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R16. A novel test for visuospatial short-term memory in dogs

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Cognitive abilities decline with age in several animal species, including dogs. Visuospatial memory decline is an early marker of ageing, as it precedes the onset of other domains' decline. In dogs, it has only been measured through complex tasks, requiring prolonged and extensive training. This limits the tasks' application to laboratory settings, and brings little benefit to the general canine population. We designed a novel memory task and tested old ($N = 75$, Mage = 10.6 years, range = 7.8 – 18.3) and young ($N = 43$, Mage = 4.6 years, range = 2.8 – 6.8) pet dogs of various size (medium to large) and breed types, balanced for sex ratio. Dogs witnessed an experimenter baiting 1 of 5 identical plastic containers. After a 30 seconds distraction task performed in a different room, dogs were allowed to return to the room and choose one container. The test was repeated once per container; the order of baited locations was counter-balanced across participants. Results from a generalized linear mixed model indicated that the number of correct choices was affected by age group and trial number. Young dogs were more likely to choose the correct container, although performance decreased with consecutive trials in both age groups.. This task represents the first effective measure of dogs' age-related decline of short-term spatial memory that does not require explicit training. The ability to acquire and recall the spatial features of novel locations is an adaptive skill that, if declined, can impact the quality of life with advancing age.

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