Supplemental figures

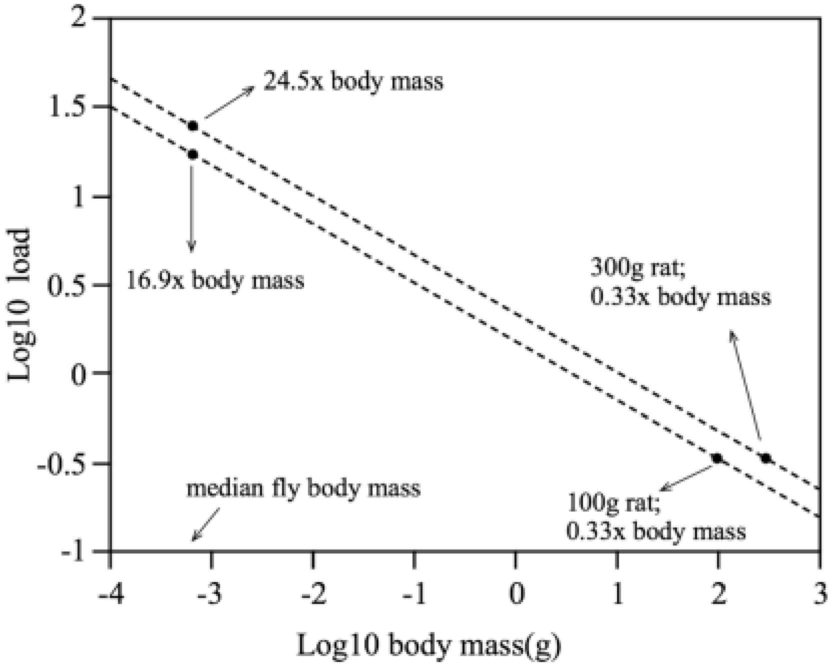

Figure S1. Predicted loads (body weight equivalents) on *D. melanogaster* legs based on loads applied to ~100g and ~300g rats (*R. norvegicus*) in our previous study examining effects of body weight variation on troponin T alternative splicing (Schilder et al. 2011). In that study, we increased rat body weight by 33% of unladen body weight by means of a weighted vest. If we assume the generally accepted body mass$^{0.67}$ scaling of load bearing leg muscle cross-sectional area holds across fruit flies and rats, then stress on leg muscles will scale as mass$^{0.33}$ (i.e. stress=force/cross-section, or in this case, body mass/cross-section, which scales as mass$^{1.0}$/mass$^{0.67}$). If, with regard to our fly loading experiment, we further assume that total stress experienced by muscles is constant for flies and rats, i.e. stress scales as mass^{0}, then applied loads need to scale as mass$^{-0.33}$ (i.e. mass^{0} = (mass$^{1.0}$ + applied load)/mass$^{0.67}$). If we relate load and body mass via such scaling equations with 100g and 300g rats as starting points (dashed lines in figure), we can predict the equivalent loads on legs of a fly with a body mass of 6.7mg to be 16.9-24.5 body mass equivalents. Thus, our 12*g* treated flies experienced somewhat lower loads than did the rats.

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