

## Does Starting A Meal with Vegetables Boost Wellness?

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### ABSTRACT

In recent years, the concept of ‘vege-first’ has become popular in Japan. This dietary approach involves eating vegetables at the beginning of a meal, and is believed to be beneficial for health. Although many people in Japan continue to follow the vege-first practice, there has been an increase in skepticism regarding its effectiveness. The reasons for this difference in opinion are varied. Some people have suggested that a similar benefit can be achieved by starting a meal with foods other than vegetables. In this article, we will examine, from a scientific perspective, whether the vege-first method contributes to maintaining good health. We will also present alternative foods that are believed to produce similar effects as the vege-first method.

**Keywords:** Vege-first, Vegetable, Blood sugar levels, Dietary fiber

### INTRODUCTION

In recent years, the concept of ‘vege-first’ has become popular in Japan. This approach involves eating vegetables, such as broccoli, dried daikon radish, burdock, bamboo shoots, spinach, okra, and cabbage at the beginning of a meal. This method is thought to be beneficial for health. Traditionally, in multi-course meals, such as those in Japanese and French cuisines, various dishes are served sequentially, and the menu is often structured such that salads, other vegetables, or vegetable-based soups are eaten at the beginning of the meal. This embodies the current vege-first approach, which is intended to reduce the burden on the digestive system by starting meals with foods that are low in calories and less likely to irritate the stomach or intestines.

Although many people continue to follow the vege-first practice in Japan, recent opinions, particularly in online forums have questioned its benefits, arguing that there is little benefit to following this approach<sup>1)</sup>. The reasons for this skepticism are manifold; it has been suggested that starting a meal with foods other than vegetables may have a similar effect<sup>2),3)</sup>. In this article, we will examine, from a scientific perspective, whether following the vege-first method is truly beneficial for maintaining good health. We will also present examples of alternative foods that are reported to produce effects similar to those of the vege-first method.

#### *Evidence for effectiveness of vege-first method*

The concept of vege-first has been a prominent topic in Japan since 2010, when celebrities began sharing their personal experiences on TV and other media about eating salads and other vegetables at the beginning of meals<sup>3)</sup>. Although the reasons for this celebrity behavior remain unclear, it is plausible that these opinions were shaped by information from magazines, social media, or rumors among friends. Later, doctors and other experts offered explanation for these experiences in various media, thereby justifying the practice. It is speculated that when ordinary citizens observed this practice, many began to adopt it, which then became an established practice. However, in reality, neither celebrities nor the public completely understand whether this practice is beneficial. For example, as in the case of health foods, there are anecdotal reports of improved health outcomes, such as improved bowel movements<sup>4)</sup>; however, it is unclear whether these effects are specifically the result of the vege-first method. This is because such reports are often come from influencers or celebrities who also adopt other measures to improve their health.

The general idea behind why eating vegetables first is considered healthy is that consuming vegetables before a main dish such as meat, fish, or a staple food like rice, helps prevent excessive increase in blood sugar levels thereby preventing obesity<sup>3)</sup>. Vegetables are rich in dietary fiber and vitamins, but low in carbohydrates; therefore, consuming them first slows sugar absorption and results in a more gradual increase in blood sugar levels<sup>5)</sup>. Vegetables are also thought to slow the peristaltic movement of the stomach, which begins once food enters the digestive tract<sup>2)</sup>. A similar theory has been suggested for drinking plain hot water (or plain water) immediately after waking up in the morning prior to consuming nutritious foods.

When food is ingested, many nutrients are transferred into the bloodstream, thereby increasing their concentrations. The act of chewing stimulates the satiety center in the brain, producing a sense of fullness. The latter mechanism is independent of nutrient absorption. Chewing vegetables thoroughly before eating a nutritious main dish, such as meat or fish may reduce the appetite<sup>2)</sup>. Consequently, if one is unable to finish all the food provided, beginning a meal with vegetables results in eating only a smaller amount of the main dish, thereby reducing the total calorie intake.

Also, when considering the shape of vegetables, as mentioned above, chewing them may increase satiety and thereby reduce overall food intake. Regardless of whether one chooses a vege-first approach, consuming vegetables and other foods in solid form, and including many solid ingredients in your meal, may be effective in reducing overall food intake<sup>2)</sup>. By consuming vegetables even slightly earlier than other foods, the contact efficiency between the dietary fiber in vegetables and the nutrients whose absorption in the body is intended to be inhibited may increase in the stomach and intestines, further suppressing absorption.

### ***Why vege-first is considered ineffective***

The only medically substantiated method is that waiting 10 min (or 15 min in some reports) after eating vegetables reduces absorption of nutrients from foods eaten later<sup>1),2),3)</sup>. Eating vegetables first not only prevents rise in blood sugar levels, but the dietary fiber in vegetables also functions like activated charcoal, adsorbing nutrients ingested later and thereby inhibiting their transfer from the digestive tract to the bloodstream. Except in cases where a meal takes a long time, spanning one to several hours, because of extended conversation (which is customary in some countries outside Japan), when a meal is eaten quickly (such as within a few tens of minutes, common during most lunch breaks among Japanese office workers), the various food components move continuously and almost simultaneously through the digestive tract. Therefore, there is essentially no time lag between the arrival of vegetables and other ingredients in the stomach and intestines.

If rice is consumed immediately after vegetables (within a few minutes), the vegetables will pass through the esophagus first; however, both foods will coexist in the stomach and intestines. Considering that nutrients are absorbed in the intestines, there is almost no temporal difference between their arrival. Therefore, it is unlikely that eating vegetables first would have any substantial effect. In other words, it has been suggested that even when eating vegetables first, if the details of the eating pattern (such as the time interval between components) are not observed correctly, there may be no health benefits.

The 2025 edition of Dietary Reference Intakes for Japanese (published every five years in Japan) released in October 2024 deleted the vege-first section<sup>1)</sup>. In contrast, the 2020 edition stated that beginning a meal with fiber-rich vegetables may help prevent post-meal rise in blood sugar levels and reduce hemoglobin A<sub>1c</sub>, an indicator of long-term glucose control, thereby help prevent and manage diabetes. According to one registered dietitian, the phrase “vege-first” was removed not because it was meaningless, but rather to avoid its misinterpretation as a dietary method aimed at reducing the rate of nutrient absorption and promoting weight loss. This is because some individuals in Japan wish to eat large amounts of food without gaining weight. Furthermore, recent research has shown that simply eating vegetables first is not necessarily beneficial to health.

It is generally believed that dietary fibers in vegetables prevent a sudden rise in blood sugar levels. However, it is also true that when meals are consumed with only the necessary amount in mind, nutrient absorption will be low. If calories are strictly calculated and only the necessary amount of sugar is consumed through diet, absorption may be inhibited, and the needs of the body may not be met. The absorption of other nutrients such as vitamins and minerals may also be inhibited in a similar manner if they are easily adsorbed by dietary fiber. Reports suggest that chelation by dietary fiber may inhibit the absorption of minerals such as calcium and iron<sup>3)</sup>. When vegetables are digested and broken down first, dietary fiber is exposed on the surface of the food, making it more reactive with other nutrients. This increases the interaction of the fibers with nutrients (reaction) and efficiency of absorption inhibition. Consequently, individuals are more likely to become ill from malnutrition.

Drinks, such as smoothies, prepared by blending vegetables with fruits or honey, contain a high amount of carbohydrates due to their nutritional composition. This is not surprising, as fruits and honey contain large amounts of sugar. It has also been observed that when preparing smoothies, the fiber is finely ground; or if it is prepared long before a meal, the enzymes present may cause excessive breakdown of the fiber, reducing its effectiveness in nutrient absorption. Furthermore, as the vegetables are no longer in a solid state, they move more quickly through the digestive tract, leading to a shorter residence time. As a result, the nutrient-binding capacity of dietary fiber is reduced. Therefore, it is not enough to simply eat vegetables; attention must also be paid to the form in which they are eaten.

Some vegetables are naturally high in sugar. Corn, pumpkin, carrots, potatoes, sweet potatoes, and tomatoes contain relatively high sugar content (Table 1). Therefore, consuming these foods first may unexpectedly raise blood sugar levels. In addition, if dressings are used with vegetables, the effectiveness of the vegetables may be reduced as dressings contain added sugars. Even non-oil

dressings may be low in fat, but high in sugar; therefore, caution is advised when using these.

### ***Foods offer similar benefits without the vege-first approach***

Recently, it has been reported that eating methods other than the vege-first approach may be healthier in some cases. One method involves eating high-protein foods such as meat or fish first while another involves consuming seaweed, mushrooms, or tea first<sup>2),3)</sup>. An overview of each method is presented in Table 1.

It is believed that protein intake decreases with age not only in Japan but also in other countries, contributing to accelerated aging<sup>3)</sup>. Proteins in food are broken down into amino acids during digestion and absorbed into the body where they are transformed into components necessary for muscle growth and other functions<sup>6)</sup>. Maintaining muscle mass helps prevent frailty and locomotive syndrome, and potentially extends a healthy lifespan. It is also thought that eating a meal when extremely hungry, such as when only one meal is consumed per day, increases the rate of nutrient absorption. Furthermore, to increase amino acid intake, eating proteins at the beginning of a meal is thought to be effective. Because proteins such as solid meats need to be chewed thoroughly, they stimulate the satiety center and help prevent overeating.

Edible seaweed (Hijiki, Mozuku, Wakame, and Nori) or mushrooms (Maitake, Shiitake, King oyster, Nameko, Shimeji, and Enoki Dake) may also serve as substitutes for the vege-first approach<sup>2)</sup> as they contain large amounts of dietary fiber. However, it may be necessary to consider whether seaweed can be used as a standalone dish, as it is typically combined with vegetables in a salad or in soups.

Drinking tea first is also thought to prevent sudden increases in blood sugar levels<sup>2)</sup>. Herein, the reference is to a large amount (such as an entire cup) of tea, rather than a single sip. In addition to tea, other unsweetened drinks such as soup or miso soup may also be effective. In essence, something other than sugar is eaten at the beginning of a meal. It is also believed that drinking water before eating can help relieve hunger and prevent overeating. Recently in Japan, unsweetened carbonated water has been recommended as meeting these requirements as carbonation is thought to expand the stomach and create a feeling of fullness. Similarly, drinking a glass of water before drinking a sugary drink may help prevent sudden increase in blood sugar levels. This may explain why water is often offered free of charge in the beginning of a meal at restaurants and other eating outlets.

Although vegetables and mushrooms are high in dietary fiber, they are not very effective when they are prepared as tempura or fried dishes. These preparations use a large amount of oil, and the batter contains starches and sugars, which can lead to an increase in blood sugar levels, similar to the effect of eating rice or bread first.

## **CONCLUSION**

Vege-first approach may inhibit nutrient absorption from food for several reasons. To maximize its benefits, it may be better to: 1) consume solid vegetables rather than soups or smoothies; 2) take the time to eat slowly, allowing enough time for vegetables and other ingredients to be ingested orally; and 3) chew food thoroughly to extend the time it takes to reach the stomach and intestines, stimulate the satiety center, and prevent overeating.

The eating habits of many Japanese people, such as finishing meals quickly, eating only a limited variety of foods, and relying solely on nutritionally complete processed foods, deviate from the ones detailed above. Under these conditions, even if vegetables or vegetable preparations are consumed, the effect of the vege-first approach may be almost negligible.

The vege-first approach is designed to reduce the calories absorbed, or prevent excess nutrient from being absorbed when overeating at a meal. If the amount of food consumed is calculated based on the calories required, nutrient absorption may be suppressed, resulting in insufficient nutrient intake, which may lead to an unhealthy state. Therefore, it is important to understand that the vege-first approach may not be the ideal method.

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**Table 1. Foods best eaten at the start of a meal**

Types of ingredients	Appropriate	Inappropriate
Vegetable	Vegetables only E.g., broccoli, kiriboshi daikon radish, burdock, bamboo shoots, spinach, okra, and cabbage.	Foods seasoned with dressing or prepared with sugar or oil through frying methods such as tempura
Seaweed	E.g., Hijiki, Mozuku, Wakame, and Nori seaweed	Food seasoned with dressing
Mushroom	E.g., Maitake, Shiitake, King oyster, Nameko, Shimeji, and Enoki	Foods seasoned with sugar or oil and prepared by frying (e.g., tempura)
Meat and fish	Basically, all meats and fish (whole, not minced) Consumed raw, grilled, or boiled without any added seasonings	Foods softened through processing Foods prepared using oil-based cooking processes or containing high sugar in the seasoning
Others	E.g., water (cold, lukewarm), beverages (sugar-free carbonated water), soup (low-carb), miso soup	Foods with high sugar content
Basic conditions	Solid foods are preferable (chewing stimulates the satiety center) When the ingredients are naturally free of sugar, and no carbohydrates such as flour are used in cooking or seasoning	For the scope of this article, foods processed into liquid forms (e.g., smoothies and soups) are regarded as less beneficial Foods prepared with added sugar during cooking or seasoning

Based on reference 2).

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