Further Secrets of the Snail Love Dart

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How do you make love to a snail? Slowly, violently and with a mucus-coated love dart. McGill University Biology Professor Ronald Chase knew that 'love darts' – sharp, slimy projectiles fired at prospective sexual partners – served to enhance paternity, he just wasn't sure exactly how. He has now learned that the key to the ritual lies not in the projectile itself but in a special mucus on the dart that can double the chances of paternity.

Published in the bi-monthly *Proceedings of the Royal Society of London B, Biological Sciences*, the discovery by Chase and his graduate student Katrina Blanchard further explains how the love dart plays a key evolutionary role in certain species of snails.

The snails are hermaphrodites. The experiment consisted of injecting a group of snails with the dart mucus while they were mating. One week later, the same group of snails was injected with a simple saline solution while mating with a different sperm donor. The sperm donors that coupled with a partner receiving the mucus injection sired twice as many babies as the sperm donors that coupled with those who had received the saline injection. Before the experiment, the love darts of all the snails had been surgically removed.

In earlier work, Chase had found that the mucus seemed to cause contractions in ducts of snails. He believes that these contractions may serve to suppress sperm-digesting enzymes which consume most of the 5.5 million sperm that are transferred during a mating session. The new experiment seems to validate this belief, confirming that a chemical reaction from the mucus, not a mechanical reaction from the dart, is what leads to the higher paternity rate.

Source: McGill University

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