Behavioural variability in captive African elephants in the use of the trunk while feeding

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The behaviors implied in the manipulation of food items by African elephants were correlated with the shape and size of these items. Despite

a common ethogram, all the elephants showed different frequencies in the use of at least one behavior.

In this recently published study, researchers created a behavioral repertoire in order to describe the use of the trunk in six captive female African elephants of savannah (Loxodonta africana) at the Zooparc of Beauval. The repertoire included 65 behaviors implying the trunk. Focusing on feeding behavior, 19 behaviors were described. The study revealed the influence of the size and shape of the food on the performed behaviors as well as the variability of the strategy used to manipulate a given type of food.

Manipulative strategies and inter-individual behavioral variability are well described in primates due to their hands and their complex grasping abilities. However, the large degree of freedom in the movements of the Proboscideans' trunk, its high precision and the substantial number of muscles in this organ make a good model out of it to study manipulative strategies.

The results emphasized a correlation between the type of food item and the grasping strategy. Some behaviors were involved in the manipulation of only one or a few types of item. This adaptation of the movement allows precise and efficient manipulation of the food and thus increases the speed of feeding and the quantity of ingested food.

The second part of the study focused on hay grasping and consumption and revealed an inter-individual variability in the use of the five main behaviors. Each elephant differed from the others in the frequency of at least one behavior, and all the behaviors were used in a different proportion by at least two elephants. The selection of the different strategies did not seem to be related to the trunk morphology but more probably to learning and intrinsic preferences.

More information: Maëlle Lefeuvre et al, Behavioural variability among captive African elephants in the use of the trunk while feeding, *PeerJ* (2020). DOI: 10.7717/peerj.9678