Review of: "Throwing is affected by self-movement"

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Potential competing interests: No potential competing interests to declare.

The authors provide a limited set of data on two ways to assess judgements of distance, to answer the question whether running would affect these judgements. They find that it does for both measures.

Major:

- Running could influence judgements of distance in various ways. The authors explain one possible mechanism: misjudgment of one's speed, leading to an error in distance that is independent of the distance (i.e. a bias). The other effect could be an indirect one: when running, one has more noisy (less reliable) information about target distance because the head is moving up and down and back and forth. Based on this, one would expect that participants rely more on their prior ("specific distance", e.g. Gogel and Tietz 1973), so more compression towards the specific distance. By measuring only one reference distance, a change in response could be due to a change in the amount of compression or a change in the bias. The corresponding underlying mechanisms could be a change in certainty (compression factor) or an effect of extrapolation (bias). The use of a single distance makes it impossible to distinguish between these interpretations.
- In figure 2, I see a 27 cm effect of running. In figure 3, the effects are 40 cm (160 cm) and 13 cm (140 cm), on average 27cm. So, the effect is exactly the same. The authors report that all these effects are statistically significant. How does this align with the statement in the abstract that "However, participants exhibited accurate throwing performance regardless of running or static conditions, indicating that the altered distance perception did not affect their ability to accurately throw objects."?

Minor

- Provide figures with paired comparisons of individuals.
- Given the framing of the research as investigating a possible difference between perceptual judgments and motor actions, I would expect some reference to the work of Goodale & Milner (Goodale and Milner 1992; Milner and Goodale 2006; Goodale and Milner 2018) and some of the critiques (Franz 2001; Smeets et al. 2002; Medendorp et al. 2018).

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