Sex and social experience affect ultrasonic vocalizations in mice

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Male mice produce more vocalizations after being with other mice than after being alone, according to a study published June 6, 2018 in the open-access journal *PLOS ONE* by Kali Burke from University at

Buffalo, SUNY, US, and colleagues.

While researchers categorize the ultrasonic vocalizations of mice by frequency, it is unclear whether these categories are relevant categories for mouse behavior. Rather, mice may communicate via other properties of vocalizations such as the number of vocalizations as well as via the context of vocalizations. To investigate sex differences in mouse vocalizations after social experiences, Burke and colleagues analyzed vocalizations of 20 male and 20 female mice after they had spent an hour in one of three social contexts: isolation, being with a same-sex mouse, and being with an opposite-sex mouse. Vocalizations were categorized by frequency as well as quantified by other properties (bandwidth, duration, peak frequency, total number, and proportion of vocalizations produced).

The researchers found that both sex and social context affected the mouse vocalizations. Notably, males produced more vocalizations after social experiences than after isolation. In contrast, females produced about the same number of vocalizations regardless of the prior social context. In addition to revealing the importance of social experience to vocalization in male mice, this work suggests that—contrary to previous conclusions—female mice may vocalize when interacting with males.

Co-author Micheal Dent says: "We recorded from solo male and female mice after they had spent an hour with a mouse of the same sex, a mouse of the opposite sex, or alone. The exposure they experienced before the recording session changed the numbers of vocalizations, the types of vocalizations, and the characteristics of those vocalizations across different conditions. This demonstrates that the social experiences of mice change their communication."

More information: Burke K, Screven LA, Dent ML (2018) CBA/CaJ mouse ultrasonic vocalizations depend on prior social experience. *PLoS*

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