Headway
the brain injury association

Swallowing problems (dysphagia) after brain injury

Swallowing and chewing difficulties are known as dysphagia. This publication explains what dysphagia is, what causes it, diagnostic techniques, treatment options and some ways to cope with dysphagia.

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Introduction

Swallowing and chewing difficulties are known as dysphagia. This condition is common after brain injury, particularly after stroke or severe traumatic brain injury. In some cases, the condition improves within a few weeks or months during the hospital/ rehabilitation stage, while in others it can persist and will need to be managed in the long-term.

This publication explains what dysphagia is, what causes it, diagnostic techniques, treatment options and some ways to cope with dysphagia.

The information in this publication does not replace clinical guidance from medical professionals. You should always get advice from your GP or other suitably qualified professional for help with managing the effects of brain injury.

What are swallowing problems (dysphagia)?

The term dysphagia is used to refer to difficulties with chewing and swallowing. Some people with dysphagia may be unable to chew or swallow at all.

Some of the signs and symptoms of dysphagia include:

- Difficulty swallowing
- Choking
- Weight loss
- Leaving food at mealtimes
- Eating very slowly
- Bringing food back up
- Wet/ gurlgy voice
- Dehydration
- Pain when swallowing
- Coughing
- Drooling
- Weak/ absent voice
- A feeling of food being stuck in the throat
- Frequent chest infections (e.g. aspiration pneumonia)
- Changes in breathing patterns while eating or drinking
- Pooling (holding food or fluid in the mouth without swallowing)

It is important to visit a GP as soon as possible if any of these symptoms are recognised. Dysphagia can have profound effects on one's health if it is not managed correctly. It can lead to weight loss and/ or poor nutrition and hydration due to inadequate intake of food and fluids.

Some people may develop repeated chest infections caused by food or fluid entering the lungs and damaging them - this is known as aspiration pneumonia and requires treatment with antibiotics.

Dysphagia can also impact on one's quality of life by reducing enjoyment of meals and social occasions, and causing anxiety.

How brain injury can cause dysphagia

Normal chewing and swallowing is a complicated process involving both conscious and subconscious areas of the brain, such as the swallowing centres in the motor cortex and brainstem, the cranial nerves and many other nerves and muscles. This occurs in the following stages:

Stage 1: Oral preparatory stage - the anticipation, sight, smell and taste of food stimulates appetite, triggering the production of saliva, which helps to prepare for the process of chewing.

Stage 2: Oral stage - food enters the mouth, the lips are sealed and the tongue, cheeks, soft palate and teeth combine to chew the food to make a soft bolus (a small, round mass). The tongue moves the bolus to the back of the mouth to trigger swallowing.

Stage 3: Pharyngeal stage - once the bolus reaches the area at the top of the throat called the pharynx, muscles automatically contract to allow swallowing to occur. Two tubs called the trachea and oesophagus emerge from the pharynx. The trachea passes air to the lungs and the oesophagus passes food to the stomach. Parts of the throat called the larynx and epiglottis close during swallowing to prevent food going down the wrong way (i.e., down the trachea into the airways and lungs).

Stage 4: Oesophagael stage - the valve at the top of the oesophagus opens and the surrounding muscles contract automatically, pushing food down towards the stomach. This usually occurs within seconds, depending on the texture and

consistency of food, but can sometimes take longer, such as when swallowing a pill.

Following a brain injury, it is most likely that stages one to three of the normal chewing and swallowing process will be affected. These two types of dysphagia are:

- **Oral dysphagia** - this refers to difficulties with chewing and controlling food and drink in the mouth. This includes being unable to close the lips, move the tongue and transfer food to the back of the mouth before it is safe to swallow.
- **Pharyngeal dysphagia** - this refers to difficulties with swallowing food and drink. Food may 'go down the wrong way' and become caught in the throat or enter the airway and lungs. This is known as aspiration (and can lead to aspiration pneumonia).

This can be a direct result of damage to the main swallowing centres of the brain or to the nerves, muscles and pathways in the head, face and neck, which are involved in this process. Therefore, depending on the location and severity of the brain injury, the problems and symptoms experienced will vary from person to person.

It can also be influenced by other effects of brain injury. For example, if the senses of taste and smell are impaired then the oral preparatory stage will be affected, as the production of saliva will not be stimulated. This stage can also be affected by severe cognitive issues, for instance, people may not understand what food is or have an awareness that they are about to eat. Behavioural problems after brain injury can also affect appropriate food and drink intake.

The effects of brain injury can also mean that people might be unaware of problems such as food going down the wrong way, because their choking reflex doesn't work. This is known as

silent aspiration and is one of the reasons why aspiration pneumonia can occur.

Diagnosing dysphagia after brain injury

Doctors, speech and language therapists and dietitians with expertise in dysphagia will often carry out a range of assessments in order to diagnose the condition. The evaluation will likely include a complete medical history, physical examination, followed by a variety of tests to determine the type of dysphagia and the nature of the patient's swallowing difficulties.

If someone is experiencing chewing and swallowing difficulties at home, GPs will be able to carry out an initial assessment and if appropriate, will provide onward referral for specialist treatment, for example, to a speech and language therapist.

The tests most frequently performed include:

- **Hydration assessment** - the patient's level of hydration is assessed by taking blood or urine samples. This is to ensure the patient is not dehydrated.

- **Nutritional assessment** - various screening tools may be used. This usually involves measuring the patient's height and weight to calculate body mass index (BMI), asking about unplanned weight loss and any illnesses, and carrying out blood tests to check that the patient is not lacking in nutrients.

- **Bedside swallow test** - a specialist will look at the condition of the patient's teeth, lips, jaw, tongue, cheeks and soft palate. The patient may need to move these areas in certain ways or make certain sounds. If appropriate, the patient will be tested on their ability to swallow a series of substances.

They could range from water, thicker liquids, pureed foods, soft foods and regular foods.

- **Videofluoroscopy** - this test takes place in the X-ray department. The patient will be given a small amount of liquid barium (a non-toxic, often fruit-flavoured chemical) to swallow. This coats the inside of the oesophagus and shows up on X-rays. The patient will then be asked to swallow different types of food and drink of different consistencies. As various substances are swallowed, there will be an examination of the mouth and throat on an X-ray machine. The machine provides a moving image of the patient's swallowing in real time, allowing any problems to be studied in detail. There are usually few side effects to this procedure, although liquid barium may cause trouble with bowel movements.

- **Barium swallow test** - this variation of videofluoroscopy also involves drinking a small amount of barium solution. X-raypictures are taken as the liquid is swallowed, which enables the specialist to see the movement of the muscles in the oesophagus. The test is less commonly used because it gives still pictures rather than a film.

- **Nasoendoscopy** - an endoscope (a long, thin, flexible tube with a light and a camera on the end) may be inserted into the patient's nostril. Once in position, the specialist can view images of the back of the throat and upper airways to identify any blockages or problem areas, often while the patient performs some swallowing tasks. This procedure is safe and only takes a few minutes.

Treatment of dysphagia after brain injury

Following a diagnostic swallowing evaluation, an individualised treatment programme will be recommended to the patient. Treatments will vary depending on the type and severity of the patient's problems. However, for all patients the main treatment goals are:

- To improve swallowing functions
- To reduce the risk of aspiration (and any infections)
- To improve the nutritional status of the affected individual

The treatments most often used include (but are not limited to):

- **Therapy** - a speech and language therapist can provide swallowing exercises and strategies to help strengthen the muscles or stimulate the nerves in the mouth and neck which are used for chewing and swallowing.

- **Diet modification** - a speech and language therapist may prescribe dietary changes such as thickening liquids or eating purees. Nutritional supplements may also be prescribed by a dietitian. Taking supplements may be difficult if swallowing tablets is a problem, but a dietitian will be able to provide advice on these issues with guidance from a speech and language therapist.

- **Feeding tubes** - in the early stages of care or for those with severe, long-term dysphagia, feeding tubes are often placed to support patients who cannot maintain adequate nutrition (food, fluids and medicines) through oral intake.

There are different types of feeding tubes available. The most common ones are:

- **Nasogastric (NG) tube** - the NG tube is passed down the nose and down into the stomach. It is designed for short-term use (four to six weeks), usually in the initial stages of

treatment for swallowing difficulties.

- **Percutaneous Endoscopic Gastrostomy (PEG) tube** - PEG is a surgical procedure where a tube is placed directly through the abdominal wall into the stomach. An endoscope (narrow camera) is passed down the throat into the stomach to help direct the placement. It is designed for long-term use and is held in the stomach by a soft disc.

- **Radiologically Inserted Gastrostomy (RIG) tube** - RIG is a surgical procedure where a tube is placed through the abdominal wall into the stomach using X-ray guidance. The most common type of RIGs are balloon gastrostomy tubes, which are held in the stomach by a balloon. They are also designed for long-term use.

If a feeding tube is required, the hospital treatment staff will discuss this in detail before any procedures takes place. Treatment options should always be discussed with registered professionals who are trained in dealing with dysphagia. Speech and language therapists and dieticians are available in most hospitals, as well as in private practices. Details of directories that list those in private practice can be found in the 'Useful organisations' section of this publication. Community services are also available in many areas and can be obtained from a GP or by self-referral.

If the feeding tube will be required on a long-term basis, the brain injury survivor, their family and carers can be trained on caring for the tube and administering food, fluid and medication, either at hospital or in the community.

It is important to note that feeding tubes can be removed should the ability to maintain adequate oral intake return over time.

Coping strategies for dysphagia after brain injury

In addition to various treatments and therapies, the following strategies can help to compensate for swallowing difficulties.

It is important to discuss the following strategies with a trained professional before introducing them into one's routine. This is particularly important for anyone who requires non-oral nutrition.

- **Maintain an upright position during and after eating** - it can help with the swallowing and digestion process to be positioned upright during a meal and for 30 to 60 minutes afterwards. This applies to both foods and fluids taken orally, as well as to PEG feeds.

- **Make food more appetising** - for people who have difficulty with the first stage of swallowing, making food look and smell good can make swallowing easier by triggering the production of saliva.

- **Use specialist equipment** - items such as one-way drinking straws and weighted cups are available which can help with eating and drinking difficulties. However, certain types of equipment will not be suitable for everyone and these should only be recommended following a swallowing evaluation with an appropriate professional.

- **Maintain good oral hygiene** - those with dysphagia should keep the mouth clean and free of bacteria, especially before and after mealtimes. This is to reduce the risk of aspirating harmful bacteria and any fluid which may be pooling in the patient's mouth. It is also important to remove any debris from the mouth after meals that could pose a choking risk

and the development of plaque.

- **Eat with other people** - eating with someone who understands the patient's swallowing difficulties can help the person to eat or can help if choking occurs.

- **Eat in the right environment** - it can help to eat in a setting the person is comfortable in and with few distractions. For example, turning off the TV can help them concentrate on the task at hand.

- **Eat while awake and alert** - co-ordination can be impaired by tiredness so it is advisable to eat when feeling alert. This also helps with maintaining an upright posture before and after meals.

- **Eat at the right pace** - it is important not to eat too quickly and to chew thoroughly. Speech and language therapists can help to decide the right pace for each individual.

Other issues to consider with dysphagia after brain injury

Eating at restaurants - many restaurants will prepare meals to meet the needs of people with dysphagia. Requirements should be discussed with the restaurant in advance. It may also be helpful to ask to sit in a private area of the restaurant if someone feels uncomfortable eating in public.

Taking medication - some forms of medication can be dangerous for people with dysphagia. For example, tablets with outer casings can be difficult to swallow.However, the outer casing should never be removed, and the tablets should not be

crushed. It is extremely important to discuss dysphagia issues with the doctor when medication is prescribed.

Conclusion

The process of chewing and swallowing is complex, involving many different areas of the brain, as well as numerous muscles and nerves of the head, face and neck. Injury to any part of this system can lead to dysphagia.

Dysphagia can have serious effects on health and quality of life. If not managed correctly, it can lead to deterioration in health, as well as in social participation, leading to low mood and loss of confidence. It is therefore important to diagnose the form of dysphagia swiftly, and to treat it effectively. Speech and language therapists and dietitians are usually the most appropriate professionals to do this.

Useful organisations

The organisations listed below are provided for information purposes only. Their inclusion does not imply endorsement, recommendation, or approval by Headway. Users should make their own assessment of any organisation or service before engaging with them.

Association for Rehabilitation of Communication and Oral Skills
Tel: 01684 576795
Email: admin@arcos.org.uk
Web: www.arcos.org.uk

Association of Speech and Language Therapists in Independent Practice
Tel: 0203 002 3704
Email: office@asltip.com
Web: www.asltip.com

The Association of UK Dietitians
Tel: 0121 200 8080
Email: info@bda.uk.com
Web: www.bda.uk.com

Health and Care Professions Council
Tel: 0300 500 6184
Web: www.hcpc-uk.org

Royal College of Speech and Language Therapists
Tel: 020 7378 3012
Email: info@rcslt.org
Web: www.rcslt.org

Stroke Association
Tel: 0303 3033 100
Email: info@stroke.org.uk
Web: www.stroke.org.uk

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Learn more and support our work at www.headway.org.uk/get-involved.

This information was last reviewed in 2023.

We're here to listen.

If you need support, or have a question about brain injury, contact our free nurse-led helpline:

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