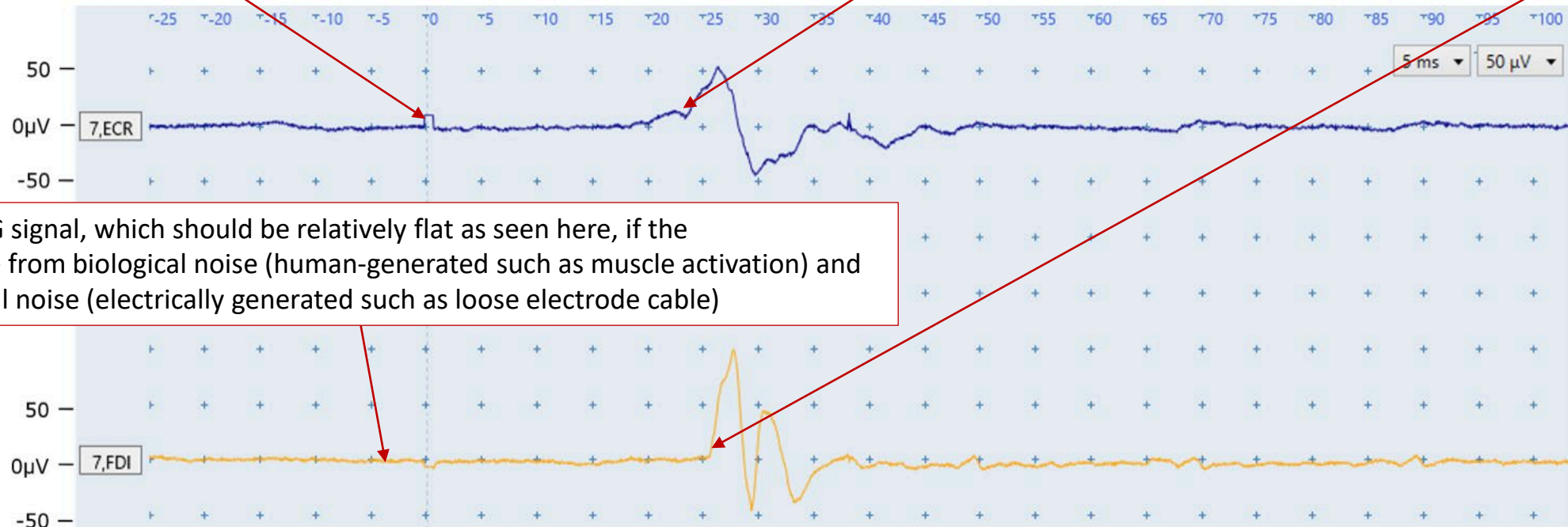


# Motor Evoked Potential (MEP) Cheat Sheet

Artifact seen due to magnetic stimulus delivery – this is when you activate the coil and hear a click. It is always at time zero, 0 ms, on the x-axis.

Start of MEP for extensor carpi radialis (ECR) muscle at about 20 milliseconds (ms) on the x-axis. The cortical neurons are activated by the stimulus at 0 ms, and it takes about 20 ms for their descending motor output to arrive at the muscle.

Start of MEP for first dorsal interosseous (FDI) muscle at about 25 ms. It is slightly later than the ECR MEP because the descending motor output has a greater distance to travel to the hand.



Baseline EMG signal, which should be relatively flat as seen here, if the tracing is free from biological noise (human-generated such as muscle activation) and non-biological noise (electrically generated such as loose electrode cable)

**Y-axis (amplitude):** You are seeing two EMG traces, the upper one from the extensor carpi radialis (ECR) and lower one from the first dorsal interosseous (FDI) muscles. The vertical size is the amplitude measured in microVolts ( $\mu\text{V}$ ). Note that amplitudes will vary and need not be considered when assessing MEP status, and only one muscle needs to show MEPs to deem the participant as MEP positive.

**X-axis (time):** Zero milliseconds (ms) marks the time of stimulation, and then the time to the start of the MEP is considered the latency. The typical latency is 15-25 milliseconds (ms) for the start of the ECR MEP, and 20-30 ms for the start of the FDI MEPs, if MEPs are going to be seen.