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FLAME - the future of exploring underground biology using the fly model

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Working deep underground is a physiological challenge. Anecdotally, we know that working deep underground is physically and mentally demanding adding a challenge beyond what we experience on the surface. As mines, and laboratories go deeper, these challenges will become more pronounced. What if we could reduce this stress? As a first step in this process, we have quantified the effect of working deep underground using the fruit fly model system and SNOLAB. We demonstrate that the effects of working underground are wide reaching leading to broad changes in gene expression and metabolism. These effects are also sensitive to genetic background and sex; different individuals can expect to respond to the underground environment differently. Future research will quantify changes in behaviour, activity, and sleep patterns. Further, research will explore whether simple changes in diet or activity can reduce the negative effects of working deep underground.

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