

## Association of Salt Taste Preference and Salt Sensitivity on Salt Intake

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### Summary

Chronic excessive intake of sodium is implicated in the development of hypertension and atherosclerosis, consequently increasing the risk of cardiovascular diseases such as stroke and myocardial infarction. Due to the relatively high sodium content in traditional Japanese cuisine, salt intake among Japanese individuals surpasses recommended levels, even among developed nations. Given that prolonged dietary habits can contribute to the onset of diseases, practical sodium reduction guidance for young people is paramount for health maintenance and enhancement. In pursuit of practical sodium reduction guidance, we investigated the correlation between salt taste preference and salt taste sensitivity as determining factors for sodium intake in the fiscal year 2021. Our findings suggest a potential lack of association between salt taste preference/sensitivity and salt intake. This study aimed to confirm the reproducibility of research outcomes using different methods and two distinct dietary surveys.

We analyzed two dietary surveys targeting university students conducted in fiscal years 2020 and 2023. In 2020, we conducted a dietary survey using image-based methodology via smartphone applications, while in 2023, we utilized the Brief-type Self-administered Diet History Questionnaire (BDHQ). In both surveys, salt intake was adjusted for energy density using the density method and divided into two groups based on the median (2020: 4.7 g/1000 kcal, 2023: 5.5 g/1000 kcal). Salt taste sensitivity was measured using salt-impregnated filter paper, dividing participants into two groups based on sensitivity (high sensitivity group, score 1; moderate sensitivity group, scores 2 and 3). Salt taste preference was assessed through a web-based questionnaire, converting preferences for saltiness into ratings (dislike, like/dislike, like). The correlations between salt intake, salt taste sensitivity, and salt taste preference were examined using the Wilcoxon signed-rank test. Furthermore, path analysis was employed to estimate the relationships between salt intake, salt taste sensitivity, and salt taste preference. A significance level of  $P < 0.05$  was set for statistical analysis.

No significant associations were observed among all combinations of salt intake, salt taste sensitivity, and salt taste preference. Even in the path analysis assuming an association between salt intake, salt taste sensitivity, and salt taste preference, no significant association was found. The findings of this study replicate the lack of association between salt taste sensitivity/preference and salt intake. Therefore, careful consideration is needed before utilizing the results of salt taste preference and salt taste sensitivity in sodium reduction guidance for young individuals.