Supplementary file for:

A weapons-testes tradeoff in males is amplified in female traits

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Figure S1. Females of *Narnia femorata* are larger in body size than males and have slimmer hind femora. Image adapted from [1]. Insects featured were raised on a high-quality diet of cactus cladodes with ripe fruit. Images are taken at the average sizes for insects reared on this diet and are to scale. On this diet, female pronotal width, $\bar{x}$ = 4.47mm, s.d. = 0.51, male pronotal width, $\bar{x}$ = 4.13mm, s.d. = 0.50. Female hind femoral area, $\bar{x}$ = 6.66mm^2, s.d. = 1.38; male hind femoral width: $\bar{x}$ = 8.19mm^2, s.d. = 2.18 [1, 2].

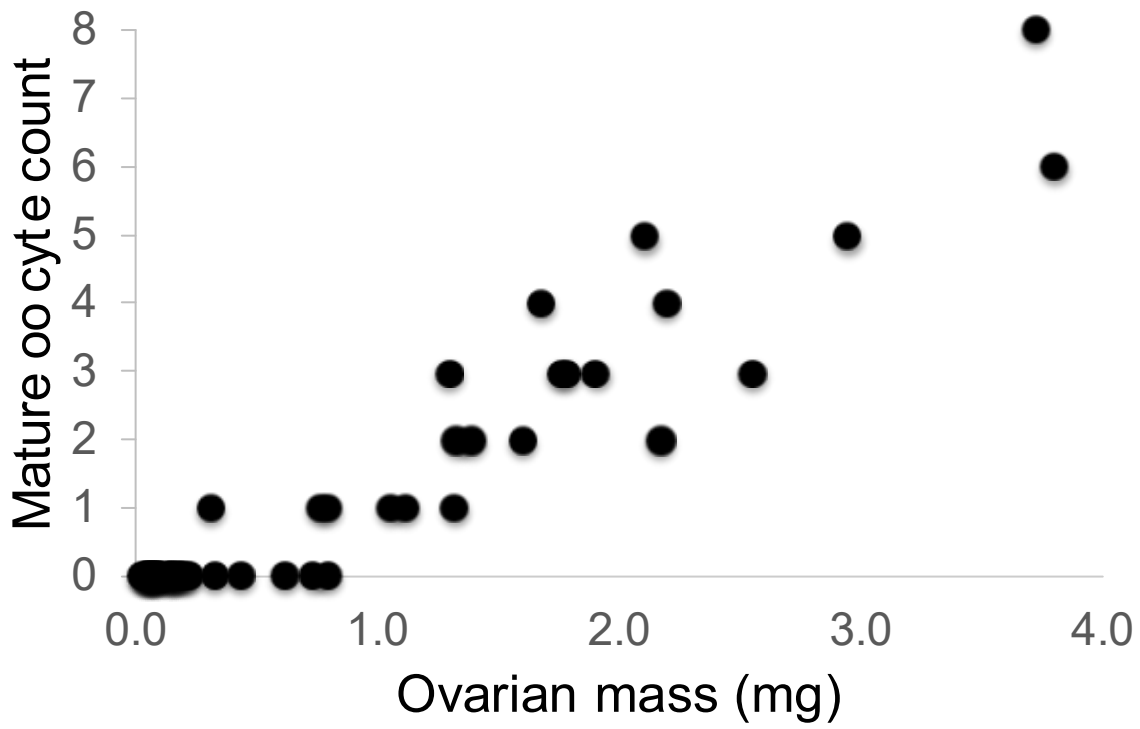

Figure S2. Oocytes contributed substantially to ovarian mass. The mean mass for a single oocyte was approximately 0.55mg, greater than the mean mass of the ovaries, 0.18mg. We adjusted for oocyte numbers in analyses of ovarian mass. Graph produced using raw (non-transformed) values.

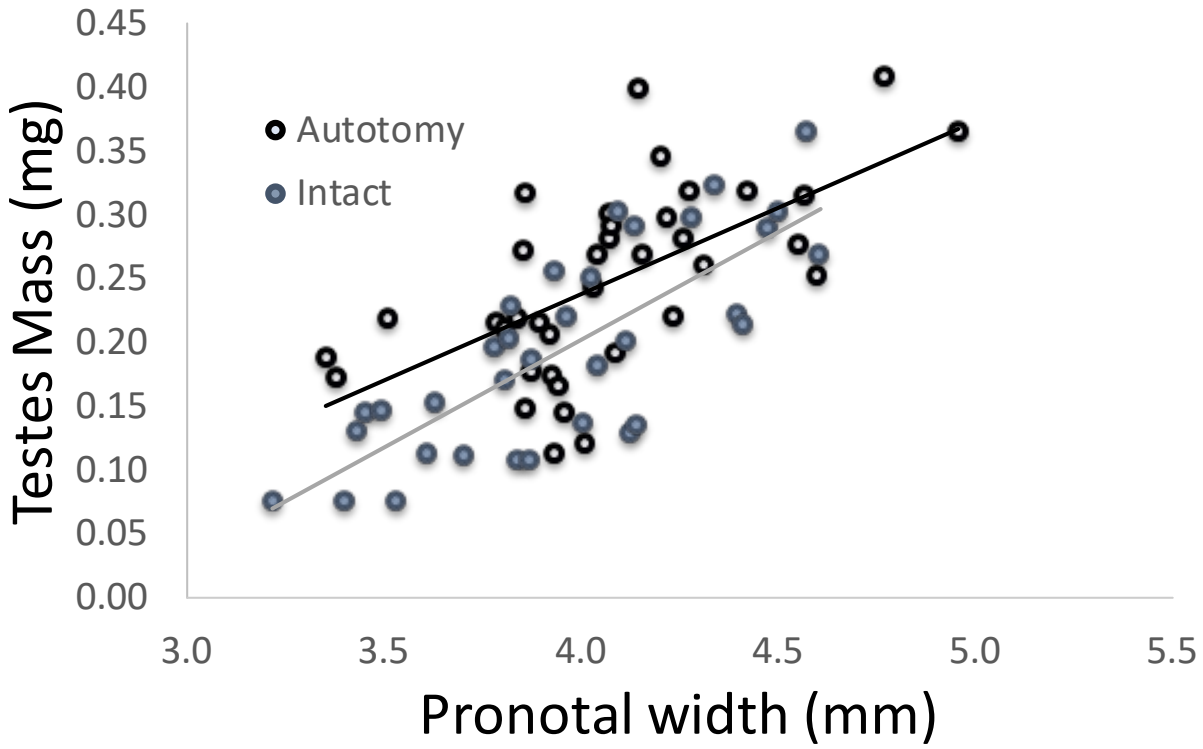

Figure S3. Males that dropped a limb during development grew larger testes, and the effect was more pronounced for the smaller individuals. Graph produced using raw (non-transformed) values.

In Figure S3, we found that the smallest males showed the greatest increase in testes mass following autotomy. This trend deserves more attention via directed future studies. Here, it suggests that the smallest males may benefit more from redirecting available resources to the testes. Small males likely have fewer mating opportunities and could benefit from greater sperm transfer during a single mating to yield greater paternity. Increased testes size is linked to greater fertilization success in this species (L.A. Cirino *in prep.;* G. Greenway *in prep*.).

References

[1] Miller, C.W., McDonald, G.C. & Moore, A.J. 2016 The tale of the shrinking weapon: seasonal changes in nutrition affect weapon size and sexual dimorphism, but not contemporary evolution. *Journal of Evolutionary Biology*.
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