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SERTRALINE TREATMENT ATTENUATES THE SEX DIFFERENTIATED BEHAVIOURAL STRESS RESPONSE IN THE RAT FORCED SWIM TEST

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**Introduction:** Sex differences have been described in depression and more recently in antidepressant response. Animal models and in particular the Forced Swim Test (FST), are widely used to investigate the behavioural response to stress and to antidepressant treatment.

**Objectives:** The present study explored sex differences in the stress response during the FST and examined whether antidepressant treatment alleviates the sex-differentiated stress response.

**Methods:** Adult male and female Wistar rats were subjected to a 15min FST session and then treated with three injections of sertraline 10mg/kg or vehicle at 0, 19 and 23 hours post-FST. Twenty-four hours after the first FST, they had a second 5min FST session and their behaviour was recorded.

**Results:** Vehicle-treated females exhibited 66% longer duration and 70% shorter latency of immobility than males, suggesting enhanced levels of despair. Sertraline did not significantly affect immobility, but exerted its antidepressant effect by elongating swimming duration in both sexes and shortening climbing behaviour in males only. In contrast, to vehicle-treated rats, no sex differences were observed in sertraline-treated rats in any of these behavioural parameters. However, sex-differences in head swinging behaviour, which is unaffected by sertraline treatment, were still observed in sertraline-treated rats.

**Conclusions:** Females appear more vulnerable than males to the FST, but the post-treatment organisation of FST behaviour is not sex-differentiated. Antidepressants seem to modulate the behavioural response in FST in a sex-specific way, due to sex differences in baseline FST performance. Consequently, the sex-differentiated stress response profile during FST is attenuated by antidepressant treatment.