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Results of Questionnaire Survey on Gum Chews of Thirty-Days for University Female Students

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Abstract- It had pointed out that modern people have a weakening ability to bite. The media had reported that the number of children with weak chewing power has increased since the 1980s, and the media were concerned about their future health. Therefore, in this study, we conducted a questionnaire survey after chewing ability training after chewing gum once a day for one month for chewing ability training. As a result, 23 female university students participated, and after 30 days, six people answered that they got chewing ability by chewing gum everyday. Also, eight people answered that they felt that their jaw had strengthened. And five of the participants answered that saliva secretion had improved. Six of the participants replied that they had reduced their snack intake. However, of the 23 participants, eight could not chew the gum daily for 30 days. Also, 13 out of 23 of the participants replied that chewing gum every day for 30 days was hard to do. In the future, we would like to enlighten people to develop chewing ability training by making a habit of chewing gum everyday.

Keywords: chewing training, chewing gum, questionnaire survey, university female students.

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Results of Questionnaire Survey on Gum Chews of Thirty-Days for University Female Students

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I. Introduction

It has pointed out that modern people in Japan have reduced masticatory power. The number of soft foods increased, and the number of children with weak chewing power increased in the 1980s. The kindergarten scene and experts pointed out one after another, and the media coverage of children with weak chewing power also taken up. Experts are worried about the future of these poorly chewable children. Because, if the force of chewing is weak, the muscles for chewing and the bones of the jaw not sufficiently developed, which causes disorder of the alignment of teeth and temporomandibular disorders. Also, if you can chew well after growth, your jaw will move well, and the blood flow to the brain will increase, and the brain will become active, which will help prevent blurring and dementia. Therefore, in this study, we conducted a self-administered questionnaire survey after chewing gum for one day one time during a month to 23 female university students who understood the study contents and agreed to the consent form, and report the results.

II. Materials and Methods

a) Participants

In this study, 23 female university students participated. They understood the study contents and agreed to the consent form.

b) Chewing questionnaire survey

Participants had the gum chewed for one minute every day for 30 days. After that, a self-administered questionnaire survey conducted for the participants. The questionnaire items shown in Table 1.

Table 1: Questionnaire survey about 30 days of chewing xylitol gum

Could you chew the gum for 30 days?
Was it hard to chew gum everyday?
Did chewing gum change your appetite?
Do you think chewing gum has imroved your chewing ability?
Co you think chewing gum helps improve saliva secretion?
Do you think chewing gum prevented your mouth from getting dry?
Do you think chewing gum reduce your dietary intake?
Do you think that chewing gum gives your jaw more strength?
Did chewing gum reduce your snack intake?

c) Ethical review board

This study conducted with the approval of the Ethical Review Board (Nagoya women's university 'hito wo mochii ta kennkyuu nikansuru iinnkai'). The approval number is 30-7 and 30-17.

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III. Results

a) Questionnaire survey results

The results show in Table 2 and 3. The average age of female university students ± standard deviation was 20.6 ± 0.5. The results of the questionnaire survey were as follows. Every day, 15 people chewed gum for 30 days. Also, 15 people said that chewing gum every day was hard to do. The chewing gum was most common in the morning and afternoon, with six participants each. Three participants answered that chewing gum reduced their appetite. Six participants replied that they were chewing well by chewing the gum. Five participants answered that they thought that chewing gum improved salivation. Eight participants said that they thought they were less thirsty. Two participants replied that they thought they were eating less. Eight participants answered that they thought they had jaw strength. Also, in the comments section of some participants, there were comments such as thinking that they started chewing food well, that they could chew, and that they felt their jaws became stronger. A further six participants replied that they were eating less snacks. In the comment section, there was a note that they were not hangry because they felt full. There was also a note that chewing gum prevented them from eating other snacks.

Table 2: Time of chewing gum (n=23)

Early morning	Morning	Afternoon	15:00	Evening	Night
2	6	6	2	4	3

Table 3: Questionnaire survey results after 30 days of chewing xylitol gum (n=23)

	Yes	No
Could you chew the gum for 30 days?	15 (65.2%)	8 (34.8%)
Was it hard to chew gum everyday?	13 (56.5%)	10 (43.5%)
Did chewing gum change your appetite?	3 (13.0%)	20 (87.0 %)
Do you think chewing gum has imroved your chewing ability?	6 (26.1%)	17 (73.9%)
Co you think chewing gum helps improve saliva secretion?	5 (21.7%)	18 (78.3%)
Do you think chewing gum prevented your mouth from getting dry?	8 (34.8%)	15 (65.2%)
Do you think chewing gum reduce your dietary intake?	2 (8.7%)	21 (91.3%)
Do you think that chewing gum gives your jaw more strength?	8 (34.8%)	15 (65.2%)
Did chewing gum reduce your snack intake?	6 (26.1%)	17 (73.9%)

IV. Discussion

By adding chewing ability, it can expected to promote jaw development and saliva secretion, and to promote digestive absorption. By chewing well, it may act on the satiety center and prevent overeating and overeating snacks. In the comments section of the female students who participated in this study, there were comments such as reduced intake of snacks, more chewing ability, and feeling better chewing. However, 15 out of 23 participants (65%) were able to chew gum daily for 30 days. Not everyone can chew gum daily when 13 participants (57%) answered that it was difficult to chew gum every day. There are many Japanese people who feel that even general gum is hard, so manufacturers sell soft gum to secure sales. As a result of this study, it said that it was difficult for female university students to chew gum every day, and their jaws became tired. However, on the other hand, chewing training using gum can be expected to be effective because some students felt that chewing ability was improved by chewing gum every day (26%). That saliva secretion was improved (22%).Since rice is the staple food of Japanese food, and it is a soft food, it may be one of the reasons for this result that there are few opportunities to chew hard food.

Educating about teeth has been reported to help sustain oral care [1,2,3,4]. In overseas reports, female brush their teeth better than male and even use dental floss [5,6]. It seems that many people brush their teeth in the morning and at night [5]. There have been reports of measuring chewing power by various methods in past research. For example, device development and calculation models [7,8,9,10]. Because it has teeth, we can chew well, which gives better stimulation to our brain [11]. This stimulation is especially likely to prevent dementia in the elderly, and the results of chewing training using gum have been reported [12].We would like to enlighten people to increase the chances of developing chewing ability by increasing the chances of chewing hard food. We would like to encourage chewing training using the gum.

V. Conclusions

By chewing well, it works on the satiety center and prevents overeating. A better effect on jaw development and dentition can expected due to its masticatory power. Twenty-three female university students chewed gum daily for 30 days and then asked them to complete a chewing ability questionnaire. As a result, 15 participants chewed gum daily, and 13

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participants had difficulty chewing gum every day. Some participants noted in the comments that chewing gum every day was tired of their jaws, while others noted that they felt better saliva production and felt chewing. We would like to enlighten people to increase the chances of developing the chewing ability by increasing the chances of chewing hard food.

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