

Travel DOES broaden the mind: Chimpanzees who travel long distances are smarter and are more likely to use tools

- Scientists tested whether chimpanzees would use tools to reach food
- Apes more likely to use tools after journeys to compensate for energy loss
- Compensation may have co-evolved with the rise of bipedalism in humans

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Anyone who has taken a gap year will tell you that travelling is a great time to broaden your mind and discover new interests.

And it seems that this might not only apply to humans, but to chimpanzees too.

New research suggests that chimpanzees who travel far and for long periods of time use tools more frequently to obtain food.



Dr Gruber said: 'The more chimpanzees travelled in the week prior to their interaction with the log, the more they were likely to use a tool when engaging with the log'

The results comes from the University of Neuchâtel and the University of Geneva, after seven years of research into chimpanzee behaviour in Kibale National Park, Uganda.

THE RISE IN BIPEDALISM

Our ancestors may have ended up on two legs rather than four simply because it meant they could carry more food.

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In their paper, published in **eLife**, the researchers have shown that using tools can be seen as a compensation of energy costs undertaken when chimpanzees move location.

Previous studies have shown that some primate species, including chimpanzees, use basic tools such as sticks and leaves to get to food in hard-to-reach places.

However, this study was the first to look at what factors motivate primates to engage in this activity.

To test this, the researchers analysed seven years of field experiments where chimpanzees had to try to extract honey enclosed in a wooden log.

Dr Thibaud Gruber, first author of the study, said: 'We wanted to understand what external factors explained their motivation to participate in this experiment.'

Their analysis showed that chimpanzees only become really interested in the log under a particular ecological pressure.

This helped to ensure their survival when resources were scarce, say scientists.

The researchers in the study suggest that chimpanzees compensating for the energy loss after travelling by using tools, may have evolved at the same time as bipedalism in humans.

Dr Gruber said: 'These two solutions could have coevolved to accommodate the varying energy costs over time.'

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The researchers placed honey under a log to test whether the chimpanzees would use tools to attempt to reach the food

For example, when there was a lack of ripe fruits in the forest and a need to travel further to reach it, the chimpanzees showed more interest in the log.

Dr Gruber said: 'This effect was most pronounced when this situation of having few fruits and having significantly more travel had been going on for a long period of time.'

'In situations when there was no lack of fruits, or when chimpanzees did not need to travel far to find them, they had little interest in the log.'

The researchers also looked at the factors which motivated the chimpanzees to use tools to scrape the inside of the log.

Contrary to what they expected, the team found that only longer trips, and not the lack of food, encouraged the



Some primate species, including chimpanzees, use basic tools such as sticks and leaves to get to food in hard-to-reach places

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chimpanzees to use tools.

Dr Gruber said: 'The more chimpanzees travelled in the week prior to their interaction with the log, the more they were likely to use a tool when engaging with the log.'

'This suggests that there is a genuine and immediate energy cost when chimpanzees travel around, which they can compensate by using tools.'

The researchers suggest that this compensation may have co-evolved with the rise of bipedalism - walking on just two legs - in humans.

Dr Gruber added: 'These two solutions could have coevolved to accommodate the varying energy costs over time.'



The paper, published in eLife brings together seven years of research into chimpanzee behaviour

CHIMPS 'SHOP' FOR FRUIT JUST LIKE HUMANS

Researchers from Dartmouth College watched the way chimpanzees, black-and-white colobus monkeys, red colobus monkeys and red-tailed monkeys in Kibale National Park, Uganda foraged for food.

The researchers examined the properties of figs, which included boring into individual figs to assess the elasticity of the fruit and extracting contents to estimate rewards such as sugar.

They observed the non-selection, rejection and ingestion of individual figs.

They collected specimens of figs that had been avoided, felt and rejected, felt then bitten and rejected and edible (for which they described as less than 50 per cent of the fruit was left).

Based on the data, the team estimated the predictive power that sensory information may have on chimpanzees when estimating the ripeness of figs.

Palpating, or feeling, the figs was about four times faster than detaching and then biting the fruit, suggesting that chimpanzees may have a substantial foraging advantage over birds and monkeys, which rely on visual and oral information.



Because ripe figs come in many colours it can be difficult to tell which figs are ripe by just looking at them. They may look at the fig's colour, smell the fig (picture right), feel and squeeze the fig to tell how firm it is, or bite the fig to determine the stiffness of the fruit

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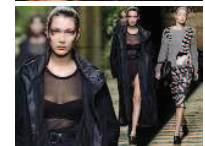
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