



**THE EFFECTS OF SOCIAL ISOLATION ON MOUSE MATING, BEHAVIOR, AND  
MOUSE USVS**

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Social behavior is important for many animal species to survive and reproduce. This social behavior involves many different and complex interactions between animals in a group. Mice are a social species and are often used as a model system for research related to social behavior and the associated neural circuits. An important aspect of social behavior in mice is ultrasonic vocalizations (USVs). USVs often accompany various mouse behaviors such as mother- pup behavior, juvenile interactions, in response to pain or other negative stimuli, and same and opposite sex interactions. Many studies have proposed that there is a relationship between USVs emitted from adult male mice and courtship. It is known that isolation in rodents can lead to changes in sexual behavior. Isolating mice after weaning them from their mothers leads to sexual behavior deficits such as fewer mounts and intromissions. Since mouse USVs are related to a variety of social behaviors, including mating and courtship, and isolation leads to changes in these behaviors, it would be expected for isolation to lead to changes in USVs.

In this experiment mice were either group housed or socially isolated for a period of two weeks. After this period they were exposed to a novel female mouse for around thirteen minutes while their behavior and USVs were recorded. Analysis of these behaviors and audio recordings show a significant difference in the amount and type of USVs produced by the isolated animals and group housed animals. Isolated animals tend to produce more vocalizations that are shorter and remain at the same frequency throughout the song. Group housed individuals are more likely to make fewer sounds that are longer and experience frequent rapid jumps in frequency level. These syllables that are longer and experience more jumps in frequency may be indicative of social enthusiasm.