

More neuroscience research articles are reporting the sex of laboratory animals

November 9 2017, by Tracey Peake

In the largest-ever survey of neuroscience research, scientists from North Carolina State University found that the number of research studies reporting the sex of lab animals increased significantly in the current decade, though sex bias remains present. The findings demonstrate progress in addressing both males and females in neuroscience research but also highlight the continued need for improved research design.

Historically, neuroscience research has not reported the sex of the laboratory rats and mice used in many experiments, a phenomenon known as sex omission. Neuroscience research has also historically exhibited sex bias, meaning male animals are used more often than females. Recent recognition of this experimental pattern generated fierce debate regarding the impact upon experimental replication and findings that may differ by sex.

John Meitzen, assistant professor of biological sciences at NC State, set out to determine whether this recognition within the neuroscience community had affected sex omission and bias in neuroscience literature. Meitzen and his 11-member research team reviewed over 10,000 research articles published between 2010-2014 in six journals known for publishing top-tier [neuroscience research](#). Of the articles surveyed, 6,636 articles using mice or rats were further evaluated.

The team found that the number of manuscripts reporting the sex of mice and rats increased by about 30 percent over this four-year period.

Despite this increase, sex omission remained in about 20 percent of all analyzed articles. They also found that while the number of articles using both males and females increased, overall sex bias toward male animals persisted, particularly in rats. The results varied by both animal species and academic journal.

"Omitting sex data can affect experimental results and interpretation," Meitzen says. "You can't be sure that you're replicating an experiment if you don't know what sex the animals were in the initial research.

"In [neuroscience](#) particularly, using both sexes can have a significant impact on findings, depending upon the questions being posed. You cannot assume that what is true in one sex is true in the other. The increases in both reporting of sex data and the use of both male and female animals is encouraging. More can be done to motivate the consideration of both males and females, and empower neuroscientists to report the sex of laboratory [animals](#)"

The research appears in *eNeuro*.

More information: Tyler R. Will et al, Problems and Progress regarding Sex Bias and Omission in Neuroscience Research, *eNeuro* (2017). [DOI: 10.1523/ENEURO.0278-17.2017](https://doi.org/10.1523/ENEURO.0278-17.2017)

Provided by North Carolina State University

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