



Cover: Avian wing muscles are hypothesized to control wing shape, but their activity has received less attention. The wing muscles best characterized in flight are those surrounding the pigeon (*Columba livia*) elbow. Theriault et al. (jeb195578) used these data to inform *in situ* work loop measurements in the pigeon humerotriceps, finding that the muscle acts primarily as a brake, but can also serve as an actuator or spring, depending on activation timing. Moreover, the muscle can serve different functions within a single contractile cycle, indicating potential for wing shape control across diverse flight modes. Illustrations: Jan Theriault and Joseph Bahlman.

INSIDE JEB

Muscles brake and bend joints to shape wings

Knight, K.

jeb204214

Pollen is essential for health of honey bee gut bugs

Knight, K.

jeb202564

Mantis shrimp fine-tune ballistic blows

Knight, K.

jeb203356

Mystery of how aquatic insects breathe in aquifers solved

Knight, K.

jeb202531

Stubborn insects stick to regular walk when scaling slopes

Knight, K.

jeb203323

Key hormones disappear early from egg

Knight, K.

jeb203349

OUTSIDE JEB

Fish fitness is on the rocks

Evans, A.

jeb192716

Small zooplankton rings the alarm for oxygen loss in big oceans

Zhang, Y.

jeb199141

Insects that stink and hatch in sync

Ruhr, I.

jeb192740

A spider's decision depends on its thirst

Nowack, J.

jeb192724

COMMENTARY

Loss-of-function approaches in comparative physiology: is there a future for knockdown experiments in the era of genome editing?

Zimmer, A. M., Pan, Y. K., Chandrapalan, T., Kwong, R. W. M. and Perry, S. F.

jeb175737

SHORT COMMUNICATION

Does the left aorta provide proton-rich blood to the gut when crocodilians digest a meal?

Conner, J. L., Crossley, J. L., Elsey, R., Nelson, D., Wang, T. and Crossley, D. A.

jeb201079

RESEARCH ARTICLES

Natural polymorphism in protein kinase G modulates functional senescence in *Drosophila melanogaster*

Kelly, S. P. and Dawson-Scully, K.

jeb199364

Variation in sexual brain size dimorphism over the breeding cycle in the three-spined stickleback

Buechel, S. D., Noreikiene, K., DeFaveri, J., Toli, E., Kolm, N. and Merilä, J.

jeb194464

Increased apical sodium-dependent glucose transporter abundance in the ctenidium of the giant clam

Tridacna squamosa upon illumination

Chan, C. Y. L., Hiong, K. C., Choo, C. Y. L., Boo, M. V., Wong, W. P., Chew, S. F. and Ip, Y. K.

jeb195644

Sensory feedback independent pre-song vocalizations correlate with time to song initiation

Rao, D., Kojima, S. and Rajan, R.

jeb199042

Work loop dynamics of the pigeon (*Columba livia*) humerotriceps demonstrate potentially diverse roles for active wing morphing

Theriault, J. S., Bahlman, J. W., Shadwick, R. E. and Altshuler, D. L.

jeb195578

Pollen reverses decreased lifespan, altered nutritional metabolism and suppressed immunity in honey bees

(*Apis mellifera*) treated with antibiotics

Li, J., Heerman, M. C., Evans, J. D., Rose, R., Li, W., Rodríguez-García, C., DeGrandi-Hoffman, G., Zhao, Y., Huang, S., Li, Z., Hamilton, M. and Chen, Y.

jeb202077

Context-dependent scaling of kinematics and energetics during contests and feeding in mantis shrimp

Green, P. A., McHenry, M. J. and Patek, S. N.

jeb198085

Cutaneous respiration by diving beetles from underground aquifers of Western Australia (Coleoptera: Dytiscidae)

Jones, K. K., Cooper, S. J. B. and Seymour, R. S.

jeb196659

Interspecific scaling of blood flow rates and arterial sizes in mammals

Seymour, R. S., Hu, Q., Snelling, E. P. and White, C. R.

jeb199554

Motor control of an insect leg during level and incline walking

Dallmann, C. J., Dürr, V. and Schmitz, J.

jeb188748

Avian yolk androgens are metabolized rather than taken up by the embryo during the first days of incubation

Kumar, N., van Dam, A., Permentier, H., van Faassen, M., Kema, I., Gahr, M. and Groothuis, T. G. G.

jeb193961

Elevated oxidative stress in pied flycatcher nestlings of eumelanic foster fathers under low rearing temperatures

Teerikorpi, P. E., Stauffer, J., Ilmonen, P., Calhim, S., Schuett, W. and Laaksonen, T.

jeb195909

The quantity–quality trade-off: differential effects of daily food availability times on reproductive performance and offspring quality in diurnal zebra finches

Mishra, I. and Kumar, V.

jeb196667

3D ultrastructural organisation of calcium release units in the avian sarcoplasmic reticulum

Sheard, T. M. D., Kharche, S. R., Pinali, C. and Shiels, H. A.

jeb197640

Genetic and environmental effects on the scaling of metabolic rate with body size

Fossen, E. I. F., Pélabon, C. and Einum, S.

jeb193243

Morph- and sex-specific effects of challenging conditions on maintenance parameters in the Gouldian finch

Fragueira, R., Verhulst, S. and Beaulieu, M.

jeb196030

Zonation of Ca^{2+} transport and enzyme activity in the caeca of rainbow trout – a simple structure with complex functions

Williams, M., Barranca, D. and Bucking, C.

jeb187484

Softness sensing and learning in *Drosophila* larvae

Kudow, N., Kamikouchi, A. and Tanimura, T.

jeb196329

Control of breathing and respiratory gas exchange in high-altitude ducks native to the Andes

Ivy, C. M., Lague, S. L., York, J. M., Chua, B. A., Alza, L., Cheek, R., Dawson, N. J., Frappell, P. B., McCracken, K. G., Milsom, W. K. and Scott, G. R.

jeb198622