

Pandas are officially cool, according to new research

Friday 10 July, 2015

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Scientists from the Chinese Academy of Sciences (CAS), Beijing Zoo and the University of Aberdeen have shown that giant pandas have an exceptionally low metabolic rate - and as a result have also discovered that the endangered bears are, quite literally, cool.

The panda is famous for being a meat eater turned vegetarian. In the wild its diet consists almost entirely of bamboo, but because its gut remains designed for digesting meat, this causes the bear huge problems. As such, they have to eat up to 50lbs a day of it to survive.

Until now, how pandas survive on this poor diet has been a mystery, but it has been widely speculated that an essential component of their ability to do so is having a low energy demand. In a study published in **Science** today (July 10) researchers have measured the metabolic rates of pandas living both in captivity and in the wild.

The study has shown that the metabolism of the panda is incredibly low - a 90kg panda expends less than half the energy of a 90kg human.

The team found that there are several factors which contribute to the panda's low metabolism.

Professor John Speakman, co-first author, from the University of Aberdeen and Chinese Academy of Sciences, explains: "Pandas save a lot of energy by being frugal with the energy they spend on physical activity. Using GPS loggers attached to pandas we discovered that they rest for more than half of the day and on average, only travelled at 20 metres an hour.

"However, it is not only their low activity that contributes to their low metabolism; the metabolic rate of an active panda is still lower than a completely stationary human. We found that their low metabolism is correlated with very low levels of their thyroid hormones, which was linked to a genetic mutation in the thyroid hormone synthesis pathway that is unique to the panda."

A big problem with having such a low metabolic rate is keeping warm. Pandas have exceptionally thick fur which traps what body heat they have inside, however this means that the surface temperature of pandas, which the team measured with a thermal camera, is much lower than other black and white animals, such as zebras and Dalmatian dogs.

Professor Speakman added: "It has been a real pleasure to be involved in this international collaboration which has revealed some amazing insights into how the panda manages to survive on its bamboo diet. The combination of behavioural and physiological responses that enable this low metabolic rate is fascinating."

Corresponding author, Professor Fuwen Wei, from the Chinese Academy of Sciences, commented: "It is my long-time dream to accomplish this fascinating study to understand how low the giant panda metabolism would be, and why the giant pandas can survive on their specialised and low quality bamboo diet. Finally we have done it!"

The study was funded by the National Science Foundation of China and the Chinese Academy of Sciences.

Notes for Editors

Issued by the Communications Team
Office of External Affairs, University of Aberdeen, King's College, Aberdeen
Tel: +44 (0)1224 272014

Contact: [Laura Mccombie](#)
Issued on: 09 July 2015

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