

# The Forced Swim Test – a Cruel and Outdated Practice

## What is the Forced Swim Test?

Of all the behavioural tests employed in animal research laboratories, one of the most cruel and unscientific is the Forced Swim Test (FST). The test involves the dropping of a mouse or a rat into a beaker of water to observe its ability to swim, unable to escape, until it gives up and floats. It is used to assess learned helplessness, which is a feature of depression-like behaviour in mice and rats in psychological studies, and to test the efficacy of anti-depressant drugs.



Image credit NZAVS and SAFE

Originally designed in the 1970s, the forced swim test experiment has faced increasing scrutiny over recent years and as such its use has now ended in many pharmaceutical companies and research institutions around the world including the world-renowned Kings College, London. However, its use continues in Australian universities and research institutes.

## Forced Swim Test research in Australia

Whilst the University of Adelaide and Griffith University have recently taken the enlightened step not to approve research using the forced swim test, many other universities including the **University of Melbourne (Florey Institute of Neuroscience and Mental Health)**, **Monash University**, **University of Western Australia**, **University of South Australia** and the **University of Queensland** still employ this outdated test. Much of the research is funded by way of the National Health and Medical Research Council in the form of grants, awards or research fellowships.

The experiments in which mice and rats at these institutes have been required to ensure the test have included: **testing for depression in adult female rats after hormone treatments; studying behavioural tests relating to autism and schizophrenia; observing the impact of cannabinoid receptors, increased body weight and mood in mice; stress induced research in relation to mood regulation and studies involving repetitive transcranial magnetic stimulation.**

## Validity of the FST

There is increasing debate in the scientific community about the validity of the test. Variations in how the test is conducted means there are substantial differences in behavioural responses observed between studies that use the same model, or even the same animal strains. It has been shown that simple model parameters such as the cylinder diameter, the depth of water and the water temperature are sensitive enough to lead to variations in measured responses.

*Experts now reason that floating is more likely to be an indication that animals are learning, conserving energy, and adapting to a new environment. Instead of giving a true indication of mood or depression, the FST in effect simply records the time the animal takes to give up its struggle to swim to survive.*

Whilst depression is a chronic, relapsing disorder, the mood of an animal could change when the test is completed and does not represent the human condition.

## Alternatives

*The field of mental health needs viable, basic and translational research and by continuing to use a test as scientifically flawed as the forced swim test there is a great risk that data obtained is unreliable and could indeed lead to misleading results and ineffective treatments.*

Relevant alternatives include testing on human platforms. For example, novel compounds can be identified using mathematical or computer modelling of human systems, or by drug-repurposing programs. These compounds could be tested on human tissues or cells using advanced in vitro methods, such as in organoids or microfluidic systems. Epidemiology is another valuable tool for understanding how to prevent and treat human depression.

HRA has contacted many stakeholders including peak bodies and funding organisations but found that whilst there is increasing awareness of the limitations of the test, and more thorough scrutiny on FST research protocols, there is reluctance on the part of universities or other stakeholders to take a leading position on this issue, which is greatly needed to drive change.

*We are campaigning to demand the following –*

- *Withdrawal of federal funding for research using the FST*
- *State and Territory bans on the FST*
- *The ban be reflected in the NHMRC Code for the care and use of animals for scientific purposes.*



### WHAT YOU CAN DO

- *Contact your state or territory Minister for Agriculture and ask for a legislative ban on the forced swim test.*
- *Contact the universities still conducting the FST [www.humanersearch.org.au/forced-swim-test-at-australian-universities](http://www.humanersearch.org.au/forced-swim-test-at-australian-universities)*
- *Support charities who support the advancement of mental health without animal research as listed on the Humane Charities List [www.humanecharities.org.au](http://www.humanecharities.org.au)*

Did you know you can buy one of HRA's colourful little mouse toys from our online shop? By purchasing a brightly colored mouse toy, and other shop items you can help us to raise the issue of animal experimentation and continue our campaigns.

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