Medical Xpress

Sensitive testosterone detector linked to less aggression

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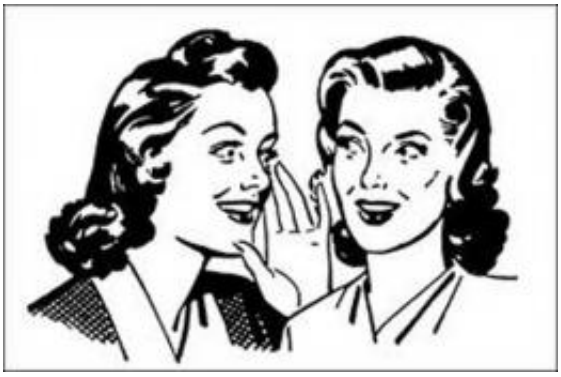

Elevated aggression within a sample of students included of subtle, “gossipy” styles of indirect aggression

Questionnaire results and DNA samples volunteered by a group of University of Alberta students has broken new ground in the study of aggression. U of A Psychology researcher Peter Hurd was looking at the link between an individual’s sensitivity to testosterone and aggressive behavior.

“I looked at the gene that makes the body's testosterone detector to determine if variations in this detector's sensitivity to the chemical causes people to be more or less aggressive,” said Hurd.

Hurd came across a previously published study in India that found violent criminals had genes that made receptors that were very sensitive

to the presence of testosterone, so he decided to conduct a similar experiment with volunteers at the U of A.

“Using survey questions and DNA analysis, we came up with exactly the opposite finding from the study done in India,” explained Hurd. “In our samples, less sensitive genes indicated more aggressive behaviour, perhaps because the bodies of those people wound up producing more testosterone to compensate.”

Hurd said it can be likened to smoke detectors; a less sensitive device requires more smoke in a room than a very sensitive one. Hurd believes that testosterone levels and sensitivity are particularly important during fetal development, particularly since testosterone acts to influence fetal brain development indirectly, through a different receptor after it has been converted to a slightly different chemical. “More or less prenatal testosterone seems to have consequences throughout a person’s entire lifetime.”

Hurd says there seems to be a link between fetal testosterone and social behavior, like aggression, in adults, and that the effects of the variation in sensitivity on the levels of fetal testosterone may explain the effect seen.

Hurd says the varying levels of testosterone sensitivity or exposure seen in the U of A volunteers is not related to extremely aggressive or criminal behavior. “It’s not as though these people were unable to physically control their emotions, it’s much more subtle than that.”

In fact, Hurd says the elevated aggression within this sample of students includes displays of aggression by one person against individuals through use of subtle, “gossipy” styles of indirect aggression. “That kind of subtle aggression could involve getting back at a perceived enemy by talking to others about them behind their back.”

More information: Hurd's research was published in the journal *Behavior Genetics*.

Provided by University of Alberta