Patients in the BCI treatment group undergo a total of 25 sessions. However, for your analysis, only the first (PRE) and last (POST) sessions are available. Each session lasts approximately one hour and consists of two parts: a *TRAINING* run and a *TEST* run, both involving EEG recordings.

In each trial, the BCI instructs the patient to imagine either a left- or right-hand movement. This instruction is given 2 seconds after the trigger, which is coded as 1 for left-hand and -1 for right-hand imagery.

Because brain activity patterns vary between individuals and over time, the machine learning model is re-trained in each session using data from the *TRAINING* run. During this run, the patient receives both visual and functional electrical stimulation (FES) feedback while performing the motor imagery tasks. After the training run, features are extracted from the data, and the model is calibrated to the individual's brain activity.

The trained model is then applied during the *TEST* run. In this phase, the patient again imagines left- or right-hand movements based on instructions. However, feedback (FES and visual) is only provided if the model correctly detects the intended motor imagery.

In summary, the TRAINING data is used to calibrate the model, and the TEST data is used to evaluate its performance in real time. For example, a classification accuracy of 70% indicates that the model correctly identified the imagined hand movement in 70% of the test trials.