

# Result of the Threshold Test for Saltiness Perception of 35 People Who Participated in the Saltiness Test using Test-Disk at the University Festival

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## Abstract

Hypertension is one of the causes of many lifestyle-related diseases. In Japan, too, we are raising awareness about dietary salt reduction for hypertensive patients. Therefore, the purpose of this study was to understand the results of the salty cognitive threshold test in a wide range of age. This result can be useful data for future salt reduction instruction. Thirty-five people participated in the saltiness cognition threshold test at the university festival. The participants this time had a wide range of ages from the teens to the eighties. Participants answered that they eat out 2-3 times a week. Also, they said that the seasoning they like to eat is a little salty. Most participants (88.6

**Index terms**— saltiness test, cognition, threshold, test-disk, university festival.

Result of the Threshold Test for Saltiness Perception of 35 People who Participated in the Saltiness Test using Test-Disk at the University Festival Introduction The target daily intake of salt in the world is 6g or less. However, in Japan, the desirable daily intake of salt for adult males is 7g or less, and females it is 6.5g or less. The target amount of salt intake per day may be higher than in the world, but it is very hard for Japanese people to lower the salt intake to this level. However, from the perspective of preventing high blood pressure, the Japanese continue to make every effort to keep this target. Therefore, the purpose of this study was to collect data on the threshold level of salt concentration cognition using Taste-disks for neighboring residents who participated in the university festival and to use it as future data.

## II.

## 2 Materials and Methods

### 3 a) Participants

Participants were 11 males and 24 females. Table 1 shows the distribution of the participant's gender and age.

### 4 b) Assessment of salt taste identification

Participants were subjected to a salty cognitive threshold test using Taste-disc (made by Sanwa Chemical Research Institute). The saltiness test started from a light taste and tried a strong taste in order. The saltiness test starts from 0.3%, and the concentration increases in 5 steps up to 20.0% (0.3%, 1.25%, 5.0%, 10.0%, 20.0%). Participants placed the salt-soaked disc on the chord innervation area 2cm above the below the tongue for 3 seconds to confirm the taste. And then, participants answered to the inspector what the taste was. The inspector recorded the answers of the participants.

We also conducted a questionnaire survey on dietary habits. There are four questions, 1) Does saliva come out? 2) Do you feel the taste? 3) Frequency of purchase of restaurants and commercial food, 4) Regular seasoning (for food was salty or thin) (

## 5 Results

### 6 a) Saltiness recognition test result

The age distribution of the participants was seven in the teens, two in the '30s, two in the '40s, and one in the '60s, for a total of eleven males. The age distribution of the participants was five in the teens, one in the '20s, seven in the '40s, one in the '50s, three in the '60s, and one in the '70s, for a total of 24 females. Table 3 shows the results of the salty cognitive threshold test. Nine participants (four males and five females) recognized saltiness at the lowest saltiness concentration of 0.3%. Twenty-two participants (six males and 16 females) recognized saltiness in 1.25%, and four participants (one male and three females) recognized saltiness in 5.0%. The acceptable range (what we call the normal range) was 31, with 88.6% of the total. There was no participant didn't cognition of the saltiness of all (To see Table 4 and Table 5). The results of the questionnaire shown in Table 7-10. Most participants (n=32) answered that salivary secretion was very good (see Table 7). Twenty-two participants answered that taste detection was very well, and 12 participants answered that taste detection was well (see Table 8). The frequency of eating out was the large number of participants 2-3 times a week, with 19 (five males and 14 females) participants (see Table 9). Most of the participants (seven males and 16 females) answered that the food that they usually like to eat is light salty (see Table 10). The four participants recognized at a salty concentration of 5.0% were a 45-year-old male, two 21-year-old females, and a 68-year-old female (to see Table 6). IV.

## 7 Discussion

Participants ranged in age from 10's to 80's. However, no one could understand the taste unless it had a strong salty taste. Four participants felt the taste with a slightly salty taste, and the age ranged from '20s to '80s. Many participants replied that the usual seasoning was a little bit strong, and it may be necessary to teach how to reduce salt. Since most participants responded that they eat out 2-3 times a week, it may be well to guide them in choosing a diet with low salt content. Based on these results, it is better to conduct a detailed questionnaire survey on dietary habits in the future and compare it with the results of the usual seasoning and salty cognitive threshold test. Since salt reduction helps prevent high blood pressure 1,2,3,4 ) and other lifestyle-related diseases, we would like to continue to raise awareness. It has reported from inside and outside 5,6 ) of Japan that the effect of salt reduction can applied to both young 7 ) and old people 8,9 ). It has also reported that guidance on salt reduction is effective ??0.11 ). We would like to provide recipes for cooking meals with low saltiness, hold cooking classes, and teach how to reduce salt.

V.

## 8 Conclusions

We reported the results obtained from 35 people who participated in the saltiness cognition threshold test at the university festival. The participants this time had a wide range of ages from the teens to the eighties. The salty cognitive threshold test performed using a Taste-Disc. As a result, 88.6% of participants were able to perceive saltiness at a concentration of 1.25% or less. Participants responded to the questionnaire that they had well saliva secretion and taste. Participants answered that they eat out 2-3 times a week. Also, they said that the seasoning they like to eat is a little salty. In the future, it will be better to conduct a questionnaire survey on dietary habits and compare it with the saltiness cognitive threshold test results. We also thought it would be good to increase the number of participants and consider them.

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Figure 1: Table 1 :

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Figure 2: Table 2

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III.

Figure 3: 10's 20's 30's 40's 50's 60's 70's 80's Male (n=11) 7 0 1 2 0 1 0 0 Female (n=24) 5 10  
0 5 1 2 1 0 Total (n=35) 12 10 1 7 1 3 1 0Table 2 :

3

Figure 4: Table 3 :

4

Figure 5: Table 4 :

5

Year 2020  
2

Figure 6: Table 5 :

6

b) Questionnaire results

Figure 7: Table 6 :

7

Figure 8: Table 7 :

8

Figure 9: Table 8 :

9

Figure 10: Table 9 :

10

Year 2020  
31

Figure 11: Table 10 :

|               |                   | Observation |                          |                         | Consultation     |     |  |
|---------------|-------------------|-------------|--------------------------|-------------------------|------------------|-----|--|
|               | 5.00%             |             | 10.00%                   | 20.00%                  | 20.0% or more    |     |  |
| male age 45   |                   |             |                          |                         |                  |     |  |
| female age 68 |                   |             |                          |                         |                  |     |  |
| female age 21 |                   |             |                          |                         |                  |     |  |
| female age 21 |                   |             |                          |                         |                  |     |  |
| Very well     |                   |             | Well                     | Not good                | Do not know      |     |  |
| Male (n=11)   |                   | 10          | 0                        | 0                       | 0                | 1   |  |
| Female (n=24) |                   | 22          | 1                        | 1                       | 0                | 0   |  |
|               |                   |             | Very well                | Well                    | Not good         | No  |  |
|               |                   |             |                          |                         |                  | an- |  |
|               |                   |             |                          |                         |                  | swe |  |
| Male (n=11)   |                   | 8           |                          | 2                       | 0                | 1   |  |
| Female (n=24) |                   | 14          |                          | 10                      | 0                | 0   |  |
| Male (n=11)   | 2                 | 3           | 5                        | 0                       | 0                | 0   |  |
| Female (n=24) | 0                 | 0           | 14                       | 4                       | 6                | 0   |  |
|               | Strong salt taste |             | rather strong salt taste | rather light salt taste | light salt taste |     |  |
| Male (n=11)   | 1                 |             | 7                        |                         | 2                | 0   |  |
| Female (n=24) | 0                 |             | 16                       |                         | 5                | 1   |  |

Figure 12: every day four or five times a week two or three times a week once a week two or three times a month Hardly used No answer

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