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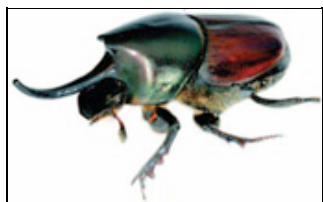
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## Big Testes or Big Horns? It's One or the Other for Male Beetles

John Roach for [National Geographic News](#)  
October 16, 2006

Big horns or big testes? It's one or the other for maturing male dung beetles looking to ensure reproductive success, a new study suggests.

The finding confirms a theory that beetles have evolved in response to trade-offs between the two traits.



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[For Dung Beetles, Monkey Business Is Serious Stuff \(May 26, 2004\)](#)

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Males of most species either get weapons to guard their access to females or a greater shot at successful insemination when they mate. (Related: "[Dung Beetles Navigate by the Moon, Study Says](#)" [July 2, 2003].)

"They can't produce huge versions of both at the same time," said Douglas Emlen, a biologist at the University of

Montana in Missoula.

Emlen and colleague Leigh Simmons, an evolutionary biologist at the University of Western Australia in Perth, examined the trade-offs between investment in weapons and sperm within and across species of horned dung beetles in the genus

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*Onthophagus*. (See a [video of an African dung beetle in action](#).)

The findings appear this week on the Web site of the journal *Proceedings of the National Academy of Sciences*.

**Bigger or Better**

In one same-species experiment, beetles prevented from growing horns by scientists developed disproportionately larger testes and body sizes than beetles allowed to grow horns.

"So the trade-off is real," Emlen said. "What's fun is that if you step back and look across species and look at a larger period of time, the big-picture importance of this trade-off is more complex."

According to Emlen, trade-offs appear to influence the types of horns that different beetle species grow.

For example, beetle species with large testes were the least likely to grow horns on the underside of their thoraxes. The thorax lies between the head and testes, so horns on the thorax compete directly with the testes for resources.

The team reports that some species of beetles have even found a way to have their cake and eat it too. They grow both big horns and big testes.

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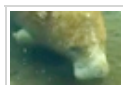


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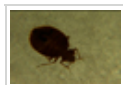
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[University of Montana: Douglas Emlen](#)

[Proceedings of the National Academy of Sciences](#)

[Indiana University: Armin Moczek](#)

