Task-Related Top-Down Modulations Are More Pronounced in Inner Cortical Depths of Human Visual Cortex

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Presentation Abstract Summary Face processing is a challenging computational problem, yet the human brain processes this rich visual category effortlessly. Here we address one specific aspect of face processing, namely how task-related top-down modulations shape neural responses to face stimuli. Crucially, we use Ultra-High Field (UHF) fMRI to measure neural activation to face stimuli across stimulus-relevant and stimulus-irrelevant tasks in a cortical depth-dependent fashion. Our results show that top-down attentional modulations are most prominent in the inner depths of face-selective regions and in V1. Thus, with the use of UHF fMRI, we can successfully probe the neural response of distinct cortical depths in humans. Future investigations can exploit this cortical depth sensitivity to build quantitative models of information processing at a layer-specific level.

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