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Outline of
“Neural mechanisms underlying performance errors:
a functional neuroimaging approach”

Hiroki Ora

Performance errors may have serious results. For example, while driving a car, if the intention is to stop and the accelerator pedal is mistaken for the brake pedal, a serious traffic accident may result. The purpose of this study is to clarify neural mechanisms underlying performance errors and to establish a detection or prediction method of performance errors. We surveyed the body of literature in Chapter 2. Though it is important to reveal neural mechanisms of performance errors and to predict or detect performance errors, performance errors have not been thoroughly-studied. In Chapter 3, we reported a study of neural mechanisms of performance errors. Our results suggest that temporal arrangement of deficits in frontal, parietal and sensory cortices is associated with performance errors. In Chapter 4, we reported a method of detection of performance errors. We demonstrated that the non-linear SVM classifier was able to detect trials with error outcomes during d2 test of attention. In Chapter 5 we reported a method of prediction of performance errors. We discussed about our findings in Chapter 6. We stated possibility of application of our findings, including neurofeedback trainings. With progress of the line of this study, we may be able to avoid performance errors by recognizing the error precursor.