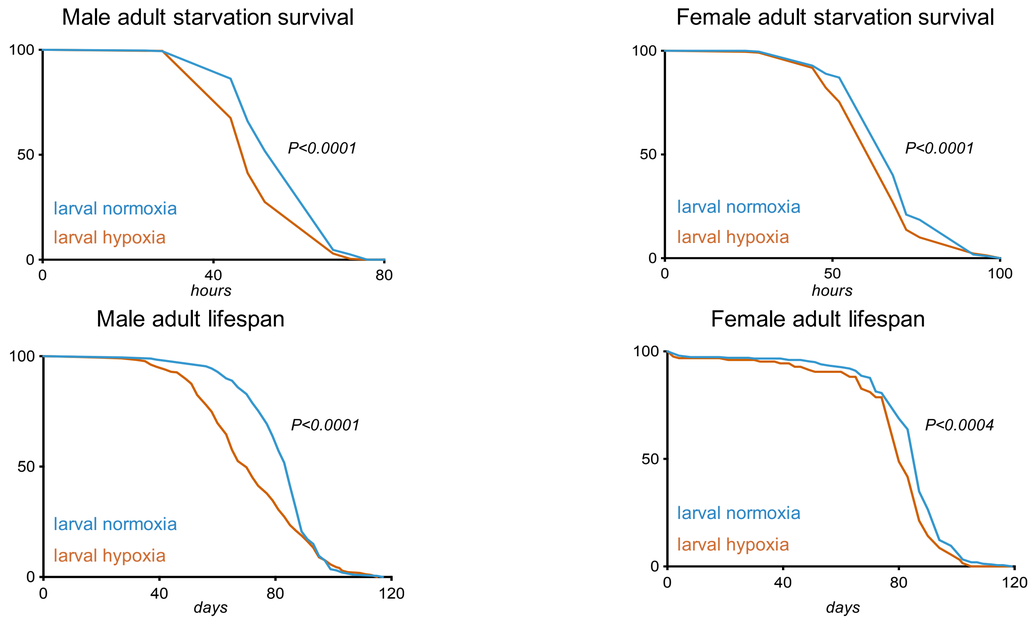
Early-life hypoxia alters adult physiology and reduces stress resistance and lifespan in *Drosophila*

UNIVERSITY OF CALGARY

Danielle M. Polan[1], Mohammed Alansari[1], Byoungchun Lee[1] and Savraj Grewal[1]
danielle.polan@ucalgary.ca

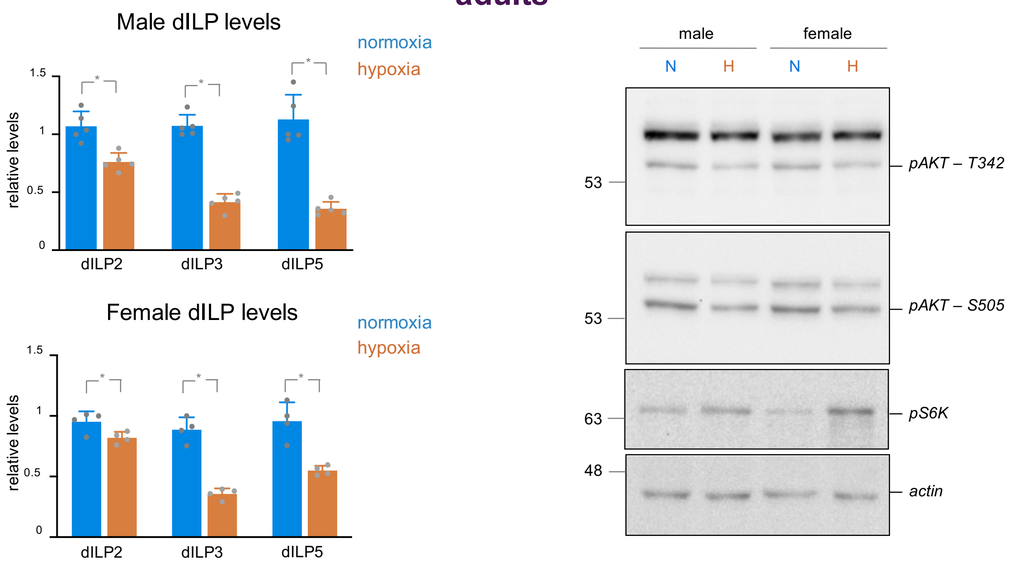
[1]Clark H. Smith Brain Tumor Center, Arnie Charbonneau Cancer Institute, Alberta Children's Hospital Research Institute, Department of Biochemistry and Molecular Biology, University of Calgary, AB, Canada T2N 4N1

Larval hypoxia reduces adult starvation survival and lifespan



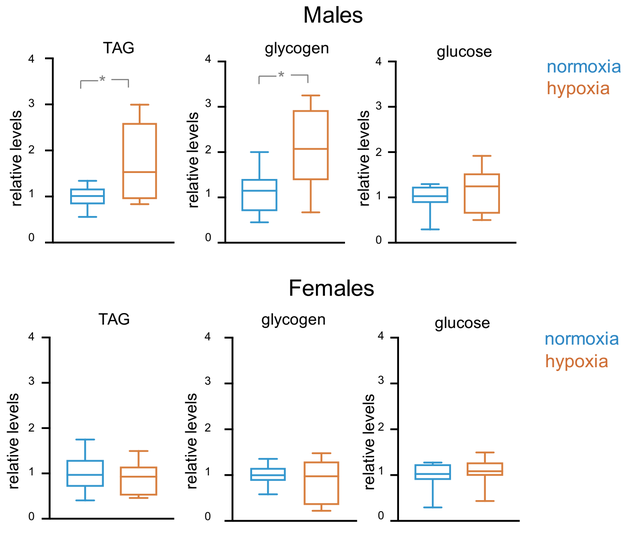
Adult starvation survival and lifespan are decreased by larval hypoxia. Larvae were kept in 5% O_2 or normoxia until pupation and then left to eclose in normoxia. Adults were sorted into males and females. Starvation survival (top) and lifespan (bottom) were measured.

Larval hypoxia suppresses insulin signaling and increases TOR signaling in adults



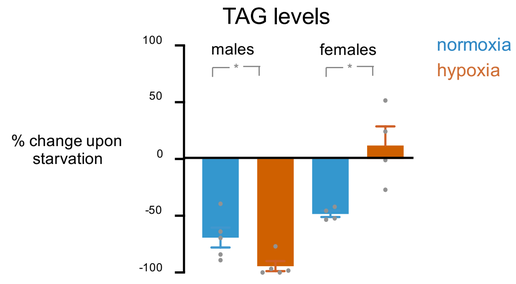
Larval hypoxia decreases dILP expression and pAkt levels, but increases pS6K levels. Larvae were kept in 5% O_2 or normoxia until pupation and then left to eclose in normoxia. Adults were sorted into males and females. qRT-PCR was used to measure dILP 2,3 and 5 expression (left). pAkt and pS6K levels were detected with western blots (right). * p<0.05.

Larval hypoxia alters adult nutrient storage in males but not females



Larval hypoxia increases TAG and glycogen levels in adult males. Larvae were kept in 5% O_2 or normoxia until pupation and then left to eclose in normoxia. Adults were sorted into males and females. Calorimetric assays were used to measure TAG, glycogen and glucose levels. Values are normalized to weight. * p<0.05.

Larval hypoxia causes males, but not females, to deplete their lipid stores in starvation



Males kept in larval hypoxia greatly depleted their lipid stores in response to starvation. Larvae were kept in 5% O_2 or normoxia until pupation and then left to eclose in normoxia. Adults were sorted into males and females. Percentage change in TAG levels following 16 hours of complete starvation were measured with a calorimetric assay. * p<0.05.

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