

Male testosterone levels increase when victorious in competition against rivals, but not friends

May 14 2013

Sporting events can bring a community together, such as when the Louisville Cardinals won the NCAA championship and University of Louisville campus was filled with camaraderie. They also can fuel bitter rivalries, such as the long-standing animosity between the St. Louis Cardinals and the Chicago Cubs. A University of Missouri study has found that testosterone levels during group competition are modulated depending on the relationships among the competitors and may be related to the formation of alliances in warfare.

"One interesting thing about humans is that we are the only animal that competes in teams," said Mark Flinn, professor of anthropology at MU. "Our hormonal reactions while competing are part of how we evolved as a cooperative species. What we found in our study is that although male's [testosterone levels](#) increase when men are victorious against strangers or rivals, levels of the hormone tend to stay the same when competing against friends."

Flinn and his research team studied [males](#) from varying [age groups](#) on the island of Dominica while they played dominoes or cricket. Flinn found that when males competed against a group outside of their community, their [testosterone](#) levels rose during and after competition if they won, but diminished following a defeat. However, when males competed with their friends, their testosterone levels did not change in response to victory or defeat.

Competing in sport coalitions can raise testosterone levels in males, but males don't have to be competing in order to see a rise in testosterone. Flinn says that when watching a favorite sport team the viewer is a part of a coalition of fans in the community and can also get a rise in testosterone levels while watching games.

"For example, when MU plays the University of Kansas, males will probably have a huge increase of testosterone during the game and afterwards if their team is victorious," Flinn said. "At the same time we can create a coalition of fans while attending the game and bond together during the event."

Flinn suggests that coalitions may have had important effects on the evolution of human social psychology.

"The fascinating thing about humans is that whether we are watching or playing the sport, we have the ability to put interactions among the whole team in our heads," Flinn said. "That just shows how complex our social psychology is. For example, a hockey or basketball player can anticipate how his teammates are going to react when he passes to each one of them and predict the outcome. The ability for humans to be able to do that is pretty astonishing."

Members of Flinn's research team include Davide Ponzi, now a postdoctorate at the University of Chicago, and Michael Muehlenbein, associate professor of anthropology at Indiana University.

Provided by University of Missouri-Columbia

Citation: Male testosterone levels increase when victorious in competition against rivals, but not friends (2013, May 14) retrieved 4 May 2024 from <https://medicalxpress.com/news/2013-05-male-testosterone-victorious-competition-rivals.html>

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