令和７年度　大学院歯学院（後期）　入学試験問題　英語

2025 English

The entrance examination to Graduate School of Dental Medicine, Hokkaido University

Question I.

Read the following article, and answer the questions.

Your answers should be written in English on the Answer Sheet I.

Paleoanthropologist Peter Ungar was startled when he asked Hadza hunter-gatherers in Tanzania to open their mouths so he could clean their teeth for a study 2 years ago. That's when Ungar, who is at the University of Arkansas in Fayetteville, realized that "these people have terrible teeth," full of cavities. Hadza dental decay is a blow to received wisdom in anthropology (1): the belief that prehistoric hunter-gatherers, subsisting on meat and wild plants, rarely had cavities. Teeth supposedly began rotting only when such societies made the transition to agriculture and adopted a diet rich in sugar and starch from grains (Science, 25 May 2012, p. 973). Studies of the Hadza, modern hunter-gatherers in the midst of that transition, now suggest the story is not that simple (2).

For Hadza men, at least, shifting to a diet of agricultural products actually improves dental health, Ungar and biological anthropologist Alyssa Crittenden of the University of Nevada in Las Vegas reported here last week at the annual meeting of the American Association of Physical Anthropologists. But for Hadza women, the farmers' diet is a dental disaster, and it damages the teeth of toddlers as well, particularly boys.

The new study, the first extensive look at oral health among living people shifting from the bush to village life, shows that cultural practices and what people actually eat are more important than whether they hunt and gather. It is "a great example of local resources playing a major role in … periodontal health," says bioarchaeologist Jim Watson of the University of Arizona in Tucson, who has studied oral health in ancient Native Americans.

Crittenden and Ungar studied the diet and dentition of 75 Hadza adults who live near Lake Eyasi in northern Tanzania. Only about 150 Hadza out of a population of about 1000 still hunt and gather their food in the "bush." Hadza men in the bush hunt large and small game and gather honey and bee larvae. The women gather baobab fruit, berries, figs, drupes, and legumes, and they dig up fibrous tubers. In contrast, the Hadza who live in or near villages eat rice, maize, and beans, along with whatever meat and plants they can hunt and gather. They also drink homemade maize alcohol.

By comparing the teeth of 25 Hadza adults who live in the bush, 25 who live in villages, and another 25 who split their time between locations, Crittenden and Ungar found that 52% of the teeth of full-time male hunter-gatherers had cavities, compared with just 35% of the village men's teeth. The reason? "Men in the bush are consuming tremendous amounts of liquid honey," Crittenden says. "They are binge eating the honey until they get dehydrated." Ungar found beeswax stuck to their teeth, which may accelerate the formation of cavities.

By contrast, the women in the bush who eat fibrous tubers and plants have the best teeth and overall oral health of any Hadza group, partly because the grit on the tubers rubs debris off their teeth. Just 16% of their teeth have cavities. But when they switch to a diet heavy in maize and other carbohydrates, their teeth get worse, with 42% having cavities.

Ungar also took detailed photographs of each Hadza's teeth so he could look for furrows or defects in their tooth enamel. The marks, known as linear enamel hypoplasias (LEHs), are the result of malnutrition in early childhood. He found at least one LEH groove on the canines or incisors of 77% of men who lived in villages starting as infants or toddlers. Ungar thinks they suffered serious nutrition stress after they were weaned and fed a diet of uji, a porridge of maize or sorghum. By contrast, only 14% of men who lived in the bush as infants have the malformations. Their weaning diet consisted of meat made into broth or prechewed by their mothers, baobab fruit, and honey, which provides more nutrients than the maize porridge.

In another surprise, the contrast did not hold for women. Those who had been weaned as toddlers in the village didn't have significantly more LEHs (56% had at least one) than women weaned in the bush as children (43% had at least one). "Boys suffer worse than girls," Ungar says. Female toddlers are smaller and fatter usually than male infants, which could buffer them better against a poor diet, he says.

Watson says the natural experiment Ungar and Crittenden examined confirms what he suspected from his studies of ancient Native Americans in the Sonoran Desert. They had many cavities, which he thinks were a result of eating agave pads and syrup. Other studies have found that ancient hunter-gatherers in northern Africa who ate lots of dates also had teeth riddled with cavities. The paleo diet isn't always great for your teeth, it seems. "We project our views about hunter-gatherers into the past," says Watson, "so it's great to see this variation in a living population."

-Source-

Science. Volume 356, issue 6336, pages362 (2017)

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Question II.

Read the following article, and answer the questions.

Your answers should be written in English on the Answer Sheet II.

This study utilised large prospective cohort data to longitudinally examine the association between the self-reported frequency of eating together and the incidence of functional disability among older adults living alone. Among these demographic factors, 'seldom' eating together was identified as a risk factor for incident functional disabilities. The strength of this association may vary by sex, age and equivalised household income.

This study observed that the self-reported frequency of eating together was associated with the incidence of functional disability even after adjusting for age, educational level, marital status, equivalised household income, depressive symptoms and frailty status. Age was adjusted for its significant impact on the incidence of functional disability using both a continuous value for age and a quadratic age term. Previous studies indicated a higher risk of weight loss, frailty, depression and mortality among older adults who 'seldom' eat alone or with others who eat alone. Therefore, older adults who 'seldom' engage in eating together may constitute a group more vulnerable to poor outcomes than their peers. Sensitivity analysis conducted to avoid misclassification of self-reported frequencies of eating together showed a trend similar to that in the main analysis. The consistency of the results of this study with prior findings supports the reasonable conclusion that 'seldom' eating together is associated with an increased incidence of functional disabilities.

The mechanism underlying this association is attributed to malnutrition or frailty, which stems from a reduction in appetite or food intake due to fewer social interactions. Reduced appetite in older adults, which is often a consequence of reduced social relationships, has been linked to malnutrition. Furthermore, eating alone is known to result in less food consumption than when eating in a group. A previous study reported a higher risk of >10% weight loss in community-dwelling older adults who 'seldom' eat together. Weight loss is a well-known risk factor for functional disability. Additionally, weight loss is often associated with fatigue, limited mobility, and an increased risk of functional disability. Weight loss, fatigue and limited mobility are included in the diagnostic criteria for frailty. Frailty, a complex and multifaceted syndrome, further increases the risk of functional disability in older adults. Moreover, previous studies reported an association between eating alone and frailty. When older adults eat alone, the lack of social relationships can lead to reduced food intake and nutritional deficiencies, triggering a cascade of adverse health effects, including the onset of frailty. Therefore, it is likely that this pathway is associated with the incidence of functional disability due to the more adverse effects of this pathway in the absence of eating together opportunities.

The association between the self-reported frequency of eating together and the incidence of functional disability may differ according to sex, age and income level. A previous meta-analysis has indicated that functional disability is more likely to occur in females and those aged 75 years or older. Additionally, it has been reported that females are more strongly affected by social relationships than males, suggesting that social habits might impact their health differently. Our findings are consistent with these results, indicating that these groups are adversely affected by infrequent eating together. Furthermore, a previous study indicated that individuals with disabilities who have a higher socioeconomic status may have fewer opportunities for social participation. This implies that the physical and mental changes associated with ageing might negatively affect those with higher income levels, thereby reducing their chances of social participation. The effects of eating together were nonuniform in these subgroup analyses. Thus, heterogeneity of the effects may exist.

The results of this study highlight the importance of increasing opportunities to eat together. Eating with others increases food intake, a phenomenon known as social facilitation of eating. Furthermore, a previous study reported that eating together more frequently promoted happiness among older adults who were living alone. The significance of communal activities, such as eating together, has been validated among older populations with diverse cultural and regional differences and among different household compositions. Social facilitation of eating through initiatives such as community cafeterias and meal-centered social events is vital for healthy ageing among older adults. In the caveat, eating together may not benefit all participants equally. For instance, some older adults may perceive solitude as positively enriching and value their time alone. This heterogeneity in the impact of eating together may be attributable to factors including cultural, regional and racial differences, among others. A previous study suggested that substantial cooking skills are associated with lower mortality among older adults living alone. Therefore, focusing on cooking skills is important for older adults who live alone and have fewer opportunities to eat together. Future interventional studies are needed to determine whether increasing the frequency of eating together confers protection against functional disabilities across various cultures, regions and racial groups.

-Source-
Age Ageing. 2; 53(7) : afae153. (2024)

Answer Sheet I

Subject English

Exam No. _____ Name _____

Question I.

1. Give the appropriate title of this article. (10%)

2. What is the underlined (1) "received wisdom in anthropology"? (10%)

3. What is the reason for the underline (2) "the story is not that simple"? (15%)

4. Summarize in 100 words or less. (15%)

Answer Sheet II

Subject English

Exam No. _____ Name _____

Question II.

1. What risk is increased for people who rarely eat with others in this and previous studies? (10%)

2. Explain the disadvantages of weight loss. (10%)

3. What types of people were more likely to develop functional disability in a previous meta-analysis? Explain this with reasons. (10%)

4. Why was eating together not beneficial to everyone? (10%)

5. Explain the roles of 'cooking skills'. (10%)