

Results of the Sweet Taste Cognitive Threshold Test of 38 Peoples Who Participated in the Sweet Taste Test using Taste-Disks at the University Festival

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Abstract

Although sugar intake did not directly lead to diabetes, the results will vary depending on age, sex, individual differences, and the nature of sugar ingested. However, the change in blood glucose level and the accumulation of fat in the body cannot be neglected about the sugar intake. Also, if the sweetness recognition threshold increases, the intake of sugar may increase. Therefore, the purpose of this study was to conduct a sweetness cognitive threshold test to understand the sensitivity of the general public to sweetness. The acceptable range (sugar concentration of 2.5

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

1 Introduction

The number of patients with diabetes is increasing year by year. Since the number of diabetic patients with complications is increasing, kidney dysfunction, advanced symptoms, and the number of patients requiring dialysis is increasing. As the national health burden in Japan has increased, maintaining national health insurance has become difficult. Therefore, in this study, we conducted a sweetness cognitive threshold test using a taste-disk on neighboring residents who participated in the university festival. Understanding this result can be used as data for future sweetness perception threshold tests. A sweetness cognitive threshold test performed on 38 people who participated in the university festival using TASTE-DISC.

II.

2 Materials and Methods

3 a) Participants

Participants were 14 males and 24 females. Table 1 shows the distribution of the participant's gender and age. We also conducted a questionnaire survey on dietary habits. There are four questions, 1) Saliva secretion, 2) Taste perception, 3) Use of restaurants and commercial food, 4) Favorite salt taste of food (Table 2).

4 c) Ethical review board

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

III.

6 Results

7 a) Sweetness recognition test result

The age distribution of the participants was seven males in their '10s, two in their '30s, four in their '40s, one in their '60s, for a total of fourteen participants. The age distribution of the participants was five females in their 10s, ten in their '20s, five in their '40s, one in their '50s, two in their '60s, one in their '70s, for a total of 24 participants.

The cognitive threshold test result for saltiness was 0.3%, the lowest concentration, and fourteen (zero male and fourteen female) participants recognized saltiness. The cognitive threshold test result for saltiness was 2.5%, the second-lowest concentration, and eleven (six male and five female) participants recognized saltiness. The cognitive threshold test result for saltiness was 10.0%, the third-lowest concentration, and eleven (six male and five female) participants recognized saltiness (see Table ??).

8 Table 3: Sweetness perception threshold test (TASTE DISC) results (number of participants)

The acceptable range (we call normal range) was 25 participants, 65.8% of the total. Only two participants could not feel the sweetness or feel only the strong taste, 5.3% of the total (to see Table 4 and Table 5). As a result, 13 participants could not perceive the light sweetness. The age ranged from the teens to the seventies. Two participants could not recognize the sweetness at all (see Table ??).

9 Table 6: Breakdown of people whose salt cognition threshold test (TASTE DISC) results are outside the normal range b) Questionnaire results

When asked about salivary secretion, 33 (11 males and 22 females) participants (86.8%) answered that saliva secreted well. When asked about the perception of taste, 24 (nine males and 15 females) participants (63.2%) answered that they knew the taste well. When asked about the frequency of eating out, most participants answered that they would use it 2-3 times a week. Two male participants said they were eating out every day. On the contrary, two participants answered that females rarely eat out. It turns out that males eat out more often than females. In response to questions about the usual seasoning of meals, 23 (seven males and 16 females) participants (60.5%) replied that they were eating rather heavily seasoned meals.

10 Discussion

Participants ranged from 10s to 80s. Two male participants could not understand unless they had a high concentration of sweetness. It has reported that sweetness susceptibility changes in older 1) , and stressed conditions 2) . It also reported that sweets may be eaten too much during pregnancy 3) and quit smoking 4,5) . It also reported that the threshold for sweetness may increase by eating a lot of sweets during childhood when the taste is created 6,7,8) . From the results of this study, it was also found that males eat foods with a strong taste daily, because males use eating out more frequently than females. From these results, it found that a detailed questionnaire survey on dietary habits needed in the future. We would like to ask the participants in more detail about the sweetness of their everyday meals. Preventing diabetes will prevent many other related diseases. We would like to continue to educate people on low-sugar diets that can prevent postprandial hyperglycemia. In the future, we would like to continue to provide menus and recipes that have low sweetness, low sugar content, or high dietary fiber that moderates digestion and absorption.

V.

11 Conclusions

A sweetness cognitive threshold test performed on 38 people who participated in the university festival using TASTE-DISC. Females perceived sweetness at a lower threshold than males. Two of the 14 male participants were unrecognizable even at the sweetest concentration of 80.0%. In the future, we think it would be good to use a questionnaire to investigate the usual eating habits and compare it with the wetness cognitive threshold test results.

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0.3%??2.5??10.0??20.0??80.0?.

Participants put The
sweetness test starts form
a filter paper impregnated
with sweet in their mouth
to check the taste and then
answered to the inspector
what the teste was. The
inspector recorded the
answers
of the participants.

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Figure 1: Table 1 :

Total (n=38)	12	10	2	9	1	3	1	0
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Figure 2: 10's 20's 30's 40's 50's 60's 70's 80's Male (n=14) 7 0 2 4 0 1 0 0 Female (n=24) 5 10 0 5 1 2 1 0

Figure 3: Table 2 :

4

Year 2020
2

Figure 4: Table 4 :

5

Figure 5: Table 5 :

7

Figure 6: Table 7 :

8

Year 2020
11

Figure 7: Table 8 :

9

	Strong taste	rather teste	strong	rather teste	light	light taste	No answer
Male (n=14)	2	7		3		0	2
Female (n=24)	0	16		5		1	2

Figure 8: Table 9 :

10

IV.

Figure 9: Table 10 :

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