

# Research suggests people underestimate numerical guesses when leaning left

14 December 2011, by Bob Yirka



The Eiffel Tower. Image: Wikipedia.

(Medical Xpress) -- In one of those, who would have ever thought of that, ideas, Anita Eerland and colleagues at Erasmus University Rotterdam in the Netherlands, have found that we humans have a tendency to go low when making numerical estimates about things if our body is leaning slightly to the left. A very strange idiosyncrasy if ever there was one. Eerland and her team, as they describe in their paper published in *Psychological Science*, set up a series of experiments to prove the idea and found that the vast majority of people when asked to estimate the height of the Eiffel Tower for example, tend to offer lower answers when their body is made, unbeknownst to them, to lean slightly to the left.

To test for such an odd thing, the team enlisted a group of 91 volunteer undergraduate students and asked each of them to make estimations about some random things they didn't actually know the answers to, while standing atop a Wii balance board.

In the first such experiment, a subset of the volunteers were asked to make estimations based on things they could envision in their mind, such as building height or a city population. The second group were asked to make guesses about more fuzzy type things such as how many grandchildren did Queen Beatrix have, using a scale of 1 to 10.

While making their estimates, the volunteers were asked to stand on a Wii balance board and to maintain a straight posture as indicated by a crosshair on a computer screen. What they didn't know was that the posture meter had been rigged so that some were pushed slightly left, others slightly right, with the rest standing straight up and down. For both experiments the groups were split into six groups with the only changes being the order of the questions asked and the induced posture.

After the experiments were concluded, the volunteers were all asked to complete another questionnaire to find out if they actually knew any of the answers or if they were aware that their posture had been altered. As it turned out, none knew any of the answers, which means all the answers given were true estimates, and none caught on to the fact that their posture had been altered.

After studying the results, the research team found that virtually every answer given by those leaning left was smaller than those leaning right or standing straight upright. As an example, those leaning left gave estimates of the height of the [Eiffel Tower](#) that were 12 meters shorter on average than the other two groups.

The study shows, the team reports, that our bodies impact our minds in ways that most of us are completely unaware of and as a result decision-making might be skewed in ways that might surprise us.

**More information:** Leaning to the Left Makes the Eiffel Tower Seem Smaller, *Psychological Science*, Published online before print November 28, 2011, [doi: 10.1177/0956797611420731](https://doi.org/10.1177/0956797611420731)

### **Abstract**

In two experiments, we investigated whether body posture influences people's estimation of quantities. According to the mental-number-line theory, people mentally represent numbers along a line with smaller numbers on the left and larger numbers on the right. We hypothesized that surreptitiously making people lean to the right or to the left would affect their quantitative estimates. Participants answered estimation questions while standing on a Wii Balance Board. Posture was manipulated within subjects so that participants answered some questions while they leaned slightly to the left, some questions while they leaned slightly to the right, and some questions while they stood upright. Crucially, participants were not aware of this manipulation. Estimates were significantly smaller when participants leaned to the left than when they leaned to the right.

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