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# Paracetamol 'makes sons less masculine'

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Women who take paracetamol during pregnancy may be at risk of giving birth to less masculine sons, a study suggests.

Scientists who exposed male mouse foetuses to the painkiller found that it curbed their levels of the sex hormone testosterone and appeared to inhibit their sex lives when they were adults.

While it is difficult to compare doses of paracetamol between mice and humans, and independent experts stressed that the findings needed to be treated with caution, the researchers said their results were concerning.

"We have demonstrated that a reduced level of testosterone means that male characteristics do not develop as they should," said David Møbjerg Kristensen, who led the tests at the University of Copenhagen in Denmark.

"In a trial, mice exposed to paracetamol at the foetal stage were simply unable to copulate in the same way as our control animals. Male programming had not been properly established during their foetal development and this could be seen long afterwards in their adult life. It is very worrying."

The NHS advises pregnant women that it is usually safe to take paracetamol sparingly as a remedy for high temperatures or mild to moderate pain. It also suggests that they should avoid ibuprofen under most circumstances.

Several studies of mice have indicated that paracetamol can shut down the

production of male sex hormones in the brain while the foetus is developing.

The latest study, published in the journal *Reproduction*, is the first to show that the consequences can be lasting. Dr Kristensen and his colleagues found that male mice which had been exposed to paracetamol during the middle and later stages of their mothers' pregnancies were less aggressive and territorial.

Brain scans showed that these mice had only half as many neurons in the regions that are linked to these masculine behaviours when they were adults.

Findings published last year hint at a mirror effect in female mice, who were found to have fewer eggs in their ovaries if their mothers had been given paracetamol during pregnancy.

Dr Kristensen said that pregnant women should continue to follow their national guidelines for the time being and that the benefits of taking paracetamol could still outweigh any potential risks.

It is tricky to extrapolate from fertility studies in mice to human reproductive biology.

One problem in this case is that even if the doses of paracetamol are adjusted, the amount that reaches a human foetus in the womb may be very different, according to Channa Jayasena, clinical senior lecturer and consultant in reproductive endocrinology at Imperial College London and Hammersmith Hospital.