Trends in Applied Sciences Research

ISSN 1819-3579

Academic
Journals Inc.

www.academicjournals.com

Dogs Have Bigger Brains than Cats Because They Are More Sociable, Research Finds

Over millions of years dogs have developed bigger brains than cats because highly social species of mammals need more brain power than solitary animals, according to a study by Oxford University.

For the first time researchers have attempted to chart the evolutionary history of the brain across different groups of mammals over 60 million years. They have discovered that there are huge variations in how the brains of different groups of mammals have evolved over that time. They also suggest that there is a link between the sociality of mammals and the size of their brains relative to body size, according to a study published in the PNAS journal.

The research team analyzed available data on the brain size and body size of more than 500 species of living and fossilized mammals. It found that the brains of monkeys grew the most over time, followed by horses, dolphins, camels and dogs. The study shows that groups of mammals with relatively bigger brains tend to live in stable social groups. The brains of more solitary mammals, such as cats, deer and rhino, grew much more slowly during the same period.

Previous research which has looked at why certain groups of living mammals have bigger brains has relied on studies of distantly-related living mammals. It was widely believed that the growth rate of the brain relative to body size followed a general trend across all groups of mammals. However, this study by Dr Susanne Shultz and Professor Robin Dunbar, from Oxford University's Institute of Cognitive and Evolutionary Anthropology (ICEA), overturns this view. They find that there is wide variation in patterns of brain growth across different groups of mammals and they have discovered that not all mammal groups have larger brains, suggesting that social animals needed to think more.

Lead author Dr Susanne Shultz, a Royal Society Dorothy Hodgkin Fellow at ICEA, said: 'This study overturns the long-held belief that brain size has increased across all mammals. Instead, groups of highly social species have undergone much more rapid increases than more solitary species. This suggests that the cooperation and coordination needed for group living can be challenging and over time some mammals have evolved larger brains to be able to cope with the demands of socializing.'

Co-author and Director of ICEA Professor Robin Dunbar said: 'For the first time, it has been possible to provide a genuine evolutionary time depth to the study of brain evolution. It is interesting to see that even animals that have contact with humans, like cats, have much smaller brains than dogs and horses because of their lack of sociality.'

The research team used available data of the measurements of brain size and body size of each group of living mammals and compared them with similar data for the fossilized remains of mammals of the same lineage. They examined the growth rates of the brain size relative to body size to see if there were any changes in the proportions over time. The growth rates of each mammal group were compared with other mammal groups to see what patterns emerged.