

Taste preference changes in different life stages of rats

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Research to be presented at the Annual Meeting of the Society for the Study of Ingestive Behavior (SSIB), the foremost society for research into all aspects of eating and drinking behavior, found that aging elicits changes in taste preferences and that such changes appear to be independent of taste nerve activity.

In humans and animals aging decreases dietary and [energy requirements](#) and it is generally believed that reduced consumption is related to alterations in taste preference. However, the mechanisms underlying an age-induced shift in taste preference remain unclear. Thus, the researchers investigated differences in fluid intake and taste nerve responses across different age groups of rats.

The researchers initially measured the intake of sweet, salty, umami, sour or bitter taste solutions in 5 age groups; juvenile, young-adult, adult, middle-aged and old-aged male rats. The result showed that older animals exhibit a decreased preference for sweet and [umami taste](#) and a reduced aversion to bitter taste.

Additional behavioral studies examined whether aging alters taste thresholds by measuring the consumption of simultaneously presented high- and low-concentrated taste solutions. This work revealed that taste sensitivity is lower in older rats.

To elucidate the [neural mechanisms](#) of such age-related changes in taste preference and sensitivity, electrophysiological experiments examined

taste response characteristics of chorda tympani nerves. These nerves mediate gustatory information from the tongue to the brainstem. The researchers observed no significant differences in activity of the chorda tympani nerves by taste stimuli across the different age groups.

Overall, these behavioral and electrophysiological studies demonstrate that age-related changes in taste preference and sensitivity are independent of the peripheral gustatory system.

The lead author of the study, Chizuko Inui-Yamamoto, Ph.D. states, "To our knowledge, this is the first report demonstrating a reduced aversion to [bitter taste](#) in aged rats." She comments, "We had expected that these changes were due to the peripheral taste system." However, differences in electrophysiological recording of taste responses of the chorda tympani nerves across age groups were not observed. "Our studies showed that aging elicited no changes in transmission of taste information from the tongue to the central nervous system. Thus, our future work will investigate the role of the central nervous system in mediating age-induced changes in taste preference", says Inui-Yamamoto.

Provided by Society for the Study of Ingestive Behavior

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