Written by Administrator Wednesday, 10 July 2013 02:26 -

Secret of four-winged flapping revealed in an article in ScienceNOW, 14th May 2008. Dragonflies and damselflies have four wings, which they can move independently using a special system of muscles that other insects do not have. (Other four winged insects, such as butterflies, move their wings synchronously, as if they only had two wings.) Computer models of out of phase four winged flapping have to date shown it is less efficient – reducing the amount of lift generated for the amount of energy expended.

Biologists James Usherwood, of the Royal Veterinary College in London, and Fritz-Olaf Lehmann, of University of Ulm, Germany, built a robot dragonfly for a more practical test of the aerodynamics of four winged flying. It turned out that four winged flapping was more efficient in generating lift if the hind wings flapped one-quarter of a wing beat ahead of the front wings. The hind wings were able to capture the rush of air sent by the front wings and produce lift with 22% less power than two-winged insects require. More studies will need to be done, including studying real dragonflies, but the researchers think their finding will help engineers design more efficient micro air vehicles.

**Editorial Comment**: You can't help but notice it can you - mindless chance or naturalistic processes did not make the model dragonfly, so it really is foolish to claim that the real dragonfly, which is much more complex, came about by mindless random or naturalistic chance. So let's say it one last time for this enews. If engineers do manage to apply the dragonfly's wing beats to a micro air vehicle they will have only reinforced the fact that it takes creative design and clever engineering to make something fly, whether it is made of biological molecules or metal and plastic. (Ref. insects, flying, engineering)

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