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Title:	Sperm Competitive Ability Evolves In Response To Experimental Alteration Of Operational Sex Ratio
Authors:	Nandy, Bodhisatta (/jspui/browse?type=author&value=Nandy%2C+Bodhisatta) Chakraborty, Pratip (/jspui/browse?type=author&value=Chakraborty%2C+Pratip) Gupta, Vanika (/jspui/browse?type=author&value=Gupta%2C+Vanika) Ali, S.Z. (/jspui/browse?type=author&value=Ali%2C+S.Z.) Prasad, N.G. (/jspui/browse?type=author&value=Prasad%2C+N.G.)
Keywords:	Sophila melanogaster Experimental evolution Intersexual conflict Sperm defense
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Abstract:	In naturally polygamous organisms such as Drosophila, sperm competitive ability is one of the most important components of male fitness and is expected to evolve in response to varying degrees of male-male competition. Several studies have documented the existence of ample genetic variation in sperm competitive ability of males. However, many experimental evolution studies have found sperm competitive ability to be unresponsive to selection. Even direct selection for increased sperm competitive ability has failed to yield any measurable changes. Here we report the evolution of sperm competitive ability (sperm defense-P1, offense-P2) in a set of replicate populations of Drosophila melanogaster subjected to altered levels of male-male competition (generated by varying the operational sex ratio) for 55-60 generations. Males from populations with female-biased operational sex ratio evolved reduced P1 and P2, without any measurable change in the male reproductive behavior. Males in the male-biased regime evolved increased P1, but there was no significant change in P2. Increase in P1 was associated with an increase in copulation duration, possibly indicating greater ejaculate investment by these males. This study is one of the few to provide empirical evidence for the evolution of sperm competitive ability of males under different levels of male-male competition.
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