

**Max-Wertheimer Minerva Center for  
Cognitive Processes and Human Performance**  
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אנו שמחים לארח את

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### *Different ways by which perception can be modulated*

Perception is an active process through which we construct a representation of our external environment. A key property of perception is its ability to adjust to the goals of the observer, a capacity also known as selective attention. Selective attention insures that important stimuli in the environment get processing priority. In this talk I will present evidence for three types of neural mechanisms that affect processing prioritization: relative change of response amplitude within a region, affect of amygdala on remote cortical processing and changes in backward connections between late and early cortical regions. Relative change of response amplitude is demonstrated in an fMRI study that manipulated memory and its affect on selective attention. We showed that the capture of attention could be achieved through active memory and to a lesser degree by a passive memory trace. The former marked by response facilitation and the latter by response inhibition to the re-appearance of the item in the environment. Processing priority could also be achieved through projections from the amygdala, signalling potential risks. This was tested using emotional faces in an EEG study of middle temporal lobe epileptic patients. The patients' lesion either included or spared the amygdala. We showed that lesion to amygdala abolished an early increase ERP responses for fearful expressions at P1 (~115ms post stimulus onset). Further we showed that larger expression P1 effect predicted participant's tendency to perceive fearful expression. Finally, priority could also be achieved by modulating the information extracted in early cortical processes. In a DCM (dynamic connectivity models) study, we showed that performing one-back task on facial expressions increased backward projections from STS to early visual cortex, while performing one-back on facial identity the FFG increase its backwards projection to these regions.

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**נשמח לראותכם בין אורחינו**

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