If I showed you where you looked, you still wouldn't remember

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Observers are no better at reporting where they just fixated in an image than they are at guessing where someone else has fixated. We investigated whether providing participants with explicit, online information about where they looked during a search task would help them recall their own eye movements afterwards. Seventeen observers searched for various objects in "Where's Waldo" images for 3s. On 2/3rds of scenes, observers made target present/absent responses afterwards. On the other third, however, they were asked to click twelve locations in the scene where they thought they had just fixated. Half of the scenes were presented normally (control). In the other half, we employed a gaze-contingent window that gave the impression of a roving 7.5 deg "spotlight" that illuminated everything fixated, while the rest of the display was still visible but darker. To measure the fidelity of the memory, we placed a virtual circle around each fixation and each click and measured the overlap. Perfect overlap would represent perfect memory. When modeled with some noise in placing clicks, best fixation produced 66% overlap for an average circle of diameter 2.6 deg. Overlap with randomly generated 'clicks' is chance performance (21% overlap). As in prior work, participants' click performance (28% overlap) was far from ceiling and quite close to chance performance. It was slightly better than the no-spotlight control (26%, p=0.02) in the spotlight condition. Giving observers more information about their fixations by dimming the periphery improved memory for those fixations modestly, at best. Interestingly, 9 of 14 observers queried thought the spotlight improved their memory (even though it didn't). One thought it made matters worse and four reported no subjective difference. Memory for fixations is poor, introspection about that memory is poor, and additional information about fixation does not help much.