ATTENTION AFFECTS SHORT-TERM PERCEPTUAL MEMORY

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Purpose. To test effects of attention on short-term perceptual memory. **Methods.** Contrast detection thresholds were measured (2AFC) for a foveal Gabor Signal (GS; $\sigma=\lambda=0.15°$). Target was preceded (1) by a peripheral temporal cue consisting of two peripheral crosses (control condition), or (2) by a temporal cue and a low-contrast (at threshold) foveal-GS prime (prime condition). Time between cue and target (SOA) was set between 0 to 1800 ms, with cues and targets presented for 90 ms. Experimental blocks of trials were either of fixed SOA or of mixed (temporal uncertainty) SOAs. **Results.** Temporal cueing without GS prime (control) reduced GS detection thresholds by 40% (s.e.m.=5%, n=5 observers) at SOA of 360-540 ms relative to thresholds at SOA=0. Larger SOAs yielded baseline (SOA=0) performance. The presence of a low-contrast GS prime induced long-lasting (1800 ms) enhancement, with detection thresholds reduced by 39% (s.e.m.=6%) relative to baseline. Temporal uncertainty abolished both the temporal cueing effect and the long-lasting GS priming effect. **Conclusions.** These results indicate that (1) contrast sensitivity is improved in the presence of transient attention and that (2) this improvement can be prolonged when attention is triggered by a prime similar to the target. Thus, attention seems to gate short-term memory.

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