

Editorial

The Journal of Experimental Biology Outstanding Paper Prize, 2005

The Editors of *The Journal of Experimental Biology* are delighted to announce the first prizewinner of *The Journal of Experimental Biology* Outstanding Paper Prize. Conceived in memory of the last Editor-in-Chief, Bob Boutilier, this prize of £500 is to be awarded annually to the first author of an exceptional paper published by the journal. This year's award was judged by the journal's eight editors, who are very happy to announce that Ms Havalee T. Henry from Richard Marsh's lab at Northeastern University in Boston is the first winner with her publication 'Performance of guinea fowl *Numida meleagris* during jumping requires storage and release of elastic energy' (Henry et al., 2005). When asked for her reaction to the award, Henry chuckled and said 'I was very surprised and very honoured'.

Henry joined Marsh's Boston lab in fall 2001. Marsh explains that as an undergrad at the University of Connecticut, Henry had specialised in Molecular and Cell Biology, but she was also a top-ranking athlete who rowed for her university and had an interest in muscle physiology. Henry remembers Marsh's presentation to the new graduate student intake when she arrived at Northeastern University and that she was intrigued when he described his work on the muscle physiology of running and jumping. Having decided to join Marsh's team Henry and Marsh began discussing projects, but instead of concentrating on Marsh's main interest in running in guinea fowl, they agreed that Henry would begin to investigate and document jumping in the birds. Marsh explains that he has had a long standing interest in the elastic energy storage mechanisms that smaller creatures use for launching, but it wasn't clear if larger animals, such as guinea fowl, also use an elastic storage mechanism to get themselves aloft.

Little did Henry know, when she agreed to tackle this project for her Masters degree, what she was taking on; guinea fowls are less eager about jumping than running, and even less so

about jumping on demand. Working closely with Marsh's postdoc, David Ellerby, Henry began trying to train the wilful birds, but with little success. Henry admits that the early days were 'rough'. First she tried using a dog training technique where the animals learned to associate an action with a sound. However, after months of effort, Henry finally resigned herself to the fact that 'these birds simply weren't smart enough to get the point'. Fortunately, Henry's big breakthrough came when she noticed that the birds always seemed keen to avoid her. Deciding to take advantage of their aversion, Henry began successfully training the birds to jump away from her, rewarding them with a crunchy cricket treat.

After 18 months of trial-and-error training, the team could begin measuring the leg power needed as the birds' leapt from the force plate. Using high-speed video recordings of the birds' jumping, Henry was able to calculate the power generated by their leg muscles and compare it with the values she measured from the force plate. Amazingly, the peak-launch muscle powers that Henry measured and calculated were more than twice the muscle's possible power output; they must be storing elastic energy and releasing it explosively to launch themselves off the ground. The 1.5 kg guinea fowl seem to be using an elastic

energy storage jumping mechanism.

Marsh is delighted with Henry and Ellerby's results and admits that it is a 'nice compact story with a testable hypothesis... that has a nice tie in with the ecology of the animals'. He adds that 'Henry was great in the lab, very organised and very patient' and he says that 'I am pleased... it's a great and well deserved reward for a young investigator like Havalee'.

So what next for Henry? Although she recently left Boston and moved to California, Henry is currently working on a further publication with Marsh and Ellerby where they analyse EMG and sonomicrometry data from the bird's gastrocnemius



muscle to see exactly how much the muscle and tendons stretch during take-off. Far from being deterred from research by her experiences with the recalcitrant birds, Henry is keen to move into a more applied area of muscle physiology. She is currently considering going to medical school with the ultimate hope of working on muscle physiology of human disability and disease.

Hans Hoppeler, Editor-in-Chief of *The Journal of Experimental Biology*, hopes that this award will offer an incentive for other young scientists like Henry to 'go for studies looking into physiological mechanisms behind observed phenomena'. Hoppeler emphasises that given the

breadth of subjects covered by *The Journal of Experimental Biology* this award is not a 'Best Paper' prize. He explains that it is not possible to directly compare papers from different disciplines, 'which means comparing apples and oranges' he says. And he is looking forward to seeing more papers 'that are original, done to a high technical standard and are clear and well presented' published in the journal in the coming years.

Henry, H. T., Ellerby, D. J. and Marsh, R. L. (2005). Performance of guinea fowl *Numida meleagris* during jumping requires storage and release of elastic energy. *J. Exp. Biol.* **208**, 3293-3302.

Kathryn Phillips
kathryn@biologists.com