
Contents

0. Summary / Zusammenfassung	1
1. Theoretical Section	7
1.1 Visuospatial selective attention	7
1.1.1 Basic cognitive processes	7
1.1.2 Neuroanatomy	12
1.1.3 Neurochemistry	14
1.2 Spatial neglect	19
1.2.1 Clinical signs/Neuropsychology	19
1.2.2 Neuroanatomy	22
1.2.3 Visuospatial attention in spatial neglect	23
1.2.4 Therapeutic approaches	25
1.3 Functional magnetic resonance imaging (fMRI)	27
1.3.1 Physical and physiological background	27
1.3.2 fMRI data analysis	29
1.3.3 Pharmacological MRI	31
2. Empirical Section	35
2.1 Objectives of the thesis	35
2.2 Experiment 1	39
2.2.1 Vossel, S., Thiel, C.M. & Fink, G.R. (2006). Cue validity modulates the neural correlates of covert endogenous orienting of attention in parietal and frontal cortex. <i>Neuroimage</i>, 32, 1257-1264.	39
2.2.2 Vossel, S., Thiel, C.M. & Fink, G.R. (2008). Behavioral and neural effects of nicotine on visuospatial attentional reorienting in non-smoking subjects. <i>Neuropsychopharmacology</i>, 33, 731-738.	69

2.3 Experiment 2	97
2.3.1 Vossel, S., Weidner, R., Thiel, C.M. & Fink, G.R. (submitted). What is 'odd' in Posner's location-cueing paradigm? Neural responses to unexpected location and feature changes compared.	97
2.4 Experiment 3	129
2.4.1 Vossel, S., Kukolja, J., Thimm, M., Thiel, C.M. & Fink, G.R. (in prep.). Nicotinic modulation of visuospatial attention in patients with chronic spatial neglect.	129
 3. Summary and Conclusion Section	 155
3.1 Neural correlates of visuospatial attentional reorienting (résumé of Vossel et al., 2006 and Vossel et al., submitted)	155
3.2 Behavioural and neural effects of cholinergic stimulation on visuospatial attentional reorienting (Vossel et al., 2008)	159
3.3 Effects of cholinergic stimulation on visuospatial attentional reorienting in patients with spatial neglect	163
3.4 Future prospects	165
 4. References	 167
 5. Curriculum Vitae	 177