

## The Role of Salt in the Ingestive Behavior for Micronutrients

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### Summary

The aim of this study was to make clear how the animals choose their deficient micronutrients selectively. For this purpose, we investigated how the rats change their feeding behavior and taste nerve response when they lack vitamin C (VC). For that, Osteogenic Disorder Shionogi (ODS) /ShiJcl-od/od rats which cannot synthesize VC were used. Methods and results can be summarized as follow; (1) When the rats were deprived VC for 20 days, the preference ratio for 150mM NaCl, and the binary mixture of 10mM VC + 300mM NaCl solutions in VC-deficient rats were significantly lower than those in normal rats. However, there was no significant difference in the preference ratios for both 300mM NaCl and the binary mixture of 0.3mM VC + 300mM NaCl between the deficient and in normal rats. (2) In the lick test, there was no significant difference in the number of licks for all tested stimuli between deficient and normal groups except when 150mM NaCl was used. (3) In the electrophysiological experiment, the chorda tympani nerve responses to 100mM NaCl, 300mM NaCl, 0.3mM VC + 300mM NaCl and 10mM VC + 300mM NaCl were evaluated. Responses were found to be significantly lower in VC-deficient rats than those in normal rats in all treatments. However, there was no significant difference between the responses to 0.3mM and 10mM VC only between deficient and normal rats. (4) Behavioral study was also used to investigate whether salty taste works as a conditioned stimulus for the conditioned taste preference, the VC-deficient rats did not generalize pure 300mM NaCl, even if they ingested 0.3 or 10mM VC solution tasted with 300mM NaCl. The aforementioned data shows that; (1) The preferences for these tested solutions may not be increased even if the taste nerve responses to all tested stimuli that contained NaCl were decreased. (2) Salty taste may not work as a conditioned stimulus of the conditioned taste preference which elicited by VC as unconditional stimulus.