Modulation of the bilateral field advantage in visual-short-term-memory by repetitive TMS over the right precuneus

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A bilateral field advantage (BFA), that is enhanced visual processing when stimuli are aligned across both visual hemifields, corresponds to a hemispheric resource model of parallel visual attentional processing, suggesting more attentional resources on an early level of visual processing for bilateral displays (e.g. Alvarez & Cavanagh, 2005). Several studies have shown that the BFA extends beyond early stages of visual attentional processing. Visual-short-term-memory (VSTM) capacity was higher when stimuli are distributed bilaterally rather than unilaterally (e.g. Kraft et al., 2013). Here we test whether hemisphere-specific resources are also evident on later stages of visual attentional processing. We used a whole report paradigm based on the Theory of Visual Attention (TVA; Bundesen, 1990) that allows measuring VSTM capacity variability in unilateral and bilateral displays during navigated repetitive transcranial magnetic stimulation (rTMS) over the precuneus. Fifteen healthy subjects participated in the study. A robust BFA in VSTM storage capacity was observed in the control condition without rTMS and after rTMS over the left precuneus (both $p < 0.01$). In contrast, the BFA diminished with rTMS over the right precuneus ($p > 0.05$). We suggest that the right precuneus plays a causal role in VSTM capacity, particularly in bilateral visual displays.

Can we Infer Personality Traits from Vocal Correlates?

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Estimating personality traits from vocal features of speech remains an open question. Thus, we present an acoustic models of neuroticism and extraversion that aim to explain the relationship between acoustic features of a speaker's voice and personality perception by considering the physiology of speech production. For this purpose, a large corpus of 139 speakers was judged on the Big Five personality dimensions by at least 15 independent raters. Univariate and multivariate associations between the mean personality ratings and 45 selected acoustic features related to the processes of respiration, phonation and articulation were computed. Our results suggest that vocal features of speech (e.g. jitter, shimmer, harmonics-to-noise ratio, and statistics of formants 1-5) have an important influence on the perception of extraversion, neuroticism and openness to experience. Furthermore, our results largely support the proposed acoustic models of neuroticism and extraversion.