

## TASK RELEVANCE MODULATES SOMATOSENSORY AWARENESS DEPENDING ON STIMULUS INTENSITY

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**Background:** Recent studies on somatosensory evoked potentials (SEPs) have proposed that the P3b component reflects higher order postperceptual processes, such as stimulus reporting and task relevance, whereas somatosensory awareness negativity (SAN) is more directly associated with somatosensory awareness. Despite growing evidence supporting this functional distinction, the omission of no-report conditions and controls for task demands hindered a clear separation between report- and task-related processes from those linked with somatosensory awareness.

**Aims:** Verify that P3b appears only when a report is required, being abolished in a no-report condition, and second, to determine the extent to which SAN is modulated by task requirements and stimulation amplitude.

**Methods:** We designed a simple experimental procedure that varied stimulus amplitude (set at individual sensory or motor thresholds) and task relevance (no-report stimulation, report + task-relevant stimuli, report + task-irrelevant stimuli).

**Results:** Our results closely link P3b with task relevance and show that SAN is indeed modulated by task relevance but only when stimuli are delivered at the verge of detection. In other words, task relevance influences conscious perception through an enhancement of the associated neural responses but only for stimuli challenging to detect.

**Conclusions:** Overall, our findings provide evidence that P3b is closely associated with task relevance, remaining out of the correlates of sensory awareness. In parallel, SAN modulations serve as a useful proxy for awareness in experimental manipulations involving attentional factors but only when stimuli are delivered near the sensory threshold.

**Keywords:** P3b, SAN, SEPs Awareness, Tactile

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