Sexual comparisons in immune ability, survival and parasite intensity in two damselfly species

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Abstract
Recent evolutionary studies have suggested that females have a more robust immune system than males. Using two damselfly species (*Hetaerina americana* and *Argia tezpi*), we tested if females produced higher immune responses (as phenoloxidase and hydrolytic
enzymes), had a higher survival (using a nylon implant inserted in the abdomen and measuring survival after 24 h) and fewer parasites (gregarines and water mites) than males. We also tested whether immune differences should emerge in different body areas (thorax vs. abdomen) within each sex with the prediction that only females will differ with the abdomen having a higher immune response than their thorax since the former area, for ecological and physiological reasons, may be a target zone for increased immune investment. Animals were adults of approximately the same age. In both species, females were more immunocompetent than males, but only in *H. americana* females were immune responses greater in the abdomen than in the thorax. However, there were no differences in survival and parasite intensity or the probability of being parasitised between the sexes in either of the two species. Thus, this study lends partial support to the principle that females are better at defending than males despite the null difference in parasitism and survival.