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