

Video Article

Measuring motor coordination in mice

TODO TODO¹

¹TODO, TODO

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Abstract

Mice are increasingly being used in neuroscience, largely replacing rats as the behaviourist's animal of choice. Before aspects of behaviour such as emotionality or cognition can be assessed, however, it is vital to determine whether the motor capabilities of e.g. a mutant or lesioned mouse allow such an assessment. Performance on a maze task requiring strength and coordination, such as the Morris water maze, might well be impaired in a mouse by motor, rather than cognitive, impairments, so it is essential to selectively dissect the latter from the former. For example, sensorimotor impairments caused by NMDA antagonists have been shown to impair water maze performance². Motor coordination has traditionally been assessed in mice and rats by the rotarod test, in which the animal is placed on a horizontal rod that rotates about its long axis; the animal must walk forwards to remain upright and not fall off. Both set speed and accelerating versions of the rotarod are available. The other three tests described in this article (horizontal bar, static rods and parallel bars) all measure coordination on static apparatus. The horizontal bar also requires strength for adequate performance, particularly of the forelimbs as the mouse initially grips the bar just with the front paws. Adult rats do not perform well on tests such as the static rods and parallel bars (personal observations); they appear less well coordinated than mice. I have only tested male rats, however, and male mice seem generally less well coordinated than females. Mice appear to have a higher strength:weight ratio than rats; the Latin name, *Mus musculus*, seems entirely appropriate. The rotarod, the variations of the foot fault test¹² or the Catwalk (Noldus)¹⁵ apparatus are generally used to assess motor coordination in rats.

Disclosures

No conflicts of interest declared.