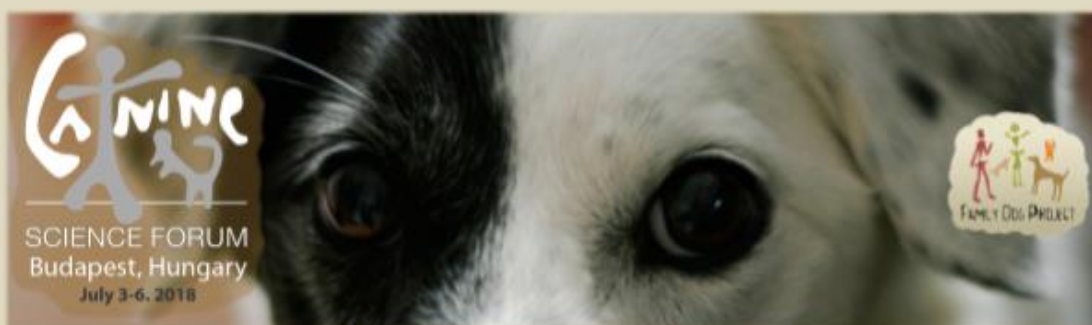




6th Canine Science Forum

Abstract Book



Assessment of age-related decline of stimulus-responsiveness in dogs

Bognár Zsófia¹, Piotti Patrizia¹, Szabó Dóra¹, Le Nézet Louis², Kubinyi Enikő¹

¹Eötvös Loránd University, Institute of Biology, Department of Ethology, Budapest, Hungary; ²Université de Rennes, Rennes, France

Sensory decline is one of strongest confounders among senior dogs, thus its screening is particularly important. Existing instrumental tests are uncomfortable for the dog, while non-invasive tests only inform about the presence or absence of function. Experimental methods provide more subtle measures, but they either require pretraining or employ methods detrimental to the animal's welfare, thus none of these alternatives are feasible for routine screening. The aim of this project was to design behaviour tests for the assessment of sensory functions in dogs, and investigate whether they are more informative than the existing routine veterinary tests. We triangulated a battery of sensory tests with a veterinary examination and a report from owners. In each test, dogs' behavioural response to different stimuli was assessed. Each test contained multiple conditions with various levels of difficulty. Therefore, the level of success would also indicate the level of possible decline in the sensory function. We tested 51 dogs (age: 10.5years $\pm$ 2.46; F=24, M=27). Testing of the visual function begun with a vision acuity test (VAT; a food item was placed at various distances for the dogs to find it), followed by an obstacle test (OBS; dogs had to walk across an obstacle course to reach their owner). The auditory function test begun with a clap test (clapping at different distances from the dog), followed by a recorded sound test (RecTest; observing the dogs' reactions to 6 sounds). Spearman rho test showed a positive correlation between the veterinary exam scores and the vision test (N=10; $r=0.767$, $p=0.028$). A positive correlation was found between the owner's assessment and the auditory test (N=23; $r=0.533$, $p=0.028$). A Generalized Linear Mixed Models showed that, in the VAT, dogs' performance decreased with increasing distances (N=47; $p<0.001$). An ordinal regression model showed that, in the OBS (N=43; $p<0.001$), luminosity ($p<0.001$), side ($p<0.001$), and age ($p<0.001$) influenced the performance; in the RecTest (N=23; $p<0.001$), younger dogs performed better than older ones ($p<0.001$) and the sounds ($p=0.004$) influenced the response. We developed an informative behaviour test for the assessment of responsiveness to visual and auditory stimuli in dogs, which is non-invasive, does not need pretraining; after validation the test could be feasible for routine screening of the sensory functions in a wide range of settings.

Funding: ERC 680040, Bolyai Scholarship by HAS