Great apes think ahead

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Apes can plan for their future needs just as we humans can – by using self-control and imagining future events. Mathias and Helena Osvath's research, from Lunds University Cognitive Science in Sweden, is the first to provide conclusive evidence of advanced planning capacities in non-human species. Their findings are published online this week in Springer's journal, *Animal Cognition*.

The complex skill of future planning is commonly believed to be exclusive to humans, and has not yet been convincingly established in any living primate species other than our own. In humans, planning for future needs relies heavily on two mental capacities: self-control or the suppression of immediate drives in favor of delayed rewards; and mental time travel or the detached mental experience of a past or future event.

In a series of four experiments, Mathias and Helena Osvath investigated whether chimpanzees and orangutans could override immediate drives in favor of future needs, and therefore demonstrate both self-control and the ability to plan ahead, rather than simply fulfill immediate needs through impulsive behavior.

Two female chimpanzees and one male orangutan, from Lund University Primate Research Station at Furuvik Zoo, were shown a hose and how to use it to extract fruit soup. They were then tempted with their favorite fruit alongside the hose to test their ability to suppress the choice of the immediate reward (favorite fruit) in favor of a tool (the hose) that would lead to a larger reward 70 minutes later on (the fruit soup). The apes chose the hose more frequently than their favorite fruit suggesting that

they are able to make choices in favor of future needs, even when they directly compete with an immediate reward.

New tools the apes had not encountered before were then introduced: one new functional tool which would work in a similar way to the hose, and two distractor objects. The apes consciously chose the new functional tool more often and took it to the reward room later on, where they used it appropriately, demonstrating that they selected the tool based on its functional properties. According to the authors, this indicates that the apes were pre-experiencing a future event i.e. visualizing the use of the new tool to extract the fruit soup.

One of the decisive experiments excluded associative learning* as an explanation of the results. Associative learning has been suggested to account for the findings in previous planning studies on animals (corvids and great apes), and therefore the previous studies have not been generally accepted as evidence for non-human planning.

Source: Springer