Exercise levels and personality could be linked

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There may be a fundamental link between aspects of an individual's personality and their capacity to exercise or generate energy, recent research suggests.

Humans are not the only animals that choose to exercise and – as with people - individuals within the same species differ in their levels of activity, says Dr. Peter Biro, a senior lecturer in the University of New South Wales Evolution and Ecology Research Centre, in a review article in the journal *Trends in Ecology and Evolution*, with colleague Judy Stamps of the University of California, Davis. Dr. Biro is an Australian Research Council Future Fellow.

Likewise, scientists now recognise that many animals have 'personality', in that they display consistent differences in behaviors. Dr. Biro believes it is significant that those behaviors often relate to the rates at which they acquire and expend energy through feeding or activity.

"Some of us are couch potatoes while others are drawn to sport and exercise," notes Dr. Biro. "We often associate the athletic 'jock' type or person with being aggressive and social, whereas the more sedentary ‘nerd’ often is seen as more socially awkward and submissive.

"These are generalisations, but most people would probably agree there is some truth to them. If so, why should individuals differ in their propensity for activity and in their personality, and why might they be related? "

The article reviews a wide range of recent research into these questions and concludes that there is now enough evidence to suggest a link between an individual's personality and the rate of its metabolism – the chemical process that converts food into the energy that fuels the body.

"Animals in captivity often engage in energetically demanding behaviour when they have unlimited food available," Dr. Biro says. "Mice spend considerable time on running wheels, for example, and other animals often pace back and forth in zoo enclosures. Given they don't need to move about in search of food as they would in nature, we might ask why they are apparently 'exercising'.

"Recent research suggests that this behaviour might be related to an individual's capacity to generate energy - its 'metabolic capacity'. For example, mice in isolation that have high metabolism tend spend more time on running wheels, and run faster, than those with low metabolism.

"Male crickets with sex on their mind tend to call to attract mates more and have higher metabolism than those with slower metabolism."

Metabolism and aggression are also linked. It has now been documented, for example, in several species of fish and birds that individuals with high metabolism tend to be more aggressive and dominant over those with slow metabolism.

The amount of energy devoted to energetically demanding activities differs among individuals, Dr. Biro says. These differences in energetic capacity - along with the tendency for metabolism to be consistent over long periods - might provide a very general explanation for personality in animals.

"It may just be that some individuals generate much more energy than others and when those individuals are captive with abundant food, they

must outlet 'excess' energy that is normally expressed in nature in activities such as feeding and defence of food supplies.

"We are still some ways from a really solid understanding of the links between metabolism and personality in animals, but recent research suggests these ideas have merit and are worth studying further."

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