**Summary**

A visuomotor task was used to investigate the influence of a varying response delay on the evoked activity measured during motor planning. Participants performed one-dimensional hand movements to visual targets after 200-, 1,000-, and 5,000- msec. delays with respect to the target offset. In response to an imperative go signal, similar deflections were observed over motor areas in all delay conditions. In contrast, activity at posterior electrodes was strongly delay-dependent. During the shortest delay condition, evoked alpha oscillations were pronounced at occipitoparietal recording sites and were accompanied by P300-like positive waves. In contrast, when the delay was either 1,000 or 5,000 msec., lateral occipitotemporal deflections (N1) were observed. Also, during the longest delay condition another P300-like component was measured, which was entirely absent when the delay was 1,000 msec. These results suggest that neurophysiological processes underlie motor planning, change depending on the time of response.