**Cognitive preparation for potential distraction is a feature-general strategic process**

Francesco Marini[1,2,a], Leonardo Chelazzi[3,b], Angelo Maravita[2,c], & Marty G. Woldorff[1,d]

Affiliations

[1]Duke University, USA.

[2]University of Milano-Bicocca, Milan, Italy.

[3]University of Verona, Verona, Italy.

Addresses

[a] Surface-mail: Center for Congitive Neuroscience, Box 90999, LSRC Building B242, 450 Research Dr., Durham, NC, 27708. E-mail: francesco.pd@gmail.com

[b] Surface-mail: Dipartimento di Scienze Neurologiche, Neuropsicologiche, Morfologiche e Motorie, Sezione di Fisiologia e Psicologia, Strada Le Grazie 8, I-37134 Verona, Italy. E-mail: leonardo.chelazzi@univr.it

[c] Surface-mail: Dipartimento di Psicologia, piazza dell'Ateneo Nuovo 1, 20126, Milano, Italy. E-mail: angelo.maravita@unimib.it

[d] Surface-mail: Center for Congitive Neuroscience, Box 90999, LSRC Building B242, 450 Research Dr., Durham, NC, 27708. E-mail: woldorff@duke.edu

When potential distraction is foreseen in a stimulus-processing context, a cognitive mechanism is engaged for limiting negative impact of irrelevant stimuli on behavioral performance, yet its engagement is resource-demanding and thus incurs a performance cost when distraction does not occur. This cost consists of slower response times to a simple sensory stimulus when presented alone but in a potentially-distracting context, as compared to the same stimulus presented in a completely distraction-free context (Marini, Chelazzi, and Maravita, 2012). This cost has been documented within and between different sensory modalities, but always with space-based distractors. Moreover, it has been documented only with block-wise manipulation of context, and it is not clear whether this distraction-limiting mechanism is also active in more dynamic situations, such as when potential distraction is cued on a trial-by-trial basis. Here, we aimed to specifically address these two questions by implementing this context manipulation in a new feature-based task (visual-motion versus visual shape), and by also implementing a cuing approach in which the potential-distraction expectation was manipulated anew in each trial. Results show robust distraction-context cost in both feature-based and space-based versions of the task when blocked, further supporting that it reflects a general mechanism of cognitive attentional control. However, the trial-wise cueing manipulation failed to elicit this cost for either of the tasks, suggesting this strategic filtering mechanism is predominantly adopted as a longer-term, sustained, cognitive set throughout an extended time period.