Lord Sharpe of Epsom OBE
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Dear Lord Sharpe:

Open Letter: End the Use of the Forced Swim Test

The forced swim test is not a valid or reliable scientific method, and its use must be ended.

The forced swim test (FST), or Porsolt test, is a behavioural experiment initially developed for screening antidepressant drugs[1] and which was later adopted in an attempt to model depression.[2] It involves placing a small animal in a beaker filled with water that does not have an escape platform and recording the latency to stop swimming and the duration of floating.[3,4] Historically, this observation has been interpreted as "behavioural despair"[5] under the assumption that animals with depression-like behaviour "give up swimming earlier than those [who] are not depressed" and that antidepressant drugs reverse this effect.[6]

Its use in depression and anxiety research has been heavily criticised for various reasons. For example, rather than behavioural despair, floating in the FST may be indicative of learning, a way to conserve energy, or adaptation to a new environment.[7–9] This has resulted in many institutional bodies advising against the use of the FST for modelling depression and/or anxiety.[10–15] Additionally, its use as a screening tool is also under question, given that it cannot reliably predict the efficacy of antidepressant drugs.[16–26] As a result, numerous pharmaceutical companies and universities have declared that they do not intend to use the FST in the future.[27]

The FST has also been discouraged on the grounds of animal welfare – the UK's National Centre for the Replacement, Refinement and Reduction of Animals in Research identifies the FST as "highly contentious" and "under considerable scrutiny" due to "its severity and effect on animal welfare".[28] Rodents often defecate during the procedure, which is thought to be a fear response,[29] and there is a documented risk of accidental drowning or water aspiration.[30] The test is considered acutely stressful for animals, which has resulted in it also being adopted to model post-traumatic stress disorder.[31] However, there are concerns about its validity for this purpose, too. Because of the neurobiological differences between humans and other animals, it is doubtful that the behaviour animals display when subjected to this experiment can be relevant to the human clinical condition[32–36]

Despite the scientific and welfare concerns, the test is still widely used, and many of those who fund, authorise, or use the FST appear not to be aware of the debate around its use and interpretation.[37]

We, the undersigned, call for an end to the use of the FST. The FST should not pass a harm-benefit analysis and, consequently, there should be no further authorisation of the test in cases where it is known to be unfit for purpose. As well as causing harm to animals, continuing to authorise use of the FST undermines the integrity of scientific output and public confidence in the rigour with which scientific procedures on animals are evaluated and authorised.

Sincerely,

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