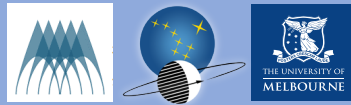


Testing Concept of Self and Abstraction Abilities in Octopuses Using Distorting Mirrors

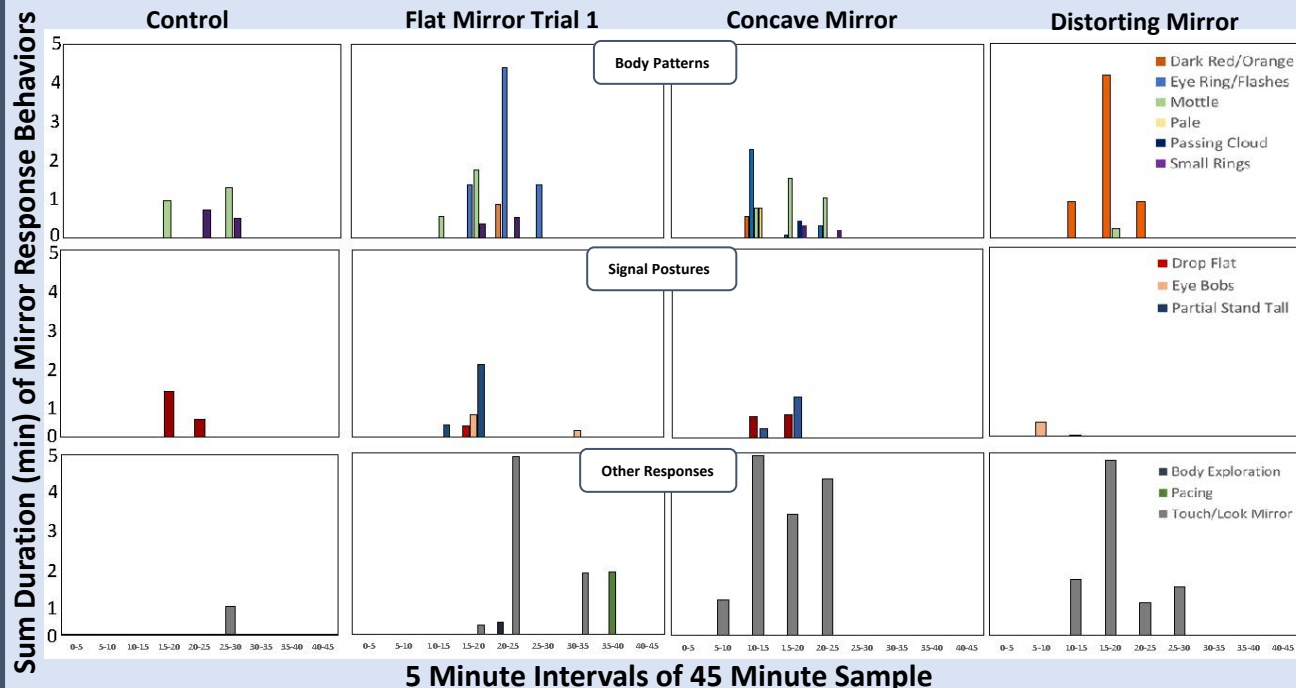
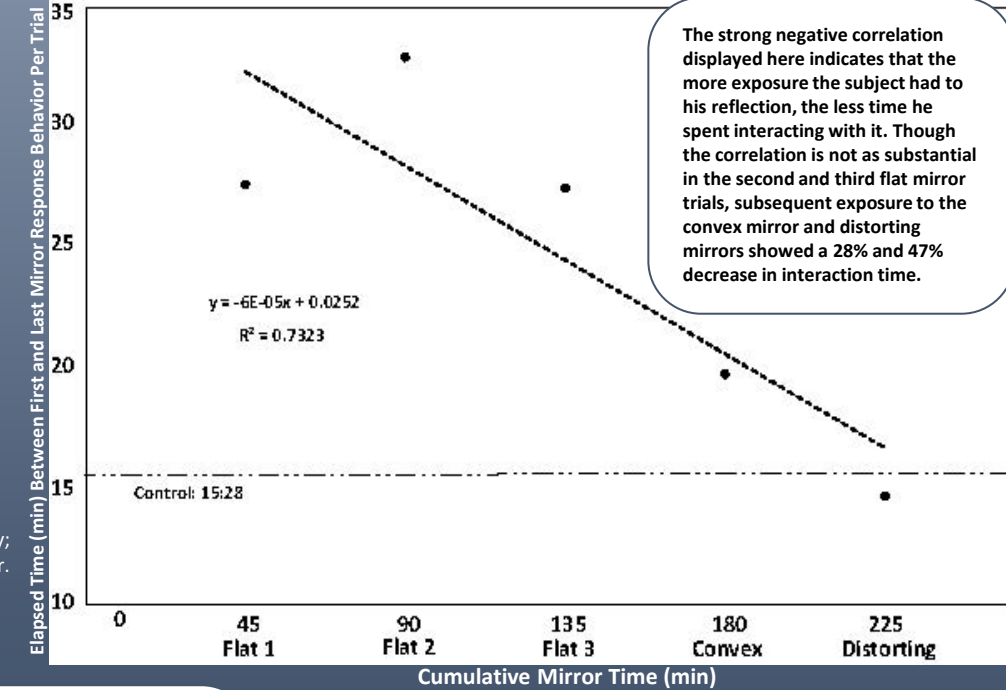
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This study presents evidence for the capacity for concept of self and abstract abilities in Red Pacific Octopuses (*Octopus rubescens*) using a variation of the mirror, or mark, test, developed in 1970 by psychologist Gordon Gallup. In the study described here, an individual octopus was exposed to five different contexts (flat mirror, convex mirror, distorting mirror, post-trial control) and duration and frequencies of behaviors recorded. The octopus displayed response behaviors more frequently in the presence of a mirror, and more often on the mirror side only, compared to control periods. Frequency and duration of responses dropped significantly when presented with a convex and distorting mirror, suggesting that the octopus recognized that the distorted image behaved similarly to the flat mirror image – i.e. that it was not a conspecific but reflected the subject behavior. This suggests at least a rudimentary sense of self in *O. rubescens*; however, examination of further trials is needed before confirmation.

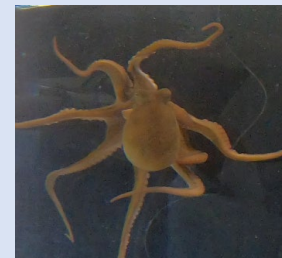


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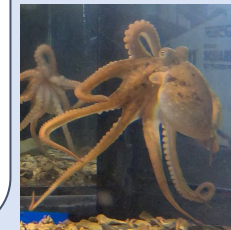


Examples of chromatic and postural mirror responses; considered mirror responses if the animal used visual feedback in the mirror; and non-mirror when the mirror is absent, the exploration is not visible in the mirror from the octopus' position, or mirror visual feedback appears to have no role in the behavior.

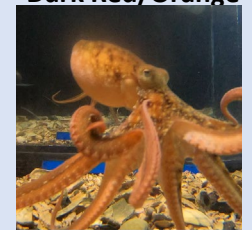
Neutral Ground Color



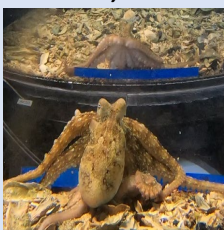
Small Rings



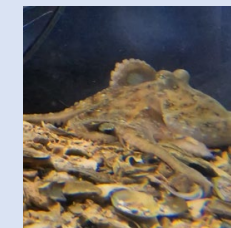
Partial Stand Tall, Dark Red/Orange



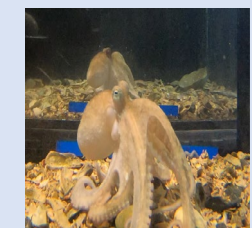
Touch/Look Mirror, Mottle



Drop Flat



Pale



Eye Ring/Flash

