

Departmental Seminar

Effects of Expertise, Normal Aging and Psychological Illness on our Ability to Monitor for Processing Conflicts and Errors

11:30 a.m. – 12:30 p.m. | April 18, 2018 (Wednesday)

Rm 813, 8/F, The Jockey Club Tower | Centennial Campus | The University of Hong Kong



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Abstract

Many daily tasks such as driving a car or playing a musical instrument require us to continuously monitor for problems and errors in information processing, determine the need for behavioural adjustments as well as evaluate the affective consequences of an undesired outcome. These frontal cortex-mediated cognitive control functions are critically important as the failure or delay in detecting suboptimal performance can have potentially devastating consequences. Conflict and error monitoring is strongly affected by aging and has also been reported to be compromised in patients with various psychological dysfunctions such as anxiety disorders, depression and schizophrenia. Here I will discuss evidence that the Anterior Cingulate Cortex (ACC) is critical for processing of negative affect and cognitive control presenting evidence from patients having undergone bilateral cingulotomy. I will also present data suggesting that a decline in ACC-mediated cognitive control is already detectable in healthy middle-aged participants. Finally, it has been suggested that highly skilled motor performance such as achieved through intensive musical practice can enhance executive functions both in children and adults. Here we looked at the effects of musical practice on the ability to monitor our behaviour and to implement necessary control adjustments using both behavioural and neurophysiological measures. Our results lend further support to the idea that engagement in musical activity might potentially have a protective effect against a decline in frontal-cortex functions.

~All are Welcome~