

***Talk on Tuesday, 3. December 2024***

***Start: 10:15 Uhr till 11.30 Uhr***

***in HS 424***

***The talk will be presented in English***

# **Inhibitory processing involved in visual perceptual learning in children**

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The brain undergoes fundamental functional and structural changes from childhood to adulthood. However, whether these changes also impact mechanisms of learning have remained uncertain. Although it is often assumed that children learn more efficiently than adults, it is unclear, if it is true, which mechanisms make learning more efficient in children. To address these questions, we examined visual perceptual learning (VPL), a type of skill learning, in elementary school age children and adults using psychophysics and functional magnetic resonance spectroscopy (fMRS). fMRS is a brain imaging technique that we used to measure the concentration of  $\gamma$ -aminobutyric acid (GABA), a chief inhibitory neurotransmitter, in early visual brain areas before, during and after the end of VPL. We found evidence of more efficient VPL in children than in adults, which was associated with differences in GABAergic processing during and after VPL between the two age groups. We conclude that inhibitory processing is a key mechanism for efficient VPL and that changes in inhibitory processing from childhood to adulthood dramatically impact learning.