Volume 20 Issue 42
Originally issued as K8

Global Journal of Medical Research: K
Interdisciplinary
Volume 20 Issue 8 Version 1.0 Year 2020
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals
Online ISSN: 2249-4618 & Print ISSN: 0975-5888

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GJMR-K Classification: *NLMC Code: QW 640*



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Results of 118 People Who Participated in the University Festival and Underwent a Saltiness Cognitive Threshold Test by using SALSAVE

Akemi Ito [α], Mayumi Hirabayashi [σ] & Naomi Katayama [ρ]

Abstract- To prevent hypertension, which is closely related to lifestyle, especially eating habits, it is necessary to reduce salt intake. Therefore, in this study, we performed a saltiness cognition threshold test for participants at the university festival and obtained the saltiness cognition threshold results for the general public. 94 % of participants could perceive salty taste when the salty taste concentration was 1.0 % or less. On the other hand, two participants could not perceive saltiness even at a salty concentration of 1.6%, a 67-year-old female, and an 82-year-old female. We would like to continue the saltiness cognition threshold test and collect the data of participants to clarify the saltiness cognition threshold for general people.

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I. Introduction

According to the Japanese dietary intake standard2020, it hoped that the daily salt intake should be 6.5g for females and 7.0g males. After five years, it expected that the desired intake of salt will probably change to below the international standard of 6.0 g per day. Reducing salt helps prevent various diseases. For example, High blood pressure, Kidney disease, and Heart disease [1,2,3,4]. For both young [5] and old people [6,7], reducing salt helps maintain good health, and reducing salt education is effective [8,9]. Therefore, this study reports the result of the saltiness cognitive threshold test for people who participated in the university festival. Since this result can grasp the saltiness perception threshold of the general public, it will be a useful date for future salt reduction education.

II. Materials and Methods

a) Participants

The participants were 35 males and 83 females (10 to 80 years old) using a salt cognitive threshold test (SALSAVE: manufactured by Advantech).

b) Assessment of salt taste identification

The salty concentration was 0.2-0.6% in 6 levels by using SALSAVE. Participants put a filter paper impregnated with salt in their mouths to check the taste and told the inspector what it tasted. The inspector recorded the participant's answer. There were 118 participants, 35 males, and 83 females.

c) Ethical review board

This study conducted with the approval of the Ethics Committee (Nagoya women's university 'hito wo mochiita kennkyuu ni kansuru iinnkai'). The approval number is 30-14.

III. Results

a) Saltiness recognition test result

There were 118 participants, 35 males and 83 females (to see Table 1). By age group, there were seven males in their '10s, seventeen in their '20s, six in their '30s, two in their '40s, one in their '60s, and two in their '80s. There were nine females in their '10s, 33 in their '20s, three in their '30s, six in their '40s, six in their '50s, seven in their '60s, twelve in their '70s, and seven in their '80s.

Table 1: Participant gender and age composition (number of participants)

	10's	20's	30's	40's	50's	60's	70's	80's
Male (n=35)	7	17	6	2	0	1	0	2
Female (n=83)	9	33	3	6	6	7	12	7
Total (n=118)	16	50	9	8	6	8	12	9

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The results using SALSAVE were as follows (see Table 2, Table 3, Table 4, and Table 5). There were 84 who could perceive saltiness at a salt concentration of 0.6%, 61 in females, and 23 in males. There were 25 who could perceive saltiness at a salt concentration of 0.8%, 16 in females, and nine in males. There were three who could perceive saltiness at a salt concentration of 1.0%, one in females and two in males. It evaluated that the salt concentration recognized as a light taste. There were four who could perceive saltiness at a salt concentration of 1.2 %, three in females and one in males. Two women could not perceive even if the salt concentration was 1.6%.94 % of participants could perceive salty taste when the salty taste concentration was 1.0 % or less. Four participants were able to perceive saltiness with a salt concentration of 1.2%, and were 45-year-old male, 71-year-old male, 73-year-old female, and 81-year-old female. Two participants could not perceive saltiness even at a salty concentration of 1.6%, a 67-year-old female, and an 82-year-old female.

Table 2: Saltiness perception threshold (SALSAVE) results (number of participants)

	0.60%	0.80%	1.00%	1.20%	1.40%	1.60%	1.6%以上
Male （n=35)	23	9	2	1	0	0	0
Female (n=83)	61	16	1	3	0	0	2
Total (n=118)	84	25	3	4	0	0	2

Table 3: Saltiness recognition threshold test (SALSAVE) result judgment (number of participants)

	Normal	Observation	Consultation
	0.6%－1.0%	1.2%－1.6%	1.6%以上
Male （n=35)	34	1	0
Female (n=83)	78	3	2
Total (n=118)	112	4	2

Table 4: Saltiness recognition threshold test (SALSAVE) result judgment (%)

	Normal	Observation	Consultation
	0.6%－1.0%	1.2%－1.6%	1.6%以上
Male （n=35)	97.10%	2.90%	0.00%
Female (n=83)	94.00%	3.60%	2.40%
Total (n=118)	94.90%	3.40%	1.70%

Table 5: Breakdown of people whose salt cognition threshold test (SALSAVE) results are outside the normal range

Observation			Consultation
1.20%	1.40%	1.60%	1.6%以上
Male 45			Female 67
Male 71			Female 82
Female 73			
Female 81			

IV. Discussion

The fact that 94% of the participants could perceive saltiness with a low saltiness (1.0% or less) felt that the effect of health promotion in Japan, which had been enlightened about salt reduction for nearly 20 years, is manifested. On the other hand, two participants could not feel the salty taste even at a salt concentration of 1.6%, so we feel that it was better to continue enlightenment on salt reduction. There are good drugs on the market for hypertensives[10], but we would like to enlighten people to eat a lightly salted diet to prevent

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lifestyle-related diseases. In the future, we think it would be good to ask questions about eating habits, give advice on improvements, and continue to raise awareness about salt reduction.

V. Conclusions

We reported the results of 188 people (35male and 83 female) who participated in the saltiness cognitive threshold test at the university festival. Ninety-four percent of the participants were able to perceive saltiness with a low salt concentration (1.0 % or less). However, two of the participants could not perceive saltiness even at a high salt concentration of 1.6 %. We would like to continue the saltiness cognition threshold test and collect the data of participants to clarify the saltiness cognition threshold for general people. We believe that these results will be useful data for future guidance on salt reduction.

Acknowledgements

This study was supported by the research aid of Choju-iryo-kenkyu-kaihatsuhi 30-14 and the Japanese Society of Taste Technology, 2019.

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