

The importance of eating and swallowing functions

- Impaired eating and swallowing function leads to dehydration and malnutrition. It also causes serious complications such as **aspiration** and **aspiration pneumonia** in which food and liquids enter the lungs through the respiratory tract.
- The number of deaths due to aspiration pneumonia is increasing every year, with more than 38,000 deaths in 2018 in Japan (Overview of the Annual Vital Statistics Monthly Report 2018, Ministry of Health, Labour and Welfare in Japan). Even if it does not result in death, frailty will progress, and you will lose the pleasure of eating if you are unable to take food by mouth. This can lead to a decrease in motivation and activity.

Maintaining eating and swallowing function is very important for keeping physical and mental health.

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Decline of oral function: oral frailty

Oral frailty is a combination of the words “oral” and “frailty”, and it is used to describe a wide range of problems associated with aging. A decrease in interest in maintaining the oral environment and a decrease in physical and mental strength leads to eating and swallowing dysfunction, malnutrition, and deterioration of health status. It refers to a decline in the ability to eat, resulting in malnutrition and a deterioration in health. People with oral frailty are reported to have a 2.4 times higher risk of requiring long-term care and a 2.1 times higher risk of death than those without oral frailty. Therefore, it is important to prevent and care for oral frailty at an early stage.

Citing from The Japan Dental Association manual for oral frailty management in dental practice, 2019 edition

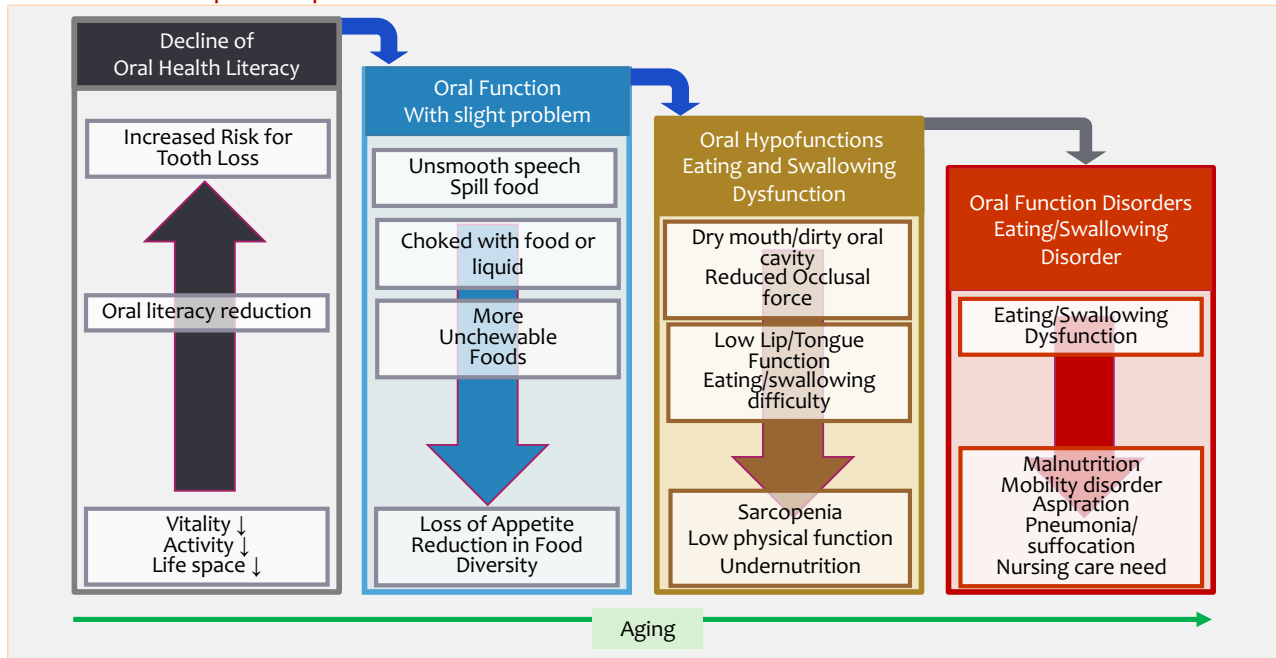
What happens if you leave oral frailty untreated?

- Decrease in the ability to speak due to bad breath and slurred speech.
- Inability to chew or taste food increases the risk of loss of appetite, malnutrition, dysphagia, and aspiration pneumonia.

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Association between oral frailty and dysphagia

In older people, inactivity or a small range of activities can lead to decreased motivation and interest in the oral environment. An untreated problematic oral environment can result in accumulation of everyday minor oral problems. Thereafter, **oral frailty** progresses, and the amount of muscle mass will decrease and nutritional status will worsen. In addition, eating and swallowing function gradually declines, resulting in suffocation and **aspiration pneumonia**.



Permitted for English translation from: The Japan Dental Association manual for oral frailty management in dental practice, 2019 edition, The editorial committee of the manual for oral frailty management in dental practice, 2019 edition, Japan Dental Association

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Aspiration

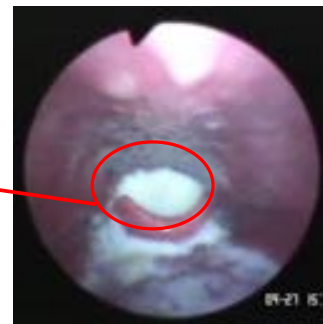
Aspiration is the accidental entry of material such as saliva, food or drink from the oropharynx or gastrointestinal tract into the larynx and lower respiratory tract, or portions of the respiratory system from the trachea to the lungs. If you experience choking on tea or soup, aspiration is suspected.

What is happening when you experience choking?



Liquids aspiration on video fluorography

Foods and liquids that have entered the trachea after aspiration



Food aspiration on video endoscopy

If you experience choking, there is a high probability that you will have poor swallowing function and aspiration. However, no choking does not mean this can't be happening, because there is also silent aspiration. Please consult your doctor if the amount of sputum increases, the sputum becomes yellow, you have prolonged fever, or you continuously lose weight.

*Accidental ingestion refers to swallowing an unintended object such as a button, battery, toy, etc., and is a different situation than aspiration.

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Major symptoms of suspected swallowing problems

Symptoms	Checkpoint
Choking	When do you experience choking? What foods or liquids cause choking?
Cough	Do you have a cough during and after meals or at night?
Sputum	Is there yellow, viscous sputum, or is the amount of sputum increasing?
Pharyngeal sensation	Does it feel like something is stuck in your throat, or is there a feeling of food left in your throat?
Oral sensation	Does it feel like there is food left in your mouth after swallowing, or is it stuck in your mouth?
Swallowing	Is it difficult to swallow depending on the food or drink?
Voice	Do you have a wet-sounding voice after eating?
Appetite for food	Is there a decrease in food intake or do you feel dehydrated?
Body weight	Is weight loss continuing or is there rapid weight loss?
Meal contents	Are you choosing only foods that are easy to eat, or are you choosing foods with the same ingredients?
Time required for one meal	Do you eat very slowly, or does it take more than 30 minutes?
Way of eating	Do you sometimes swallow with your face up, like you are trying to pour foods or liquids into the throat, or does food overflow from your mouth?
Fatigue	Do you feel tired while eating?
Oral cavity	Do you have any plaque or bad breath, do your dentures properly fit the gums, are there any scratches in your mouth?
General condition	Do you repeatedly experience slight fever or continuous fatigue?

If you have these symptoms, please consult a doctor as soon as possible.

The Major Symptoms of Suspected Dysphagia: Osugi, A., Dysphagia, Feeding and Dysphagia: A Review of Rehabilitation, 3rd Edition (edited by Tsubahara, A.), SHINDAN TO CHIRYO SHA, Tokyo, 2017. Modified from p. 183

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Aspiration pneumonia

When aspiration occurs, bacteria in the mouth may enter the lungs from the trachea along with food and saliva, resulting in pneumonia. This is called **aspiration pneumonia**.

Aspiration pneumonia is a common pneumonia in older people and often requires hospitalization. For treatment, antibiotic medication and rehabilitation are often necessary to improve eating and swallowing function. Once aspiration pneumonia occurs, it is often impossible to eat the same meals that could be eaten before, so **prevention is very important**.



Findings of aspiration pneumonia on a chest CT scan

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Prevent the progression of oral frailty and aspiration

- The oral environment is closely related to health. There is a relationship between oral bacteria and some internal diseases, and between chewing function and dementia.
- Dental plaque and tongue coating are bacterial masses that are a direct risk factor for dental cavities and periodontal disease. They serve as a hotbed of bacteria that cause diseases such as aspiration pneumonia and brain abscesses. It is very important to keep your mouth clean with a toothbrush or tongue brush. Regularly check your mouth in a mirror and look for any changes.

What is tongue coating ?



Thick tongue coating

- It is made of food left in the mouth, bacteria and peeled mucous membranes.
- Thick tongue coating causes abnormal taste, bad breath, and aspiration pneumonia
- It's normal to have a thin, slightly white coating on your tongue.

Tongue brushes are easy to find. Make sure to regularly clean your tongue.



Brush your teeth 4 times a day: when you get up and after each meal.

* Illustrations from irasutoya.com

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General exercises for eating and swallowing

To improve swallowing function and prevent aspiration, prepare your mouth and body before eating. Relieving facial and neck muscle tension and moving your lips and tongue helps with saliva secretion.

Do this series of exercises 3 times a day before you eat.

If you have pain in your neck or shoulders, please be careful not to make it worse.

① Breathe in through your nose and exhale slowly through your mouth.



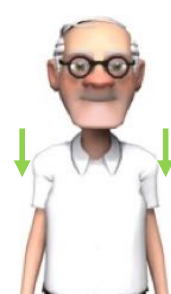
3 times



② Lift your shoulders up and down.



5 times

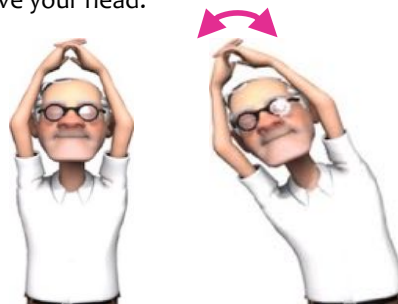


③ Move your head from left to right while looking slightly downward.



3 times each side

④ Stretch from side to side with your hands above your head.



3 times each side

⑤ Puff up your cheeks with air and then release.



3 times

⑥ Touch the corners of the left and right lips with your tongue.



3 times each side

⑦ Stick out your tongue and pull it back.



5 times

Dysphagia Team of Seirei. Pocket Manual of Dysphagia, 4th edition, Tokyo, Japan, Ishiyaku Publishers, 2018. Modified from p. 111 Movie site (Japanese): <http://www.hriha.jp/section/swallowing/gymnastics/>

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Training with balloons

This exercise prevents liquid and food from flowing back into the nose when swallowing. It is also expected to improve respiratory function to prevent aspiration.



If you don't have a balloon, breathe in through your nose and exhale as if you were blowing out a candle 50 cm away.

Do both: (1) exhale quietly for 5 seconds, (2) exhale quickly in 1 second.

Repeat 3 times each, alternating between exercises

Please do not do this exercise if you have high blood pressure.

Yoko Inamoto. Preventing Aspiration Pneumonia on its own, Tokyo, Japan, NIHONBUNGEISHA, 2017. modified from p. 87

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Forehead pushing exercises

This exercise strengthens the neck muscles required for swallowing and helps reduce food residue in the throat.

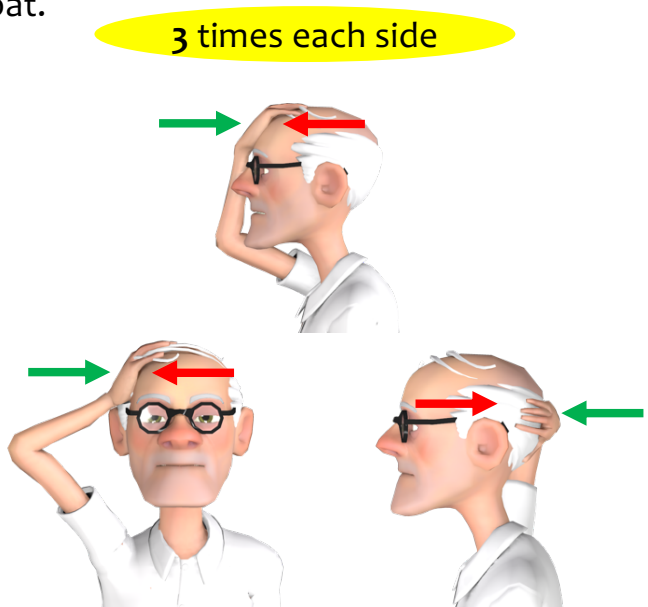
Place your hand on your forehead and slowly push your hand back with your forehead, **as shown by the red arrow**, while applying resistance as if you were pushing your forehead with your hand, **as shown by the green arrow**.

Continue to apply pressure to your hand while counting to five. Keep your neck in the same position during the exercise.

Relax your hands and rest for five seconds.

In addition to your forehead, push your hands back toward your head, as well as the back of your head (behind your head) and the sides of your head (above your ears).

Do not need to tilt your head.



Please do not do this exercise if you have high blood pressure or cervical disease.
If you experience neck pain or dizziness, stop exercising.

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Vocal exercises

Clear pronunciation enhances chewing and swallowing function.
Speaking fast and smoothly, and singing aloud is also vocal exercise.

Examples

- Little Linda lamb licks her lovely lips.
- Red leather, yellow leather, red leather, yellow leather, red leather, yellow leather.
- I scream, you scream, we all scream for ice cream!
- Certified certificates from certified certificate certifiers.
- Fred's friend found five funny frogs from France.
- Red lorry, yellow lorry, red lorry, yellow lorry, red lorry, yellow lorry.
- He threw three free throws.
- Selfish shellfish.
- Vincent vowed vengeance very vehemently.

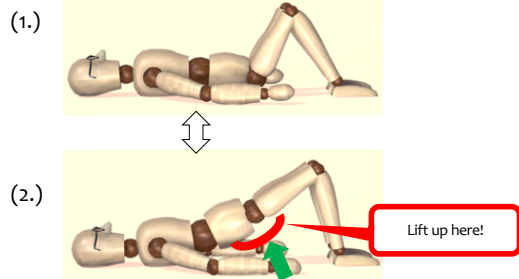


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Trunk exercise

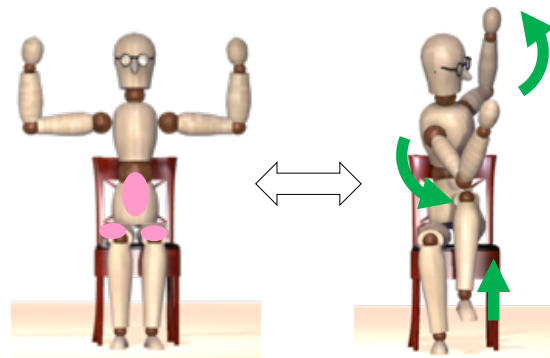
The trunk is a core part of the body, and training the trunk improves the posture during meals and improves the ability to expel accidentally swallowed food and sputum from the trachea.

Bridge exercise



- Lie on your back and bend both knees with your feet flat on the floor.
- Slowly raise your hips in the direction of the arrow and slowly lower.

Twist exercise



- Lift your left knee and twist your body so that your right elbow and left knee touch.
- Repeat on the other side.

* For more exercises, please refer to the Balance Improvement Pack and Inactivity Prevention Pack.

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How to use thickeners

If you experiences choking on liquids, using thickeners is an effective way to prevent aspiration.

Concentration of thickening agent

- French dressing-like
- Sauce-like
- Ketchup-like



* Illustrations from irasutoya.com

*The strength (concentration) of thickening differs depending on the liquid to be thickened and the type of thickening agent. We often start with a concentration of 0.5% (0.5 g of thickener for 100 ml of liquid). Please consult your doctor to determine the appropriate concentration of thickener and check the package of the thickener you choose.



How to use a thickening agent

Add the thickener a little at a time, stirring the liquid quickly with a spoon.

*If you thicken with potato starch, you will need to cook the liquid.

Thickened liquids can be stored at room temperature for several hours and in the refrigerator for about a day. However, once it comes into contact with the mouth, bacteria will propagate, so avoid storing liquids for a long time. Also note that the concentration will gradually increase the longer it is stored. It is possible to thicken soups as well.

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Cooking to prevent aspiration and suffocation

- If you find something hard to swallow, cut it into small pieces, put a small amount in your mouth, and chew well before swallowing.
- It is easy to swallow safely if you thicken the liquid, but if you experience strong choking, refrain from eating the following foods.

Foods that are easy to aspirate and suffocate on

Strong stickiness: Rice cakes, dumplings, snacks, etc.

Dry foods: Bread, sponge cake, hard-boiled egg, steamed sweet potato, baked fish, etc.

Foods that stick easily to the throat: Seaweed, etc.

Fruits and vegetables with high juice content: Orange, grape, watermelon, melon, tomato, etc.

Liquids: Water, tea, soup, milk, boiled food with a lot of broth, etc.

Sour foods: Foods with vinegar, citrus fruits, etc.

Tough foods: Mushrooms, kamaboko, konnyaku, burdock, butterbur, etc.

How to make your food easier to eat

- Boil tough foods well to make them soft.
- Cut meat and vegetables in the direction of the grain or fibers .
- Eat with foods that are easy to swallow such as tofu or yogurt.

