**An Insider’s Look with Dr. Matt Lovern**

Recently, I had the opportunity to interview Dr. Matt Lovern, a current researcher and professor at Oklahoma State University. We discussed one of his most recently published articles titled “Leptin ameliorates the Immunity, but not reproduction, trade-off with endurance in lizards.” The title may sound daunting, but through this interview I was able to understand the overall idea and importance of this article.

Dr. Lovern was not the primary or only author of this paper, but he explained this reasoning in a very applicable way: “working on this paper was like when a group project works: the product is much more than one person can put together.” This study was the result of the convergence of three researchers who had a similar goal in mind, but they all focused on their respective specialties. Dr. Lovern’s primary work for this paper was based through the endocrine system: specifically, the hormones testosterone and corticosterone, and the effect on these hormones when energy resource trade-offs take place. Dr. Lovern describes an “energy resource trade-off” as an organism’s need to prioritize current reproduction and survival, but also prioritize which traits are used to enhance said survival. In order to test this question, green anole lizards were used. Much of the previous work explored by Dr. Lovern was also conducted on lizards, and specifically the green anole lizard. This familiarity proved Dr. Lovern to be an asset to this scholarly research.

Leptin is a hormone “that serves as a system-wide signal of energy availability” because it is directly related to the amount of fat tissue that is present in our bodies. And the more fat tissue present, the more energy we have stored to be used when nutritional resources are low. The hypothesis formed for this study was “that supplementing leptin would allow resources, when available, to be diverted back to immune function and/or reproduction.” As far as what was discovered from this article regarding Dr. Lovern’s hormone research, the findings were not what they had initially hypothesized. In order to measure testosterone levels and their effect on reproduction in lizards, male testis size was measured before and after treatments. It was found that the male testis size was smaller, but not necessarily due to the leptin or energy consumption. However, if reproductive ability was restored the testis size would have been bigger after treatment. Another hormone, corticosterone signals that there is energy available in the body to use, so one idea was that this would correlate directly with the amount of leptin hormone, however, no correlation was found. Ultimately, immunity was found to be restored before reproduction which may show insight into immunity being more of an asset in survival situations than the ability to reproduce.

The overall purpose of this article, as stated by Dr. Lovern, is “to understand the physiological aspects for energy allocation.” Dr. Lovern, through this research, wanted to know the “life-history tradeoffs” for what happens in the body concerning hormones and reproduction, with food and energy restriction. And while this research was conducted on lizards, the findings would also be applicable to understanding other animal behaviors under possible survival situations. Certain characteristics are very similar between species so this could provide insight into humans as well.

Aside from the actual current article that this interview covered, I also wanted to understand what Dr. Lovern has accomplished, and how his interests in this scientific area initially and continue to develop. His interest began during his undergraduate studies when he had the opportunity to work in a lab focused on bird songs. He is very fond of research because he feels that it allows people to “satisfy [their] curiosity.” Continuing to do research while teaching at Oklahoma State has allowed him the opportunity to do just that.

**References:**

Wang, Andrew Z, et al. “Leptin Ameliorates the Immunity, but Not Reproduction, Trade-off with Endurance in Lizards.” *Journal of Comparative Physiology. B, Biochemical, Systemic, and Environmental Physiology*, U.S. National Library of Medicine, 21 Jan. 2019, www.ncbi.nlm.nih.gov/pubmed/30666396.