

# Study shows that testosterone levels can have an impact on generosity

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A team of researchers affiliated with a host of institutions across China has found a link between generosity in men and their testosterone levels. In their paper published in *Proceedings of the National Academy of Sciences*, the group describes experiments they conducted with male volunteers and what they learned about the impact of testosterone levels in men.

Prior research has shown that elevated levels of [testosterone](#) in men can lead to changes in decision-making, [antisocial behavior](#), damage to [romantic relationships](#) and in some cases, an increase in desire for material possessions.

Testosterone is a hormone—in males, it is produced in the testicles and the [adrenal glands](#)—the amount produced has been found to have a varying impact on the brain. In this new effort, the researchers wondered if heightened levels of the hormone might have an impact on generosity.

To find out, the researchers enlisted the assistance of 70 male volunteers between the ages of 18 and 25. The experiment began by separating the volunteers into two groups—both had a gel rubbed into their upper arms and shoulders. For one group, the gel contained 150 milligrams of testosterone; the other group got a placebo.

The next part of the experiment involved explaining the idea of social distance to both groups—the kind that describes emotional closeness with other people in their life. The researchers then asked all of the volunteers in both groups to rate how close they felt to various people in their life. The researchers then excluded any volunteers that reported having a negative relationship with the people in their lives. They then asked the volunteers to rate the degree of social distance of the people in their lives after which they were given a certain amount of money—the amount differed between individuals. Next, each of the volunteers was asked to lay in an fMRI machine as the researchers chose one of the people the volunteers had rated and then asked the [volunteer](#) to make a decision regarding the cash—they could either keep it or split it with the other person chosen by the researchers.

In studying their data, the researchers found the volunteers gave roughly equally to people they had reported as close to them in their social circle. But those given the testosterone were found to be less generous to those

not very close to them. They also found differences in activity in the [temporoparietal junction](#) in the brain—the part of the brain associated with empathy.

**More information:** Jianxin Ou et al. Testosterone reduces generosity through cortical and subcortical mechanisms, *Proceedings of the National Academy of Sciences* (2021). [DOI: 10.1073/pnas.2021745118](https://doi.org/10.1073/pnas.2021745118)

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