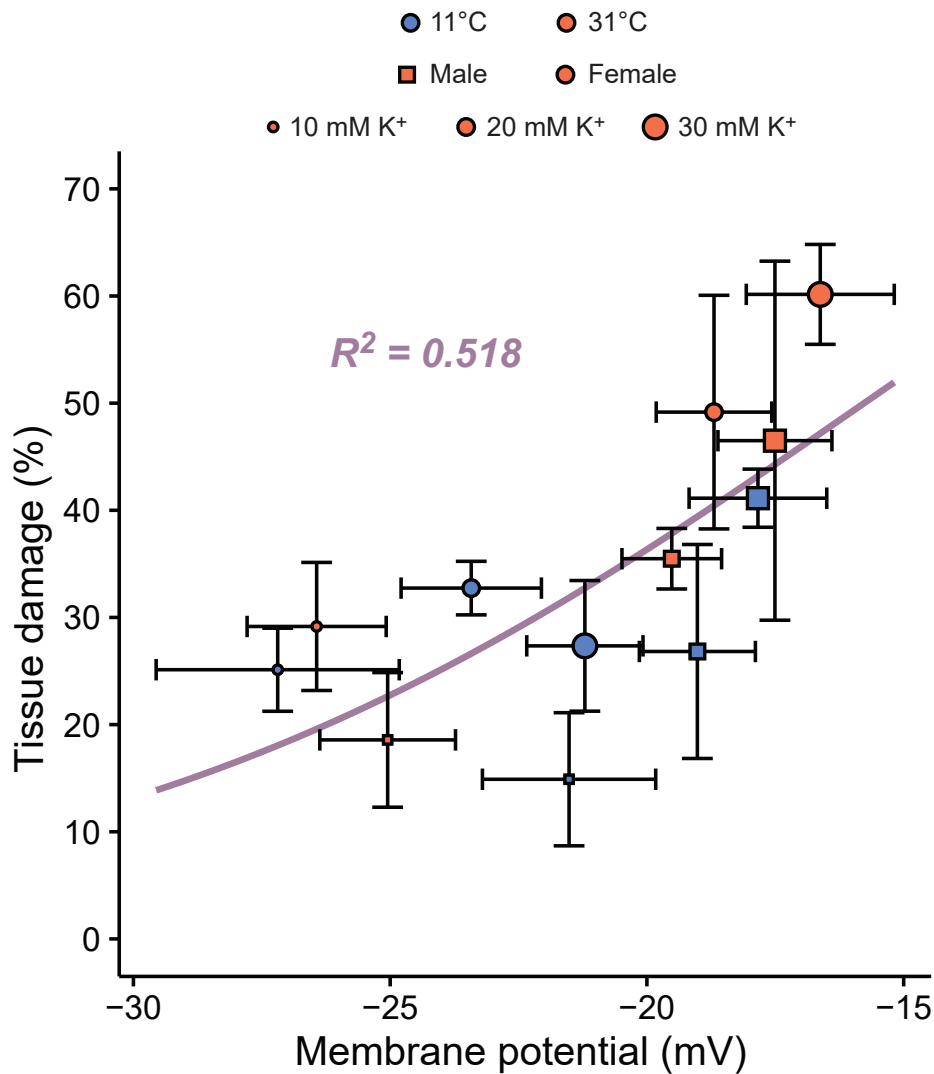


**The supplemental material contains detailed information on the sex-specific relationship between tissue damage and  $V_m$  in the *in vitro* experiments.**

In the *in vitro* experiment regarding the relation between  $V_m$  and muscle tissue survival we found that females better maintained  $V_m$  (effect of sex:  $F_{1,256} = 7.8$ ,  $P = 0.006$ ), and in particular the females acclimated to 11°C (interaction between sex and acclimation temperature:  $F_{1,256} = 8.4$ ,  $P = 0.004$ ). Despite this peculiar finding, we observe a similar relation between  $V_m$  and cellular viability (Fig. S1), where the sigmoidal fit (purple line, Fig. S1) gives an  $LV_{m50}$  (lethal  $V_m$ ) of  $-15.7 \pm 1.7$  mV, which is very similar to what was found when our data was not split into sexes ( $-17.0 \pm 0.8$  mV) (Fig. 4C).

## FIGURE



**Fig. S1.** The correlation between *in vitro* cellular mortality and membrane potential of males and females measured in muscle preparations exposed to different extracellular [K<sup>+</sup>] at 0°C. Tissue damage was measured in the mesothoracic posterior tergocoxal muscle after 24 h at 0°C at 10, 20, or 30 mM K<sup>+</sup>, and V<sub>m</sub> in the same muscle after acute exposure to 0°C in male (squares) and female (circles) locusts acclimated to 11°C (blue) and 31°C (orange). The purple line indicates a sigmoidal fit. Values show mean ± s.e.m.