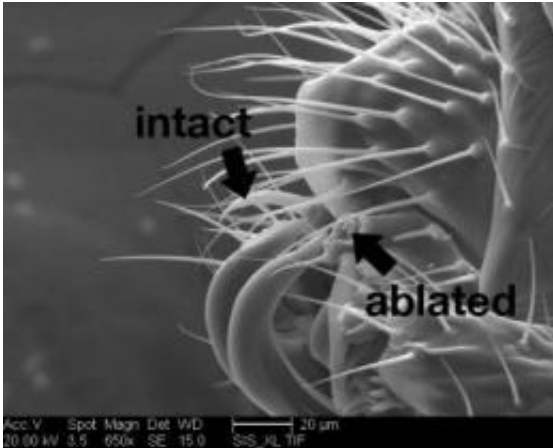


Duda, where'd my spines go?

January 7 2010



UC biologist Michal Polak uses a laser to ablate genital spines. This image shows an ablated and an intact spine. Credit: Michal Polak, University of Cincinnati

UC researcher finds that when it comes to hooking up with the opposite sex, genital complexities do matter.

Charles Darwin spent eight years studying barnacles and their genitalia. In much less time than that, University of Cincinnati evolutionary biologist Michal Polak (and co-author Arash Rashed now at the University of California, Berkeley) have confirmed one of Darwin's theories: that genitalia complexities in some male species have developed because they assist the male in "holding her securely."

As just published online in the [Proceedings of the Royal Society B](#), "Microscale Laser Surgery Reveals Adaptive Function of Male

Intromittent Genitalia" Polak's research showed that without a doubt among the fruit fly species *Drosophila bipectinata* Duda, the males' penile peculiarities assisted them in copulation.

Polak, an associate professor in the Department of Biological Sciences in McMicken College of Arts and Sciences at UC, used a laser ablation technique to cut off tiny "intromittent" spines on the genitalia of virgin male *D. bipectinata* Duda fruit flies.

"We refer to these genital spines as intromittent because they insert [them] into female external [genitalia](#) during copulation, and not because they insert into the reproductive tract," Polak and Rashed explain in their paper.

Polak's study concluded that the male genital spines serve two functions. When the spines were removed, the [males](#) experienced drastic reductions in ability to copulate and ability to compete against rival males for mates. However, if the males were able to copulate, they found that insemination and fertilization rates were not significantly different.

They're not done yet, says Polak.

"We are using the laser for a variety of projects, including to surgically excise other genital traits and the tiny but elaborate male sex 'combs' used in courtship, and to study their adaptive function in sexual selection."

More information: "Microscale laser surgery reveals adaptive function of male intromittent genitalia," rspb.royalsocietypublishing.org/.../b.2009.1720.abstract

Provided by University of Cincinnati

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