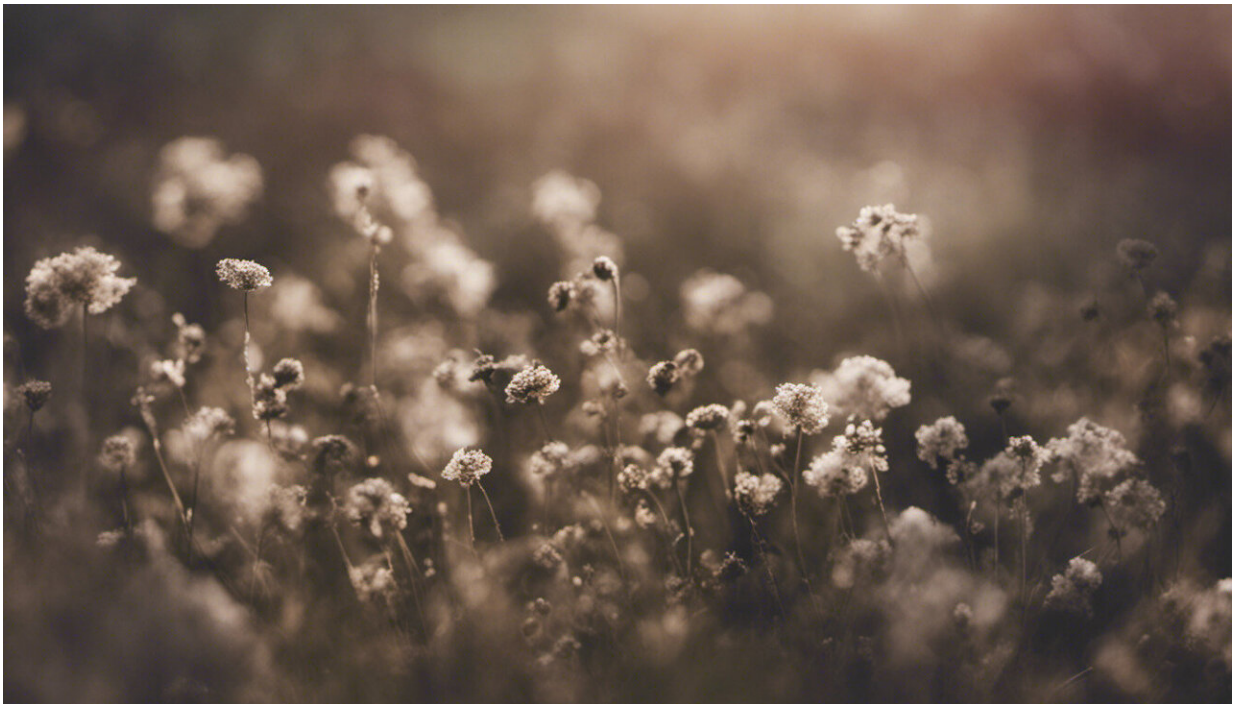


Testosterone increases honesty: Study examines the biological background of lying

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Credit: AI-generated image ([disclaimer](#))

Testosterone is considered the male hormone, standing for aggression and posturing. Researchers around Prof. Dr. Armin Falk, an economist from the University of Bonn, have now been able to demonstrate that this sex hormone surprisingly also fosters social behavior. In play situations, subjects who had received testosterone clearly lied less

frequently than individuals who had only received a placebo. The results have just been published in the Public Library of Science's journal *PLoS ONE*.

The [hormone testosterone](#) stands for typically male attributes – it fosters the forming of the [sexual characteristics](#), increases libido and [muscle building](#). Women also have this sex hormone, but to a much lesser extent. "Testosterone has always been said to promote aggressive and risky behavior and posturing," reports Prof. Dr. Bernd Weber, a neuroscientist from the Center for Economics and Neuroscience (CENS) at the University of Bonn. More recent studies indicate, however, that this sex hormone also fosters [social behavior](#).

Cause-and-effect issues remains unresolved

"The disadvantage of many studies is, however, that they only correlate their subjects' testosterone level with their behavior," explains lead author Dr. Matthias Wibral, adding that this approach only reflects statistical links while not providing any insights into the causes for the behavior. "For testosterone does not only influence behavior; behavior, in turn, also influences [hormone levels](#)." Consequently, the CENS scientists were looking for an experimental approach that would also allow deducing cause and effect.

Bonn researchers using new approach

The scientists recruited a total of 91 healthy men for a behavioral experiment. Out of this group of subjects, 46 were treated with testosterone by applying it to the skin in gel form. On the following day, endocrinologists from the Bonn University Hospitals checked whether the blood testosterone levels were indeed higher in these subjects than in the [placebo group](#). The other 45 [test subjects](#) only received a placebo

gel. "Neither the subjects themselves nor the scientists performing the study knew who had received testosterone and who hadn't," reports Dr. Wibral. This was done to prevent behaviors from potentially being affected.

Games of dice with cheating option

This was followed by the behavioral experiments. The test subjects played a simple game of dice in separate booths. The higher their scores, the higher the amounts of money they received as a reward. "These experiments were designed such that the test subjects were able to lie," reports Prof. Weber. "Due to the separate booths, nobody knew whether they were entering their real scores into the computer, or higher ones in order to get more money." However, the scientists were able to determine later whether the various test subjects had cheated or not. "Statistically, the probability for all numbers on the dice to occur is identical," explains the neuroscientist. "So, if there are outliers in the higher numbers, this is a clear indication that subjects have been cheating."

Test subjects with higher testosterone levels lied less

The researchers compared the results from the testosterone group to those from the control group. "This showed that the test subjects with the higher testosterone levels had clearly lied less frequently than untreated test subjects," reports the economist Prof. Dr. Armin Falk, who is one of the CENS co-directors with Prof. Weber. "This result clearly contradicts the one-dimensional approach that testosterone results in anti-social behavior." He added that it is likely that the hormone increases pride and the need to develop a positive self-image. "Against this background, a few euros are obviously not a sufficient incentive to jeopardize one's feeling of self-worth," Prof. Falk reckons.

Lies are widespread in personal life and business

Great taboos are attached to the phenomenon of lying. The Christian 8th Commandment, e.g., forbids "bearing false witness." Prof. Falk says, "However, lies play a great part both in the business world as well as in personal life." He adds that people frequently do not just lie to their own advantage, but also in order to protect or benefit others. This type of behavior and its economic effects had been studied often. "However, there are very few studies on the biological causes of lying," the Bonn economist explains. "In this regard, this study has allowed us to make a big step forward."

More information: Testosterone administration reduces lying in men, *PLoS ONE*, [DOI: 10.1371/journal.pone.0046774](https://doi.org/10.1371/journal.pone.0046774)

Provided by University of Bonn

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