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| **Debriefing**  Optimality in visual search. |

I would like to take this opportunity to thank you for your time today!

A recent influential model proposed that eye movements are “ideal” during search and maximally efficient (Najemnik & Geisler, 2005). However, a series of studies carried out in our (Nowakowska, Clarke, Sahraie, Hunt, submitted) and other laboratories (Morvan & Maloney, 2012) implicated that humans are not optimal in visual search.

In our previous study, we simulated visual field loss in healthy participants so that the part of the display falling to the right or left of the current fixation was replaced with mask of the same properties as background [Nowakowska et al., submitted]. We showed that when the search was effortful and required inspecting each object individually participants preferred to start search from their sighted field and this sighted field bias did not have overall negative consequences on the performance. In the next study, we systematically varied the heterogeneity of the distractor, relative to the target, making it an easy search (pop-out/parallel) or hard search (serial) and measured participant’s eye movements. When the search was serial, effortful it did not matter whether participants started from the sighted or blind field because they had to search the whole display in order to find the target. In the case of a pop-out search an optimal strategy was to assess from the centre whether the target was present on the sighted side, and if not detected to make large eye movement to the blind filed. We found that participants preferred to start their search from their sighted field in parallel condition, despite the fact that the target was absent. Therefore, their strategy was deemed suboptimal. In the current experiment, we were interested to examine if the optimal strategy develops spontaneously when participants are exposed to numerous testing sessions, with or without specific instructions.

Any information obtained during the course of the research will be kept strictly confidential. Before commencing the experiment, you will have been allocated a participant ID code, from that point onward your data will have been collected and stored anonymously. Your data will be kept for five years and may be used in future studies of similar topics. If, for any reason, you wish to withdraw from this study, you may do so by contacting the researcher or his supervisor.

If you would like to read more on this research area, please see:

Morvan, C., & Maloney, L.T.(2012) Human visual search does not maximize the post-saccadic probability of identifying targets. *PLoS Computational Biology*, 8(2), 1-11.

Najemnik, J., & Geisler W.S.(2005) Optimal search strategies in visual search. *Nature*, 434, 387-391

If you would like further information regarding this research or have any questions or concerns, please speak to the experimenter, or contact: Anna Nowakowska ([a.nowakowska@abdn.ac.uk](mailto:a.nowakowska@abdn.ac.uk)) or Dr. Amelia Hunt([a.hunt@abdn.ac.uk](mailto:a.hunt@abdn.ac.uk))