Dr. Robert Wessells studies impact of exercise on aging flies

The journal *International Innovation* recently featured Robert Wessells, PhD, assistant professor in the Division of Geriatric & Palliative Medicine, and his team of researchers. They use flies as a model for studying the effects of exercise on aging, and seek to understand the genetic reasons why exercise preserves heart function, not only in flies, but in humans as well.

Flies share a number of similarities with humans, including a similar response to exercise. Dr. Wessells and his team have developed the Power Tower, a novel method which allows them to exercise flies in a controlled and carefully-timed way, and study genetic changes over a full lifespan (one advantage of the fly model over mouse or human models is that flies have a very short lifespan – only about three months).

The Power Tower is a machine that lifts hundreds of fly vials, then drops them. When the flies fall, they instinctively respond by running upward. The machine continually drops them as soon as they run to the top. Gradually increasing the amount of daily exercise improves the flies’ health in several ways. Their running speed and endurance increase significantly, and their hearts maintain a higher resistance to stress as they age (compared to the unexercised control group). At the genetic level, the researchers have found increased expression of various stress resistance proteins, as well as several other genes associated with increased health.

The two main goals for Dr. Wessells and his team are to: (1) establish the relevance of flies as an exercise model, and (2) uncover novel conserved genetic factors capable of mimicking the exercise response in vertebrates. This research will improve understanding of the genetic mechanisms of exercise physiology, and how to combat aging of the cardiovascular system.

Dr. Wessells joined the Geriatrics Center in 2006 after completing his post-doctoral fellowship at U-M and the Burnham Institute for Biomedical Research in San Diego.

Full article: [http://www.med.umich.edu/geriatrics/about/News-items/Fly-power-tower.pdf](http://www.med.umich.edu/geriatrics/about/News-items/Fly-power-tower.pdf)

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