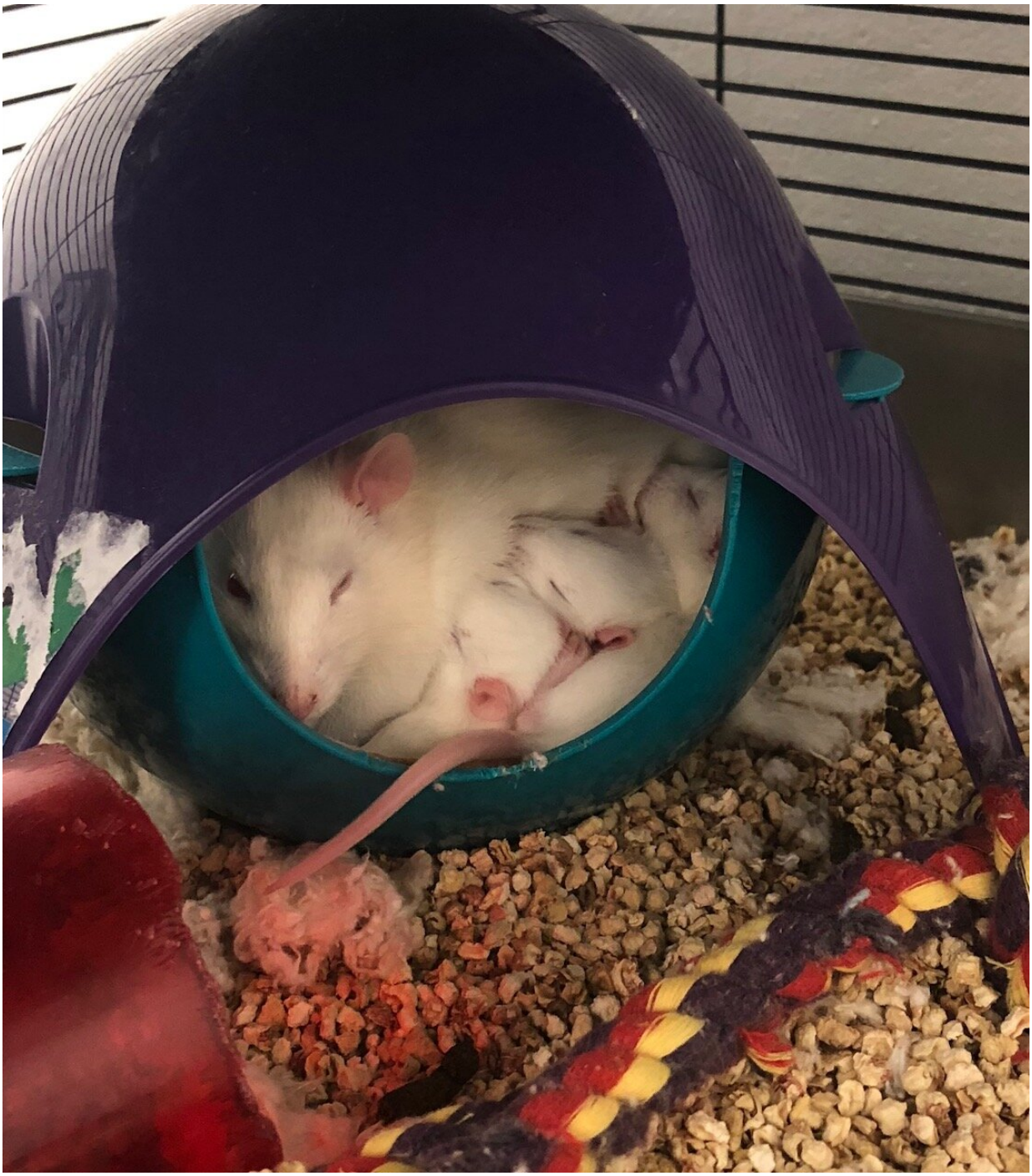
The environment alters breastmilk and maternal behavior in rats

August 22 2022



An environmentally enriched mother rat nursing her babies. Credit: Amanda Kentner, 2022.

Rat mothers in enriching environments give birth to larger offspring, are more efficient parents, and have heartier breastmilk, compared to mothers in standard laboratory housing, according to research published in *eNeuro*.

Rats born to mothers in an enriched environment with new, interesting toys and things to explore have higher body weights and are more social than those born in standard laboratory housing. But this effect disappears when a rat born to an enriched mother is brought up by a standard-housed mother, a sign something in the postnatal environment is driving the benefit—something like breastmilk.

DeRosa et al. monitored the behaviors and examined the breastmilk of mothers in enriched and standard environments. The enriched mothers were more efficient: they spent less time at the nest, like rats in the wild, but still groomed and nursed their offspring enough. The two types of moms did not differ in food consumption or body weight, but milk from the enriched mothers contained increased levels of triglyceride, a main source of energy. The milk also had greater microbiome diversity, including more bacteria linked to bodyweight and metabolism.

These results highlight how external influences on the mother can impact the offspring via breastmilk and showcase the importance of enriched environments when studying rats.

More information: Milking It for All It's Worth: The Effects of Environmental Enrichment on Maternal Nurturance, Lactation Quality, and Offspring Social Behavior, *eNeuro* (2022). DOI: 10.1523/ENEURO.0148-22.2022

Provided by Society for Neuroscience