

Figure S1. Locusts (*L. migratoria*) suffer from injury and ionoregulatory collapse typical of chill susceptible insects. Locust sex is indicated as follows: triangle for female locusts, circle for male locusts. **A)** Chill coma recovery time (CCRT) of locusts (mixed sexes; $n = 10$ per time point) held at -2°C for 2, 6, 24, or 48 h. Locusts were observed for 60 mins following cold exposure and were marked as having recovered when standing on all six limbs. Values above the dotted black line represent the number of locusts that had recovered within 60 mins. The solid blue line represents mean values per time point. **B)** Locust condition (survival) following exposure to -2°C for 0, 2, 6, 24, or 48 h ($n = 10$ per time point). Survival score was based on the following: 0: no movement observed (i.e. dead); 1: limb movement (leg and or head twitching); 2: moving, but unable to stand; 3: able to stand, but unable or unwilling to walk or jump; 4: able to stand, walk, and or jump, but lacks coordination; and 5: movement restored pre-exposure levels of coordination. The solid blue line represents mean values per time point. To show all data points, dots are clustered around their respective score (where applicable). **C)** Changes in locust hemolymph K^+ concentrations over time spent at -2°C ($n = 5-6$ locusts per time point). **D)** Samples of locust hemolymph Na^+ concentrations over time spent at -2°C ($n = 4-6$ locusts per time point). Values are mean \pm standard error. Light grey points represent each sample taken per time point. Error bars not shown are obscured by the symbols.

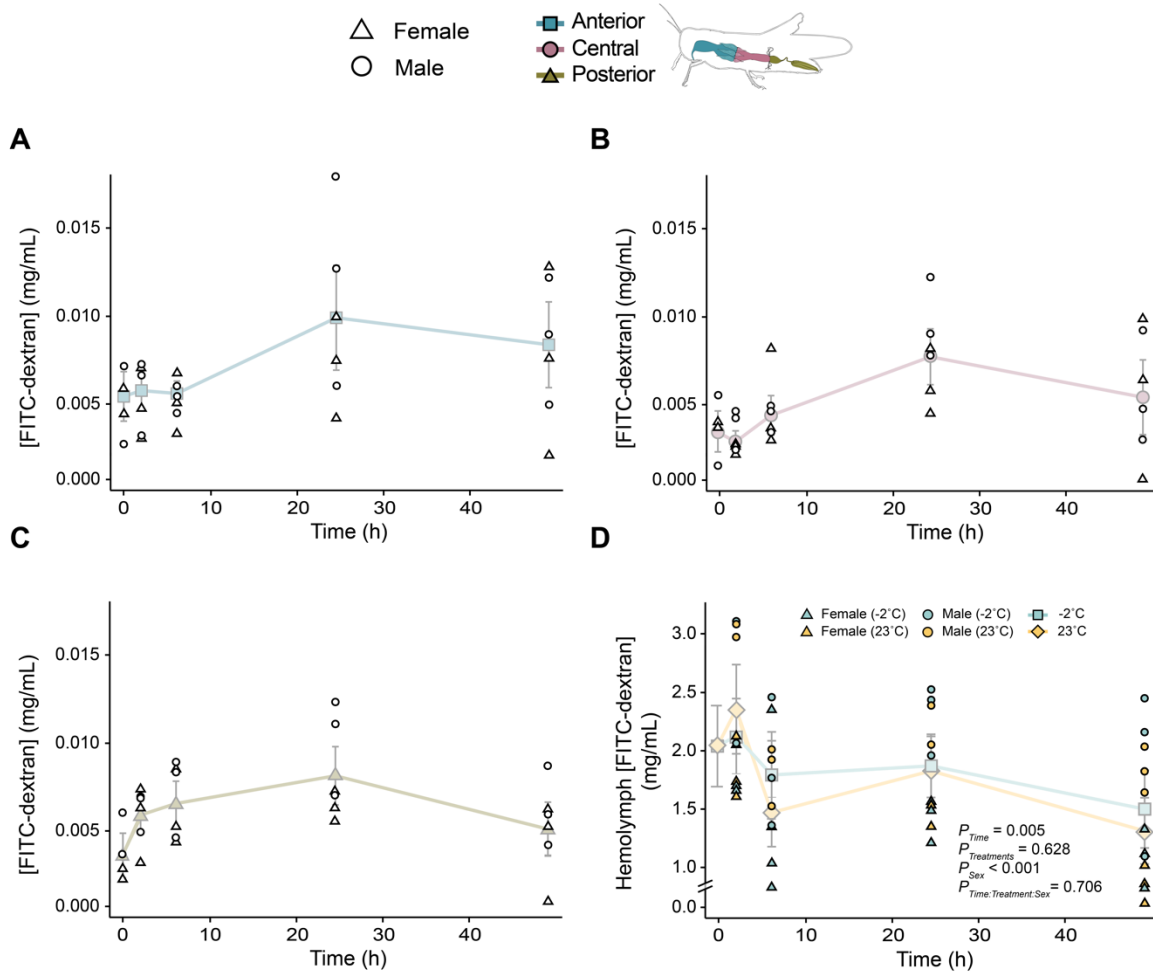


Figure S2. Sex of *L. migratoria* affects FITC-dextran concentrations measured in the gut and the hemolymph. A-C) Concentration of injected FITC-dextran (mg/mL) present in each gut segment – anterior (A), central (B), and posterior (C) – after exposure to -2°C over 48 h ($n = 4-6$ per time point). Data points represent the sex of each locust within a given time group (triangle and circle for female and male locusts, respectively). While concentrations of FITC-dextran in the gut vary by sex (Linear model, $F_{1, 79} = 5.41$, $P = 0.022$), sex does not significantly interact with time spent at -2°C or treatment (Linear model, $F_{1, 72} = 0.060$, $P = 0.942$). D) Concentration of injected FITC-dextran left in the hemolymph over 2, 6, 24, or 48 h at -2°C ($n = 4-6$ per group). Points represent the sex of each locust within a given time group (triangle and circle for female and male locusts, respectively) and treatment (blue and orange for cold and control treatments, respectively). Background trendlines (present for reference) are mean \pm standard error. Error bars not shown are obscured by symbols.

Table S1

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