Competition between bottom-up and top-down mechanisms of auditory attention: neurophysiological and physiopathological mechanisms of distractibility

Fact Sheet

Project information

**DISTRACTIBILITY**

Grant agreement ID: 304201

Status

Closed project

Start date

1 March 2012

End date

29 February 2016

Funded under:

FP7-PEOPLE

Overall budget:

€ 100 000

EU contribution

€ 100 000

Coordinated by:

INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE

France

Objective

Attention is the brain function by which we, voluntarily or not, improve the processing of specific information in our environment while other information is disregarded. In principle, the entry of information to the limited-capacity system is controlled by two types of processes: top-down (TD) and bottom-up (BU) processes. TD attention enables the good performance of an on-going task by selecting the relevant information. One's attention can also be involuntarily captured by an unexpected salient stimulus and thus diverted from the previously on-going task. This BU form of attention is necessary to be aware of potentially important events that are nonetheless irrelevant to the on-going task (e.g. fire alarm), and is commonly referred as distractibility. A good balance between BU and TD mechanisms is thus crucial to be task-efficient while being aware of our surrounding environment.

This precarious balance is often affected in neurological and psychiatric disorders (e.g. attention-deficit hyperactivity or bipolar disorder, autism). Lack of distractibility points to the dominance of TD attention, whereas enhanced distractibility could be due to either reduced efficiency of TD mechanisms, or enhanced triggering of BU attentional capture. Despite the obvious importance of distractibility in assessing the patients' neurological status, no generally accepted index of it has emerged in clinical practice. Currently available tests of attention focus on top-down mechanisms of attention and fail to provide an indication of any alteration in BU attentional capture.
Therefore, this project aims at proposing a new paradigm to assess both BU and TD attention mechanisms, at the same time. At a basic level, this paradigm will provide crucial information on how these mechanisms compete in the healthy brain. On the clinical side, the better understanding of the physiopathological mechanisms of BU and TD attention will permit the optimization of a new distractibility test.

Field of Science

attention

Programme(s)

FP7-PEOPLE - Specific programme "People" implementing the Seventh Framework Programme of the European Community for research, technological development and demonstration activities (2007 to 2013)

Topic(s)

FP7-PEOPLE-2011-CIG - Marie-Curie Action: "Career Integration Grants"

Call for proposal

FP7-PEOPLE-2011-CIG

See other projects for this call

Funding Scheme

MC-CIG - Support for training and career development of researcher (CIG)

Coordinator

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