point. Monitor for eye blink and EMG artifact. Pause after two minutes to rest eyes. **TOTAL TIME: 5-10 minutes.**
- 3) **Reading “RD”:** Select age appropriate reading material and record while the client is reading. Be sure to check reading comprehension to be sure that the client was actually performing the task. For younger clients, a listening task “LIS” may be more appropriate. **TOTAL TIME: 3 minutes**
- 4) **Math “MA”:** Select age appropriate arithmetic problems and record while the client is performing calculations. Be sure to check accuracy to be sure that the client was actually performing the task. For younger clients, a drawing task “DRAW” or other type of active task may be more appropriate. **TOTAL TIME: 3 minutes**

Take extra care to minimize artifacts during performance of tasks.

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If you are using a Cadwell EEG recording system, be sure that the recording reference is set to “Cz” and is NOT set to “autoref”. (These settings are found on the impedance check screen.)

Please call if you have questions or comments on this document: (818) 563-5409.