

PHYSIOLOGY WITH DR ROBERT J. WESSELLS

Talking points

COMPREHENSION

- How is the 'Power Tower' used to exercise flies?
- Why did female flies not get fitter when they were exercised?
- How could virtual exercise potentially help humans?

ANALYSIS

- How would you describe a model organism? Why are they important?
- Why does a high reproductive rate make *Drosophila* a good model organism?
- How do we know that octopamine is the reason that male *Drosophila* flies get fit from exercise?

SYNTHESIS

- How would you design an experiment to find out how many hours of daily exercise results in maximum fitness in *Drosophila*?

EVALUATION

- Do you think we have a more detailed physiological understanding of *Drosophila* or humans, and why?
- To what extent do you think it is morally acceptable to perform experiments on animals, and why?
- Do you think it would be a good idea for people to switch to virtual exercise, even if they were able to exercise physically. Why/why not?

Activity

What has model organism research done for us?

Choose a model organism, and conduct your own research to find out what discoveries it has led to.

Start at www.yourgenome.org/facts/what-are-model-organisms to read more about model organisms, and choose one that interests you.

Gather some information on your organism:

- Why is it so well-studied? What makes it a good model organism?
- What interesting characteristics does this organism have, and why would these characteristics be of interest to scientists?
- How is this organism similar/different to humans?
- What discoveries have researchers made by studying this organism?

Present your findings as a poster or make a short slideshow presentation for your class.

More resources

- Wayne State University has several programmes for young people.**
RJ explains, "We do outreach programmes to local primary schools, programmes for the general public at the Michigan Science Center (www.mi-sci.org), and lab experiences for young people considering a career in science." Find out more:
www.education.wayne.edu/community-outreach
- College students at Wayne State University can join programmes for people from groups that are under-represented in science.**

This includes theMARC programme (clas.wayne.edu/research/marc), and general student research programmes like the Undergraduate Research Opportunities Program (UROP) (urop.wayne.edu).

- There are several good popular science magazines and YouTube channels that have up-to-date information about breaking science.** RJ recommends SciShow ( www.youtube.com/channel/UCZYTCIx2T1of7BRZ86-8fow). He advises that if you get information online, be careful to make sure it is referenced and contains real data from a reliable source.