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2017

Document Version:

Publisher's PDF, also known as Version of record

[Link to publication](#)

Citation for published version (APA):

Bobrowicz, K., & Osvath, M. (2017). *Cats parallel great apes and corvids in motor self-regulation, but size matters*. Abstract from Behaviour 2017, Lisbon, Portugal.

Total number of authors:

2

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Session I - P57

Cats parallel great apes and corvids in motor self-regulation, but size matters

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We tested domestic cats in the cylinder task, and found that they perform better if the cylinder is larger. We also found that their highest performance parallels that of great apes and corvids, which are known as the best performing animals on this task. The cylinder task is used to test animals' motor self-regulation. Recently a large-scale study tested 36 species on the task and found that absolute brain size correlated with the performance; with great apes as top performers. Another study showed that corvids perform as good as great apes despite having smaller absolute brain size. We questioned whether average brained animals have as poor motor self-regulation as suggested, as it appears highly maladaptive; instead the results could be a reflection of the sensorimotor set-up of different species in relation to the materials used. No cats have been tested on the task before.

Eight adult domestic cats participated in four versions of the task. We manipulated the size and materials, with two large (18.5 cm diameter) and two small (9.5 cm diameter) cylinders, out of glass and plastic respectively. Each condition comprised of two phases. First, a subject learned to retrieve a reward from an opaque cylinder (5 trials), and after a 24-hour delay was tested on a transparent cylinder (10 trials). A retrieval of the reward without touching the cylinder's front counted as a successful trial.

The success rate differed between conditions, and was highest (98,75) for the "small plastic" condition. There was a significant main effect of the cylinder size on the success rate [$F(1,7)=64.06$, $p < 0.001$]. We discuss these results, as they call into question whether the large-scale study took into account the sensorimotor architecture of each species, and more importantly, whether the task always measures motor self-regulation.