

Abstract

Males from populations which face higher degree of intersexual conflict and sexual selection have increased sperm defense ability. Increased sperm defense ability might have an anatomical and physiological basis in terms of increased testis and/or accessory gland size along with altered patterns of ejaculate investment. To test this hypothesis, we quantified the size of reproductive organs of male *Drosophila melanogaster* selected for different levels of sexual selection. We measured the testes area and the accessory gland area of the flies selected for low and high levels of sexual conflict. Measurements were done on virgins and after a single mating. The difference in the size of these organs pre and post mating is used as an indicator of the quantity of ejaculate investment. Contrary to some previous studies, we found no significant difference in the testes area or the accessory gland area between selected and control populations either in virgin or mated conditions. Mating decreased accessory gland area but not testis area. This indicates that the fitness advantage of males from high conflict populations might result from differences in accessory gland proteins and sperm quality.