

## Kewpie Confirms Improved Ease of Eating Vegetables and Other Foods Through Adding Mayonnaise or Emulsified Dressings

**Tokyo, Japan (September 19, 2024)**—Kewpie Corporation (“Kewpie”) has confirmed that adding mayonnaise or emulsified dressings improves the ease of eating of foods such as vegetables that the elderly find difficult to eat. This was found out through joint research with Professor Yuki Yanagisawa et al of Wayo Women's University. The results of this research were announced at the 35th General Meeting of Japanese Society for Mastication Science and Health Promotion, held on September 14 and 15, 2024.

### 1. Background to the research

Declines in ability to eat (bite strength and swallowing ability) not only makes it difficult to eat meals day-to-day, but can also result in food entering the trachea and leading to aspiration pneumonia. Eating ability declining with age is considered a social issue in Japan, with the highest proportion of elderly in the world.\*<sup>1</sup> Rapidly aging populations are expected on a global basis as well,\*<sup>2</sup> and international efforts to standardize dysphagia foods have begun.\*<sup>3</sup> In Japan, in addition to the use of foods designed to be easy to eat, called “universal design foods”, there are proposals, especially at the front lines of home care guidance, to use mayonnaise or emulsified dressings (“emulsified condiments”) that most households would have as a way to make daily food easier to eat.

### 2. Purpose of the research

It was conjectured that mixing emulsified condiments with hard-to-eat foodstuffs such as vegetables would help them clump together and provide smoothness, leading to improvements to their ease of eating. This research aimed at scientifically understanding the improved ease of eating through the use of these emulsified condiments. To that end, a sensory evaluation was carried out using middle-aged and elderly participants.

### 3. Outline of the results

In all assessed foods, the addition of emulsified condiments was shown to significantly improve the ease of eating. In particular, participants with declining bite strength felt the results more strongly than those of normal strength, showing it had the possibility of being effective.

In this research, we confirmed the significant effects of emulsified condiments on the ease of eating through a sensory evaluation by middle-aged and elderly participants, the generations starting to worry about their declining ability to eat. In future, we shall work on further understanding this mechanism by also carrying out verification using objective measures such as measuring myoelectric potential during swallowing. Emulsified condiments contain oils, so are also good to combat the lowered nutritional intake of the elderly. Building on the knowledge gained this time, we shall provide useful information for households or elderly care facilities such as suggesting menus for those concerned about frailty or private-sector carers. Kewpie will continue to work on research aimed at solving issues related to food, contributing to the enrichment of dietary life for everyone.

\*1. Cabinet Office, 2022 White Paper on Aging Society

\*2. UN, World Population Prospects: The 2019 Revision

\*3. International Dysphagia Diet Standardisation Initiative

## Research Outline

### —Experiment description:

A sensory evaluation was conducted on 71 middle-aged and elderly participants of both sexes aged between 59 and 79. Of this number, there were 10 with chewing difficulties, who found eating hard food harder compared to half a year before, and 61 without difficulties. The assessment method was to have the participants score four foods considered hard to eat by the elderly (potatoes, boiled eggs, tuna, cabbage) using four criteria (ease of crushing/ease of biting off, ease of clumping, ease of swallowing, lowness of residual feeling).

Condiments used

- Potato, boiled egg, tuna: mayonnaise
- Cabbage: emulsified dressing

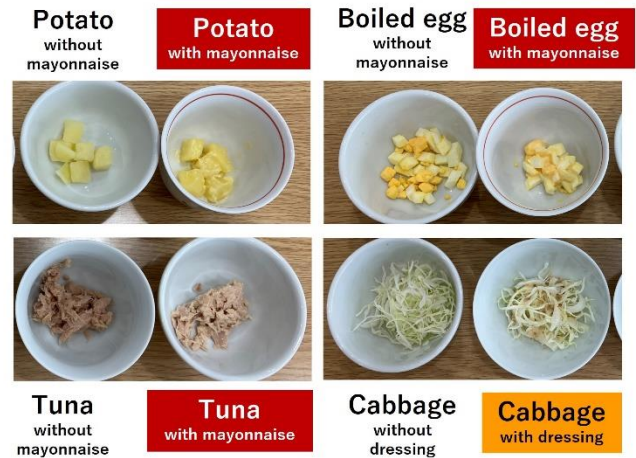
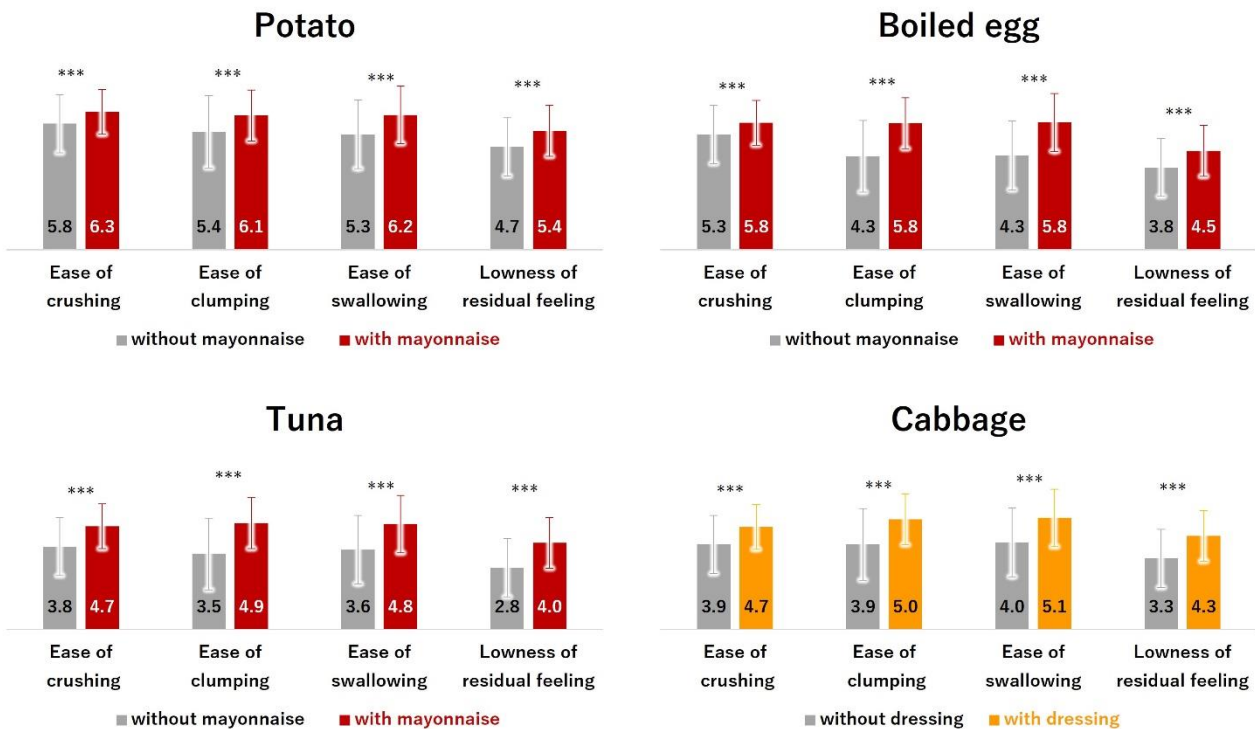


Fig. 1 Experiment Foods

### —Results:

[Results for all participants]

All foods were given high scores in all four criteria, showing significantly greater ease of eating, with emulsified condiments compared to without. (Fig. 2) This tendency was particularly strong for “ease of clumping” and “ease of swallowing.”



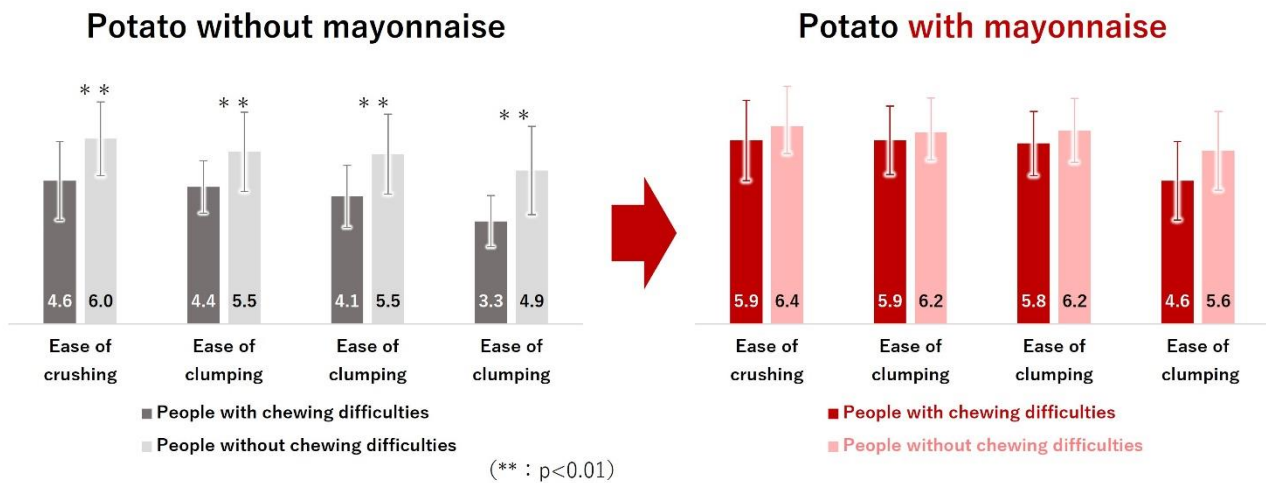
(\*\*\* :  $p < 0.001$ )

Fig. 2 Results of the Sensory Evaluation per Assessment Item

A significant difference ( $p < 0.001$ ) was seen between with condiments and without for all foods and items.

[Comparison by participant mastication ease levels]

Looking at the different mastication levels of participants, a significant difference was seen in the ease of eating potatoes between those who had difficulty chewing and those who did not when no emulsified condiments were used (Fig. 3, left-hand graph). On the other hand, when emulsified condiments were used, the scores for those with difficulty chewing increased notably, reducing the gap between the two and the significant difference was eliminated (Fig. 3, right-hand graph). The same tendency was seen with boiled eggs. This suggests that participants with declining bite strength felt the results of adding emulsified condiments more strongly, showing it had the possibility of being effective.



**Fig. 3 Sensory Evaluation Results for Potatoes Comparing by Participant Mastication Level**

A comparison between the results from 10 people with chewing difficulties and 61 without difficulties. While significant differences ( $p < 0.01$ ) were observed in all four items without condiments (left), there were no significant differences with condiments (right).