

Developmental neuroimaging: the creation of the switch task for children (STC)

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When a switch between two similar tasks has to be carried out, performance is slower and less accurate than when only one task is performed. These so-called switch costs have been attributed to cognitive control processes that are necessary for task switching. Functional MRI experiments in adults using a switch paradigm indicate a strong involvement of the prefrontal cortex. Since the prefrontal cortex is one of the last regions to mature, it is interesting to examine brain activation in young children performing a switch task. However, the available switch paradigms are not suitable for children younger than 7 years. Therefore, a new task was developed: the switch task for children (STC). In this task two comparable adventurous games were played in which the children had to search for stolen treasures. The STC was presented to 23 healthy children (age: 57-86 months) and showed to be an accurate tool for detecting switch costs in young children. These switch costs were expressed in slower responding and increased error rates during switch trials. In the near future, the task will be presented to young children in an fMRI-environment in order to examine the relation between maturation of the prefrontal cortex and cognitive control.

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