



Dysphagia

A HEALTHCARE PROFESSIONAL FACT SHEET

Managing Adult Malnutrition
in the Community

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Dysphagia is the difficulty swallowing safely and/or effectively. It is a disorder in the swallowing process that does not allow safe passing of food from the mouth to the stomach.

There are two types of dysphagia:

1. Oropharyngeal dysphagia: difficulties in swallowing due to problems in the mouth or throat
2. Oesophageal dysphagia: difficulties in swallowing due to problems in the oesophagus

Dysphagia can be temporary, resolving through rehabilitation, or it can deteriorate and persist becoming a permanent condition.

The management of dysphagia often requires input from different members of the healthcare team including but not exclusive to Speech and Language Therapists, Dietitians, ENT, Neurology or Gastroenterology depending on the underlying cause.

Consider dysphagia if patient has:

- ▶ One of the following issues:
 - Reported problems swallowing certain foods or liquids
 - Reported problems swallowing at all
 - Coughing or choking when eating or drinking
 - Bringing food back up, sometimes through the nose
 - The sensation that food is stuck in the throat or chest
 - Frequent throat clearing
 - Persistent drooling of saliva
 - Dry mouth
 - Recurrent chest infections
 - A change in eating habits e.g. eating slowly or avoiding social occasions
- ▶ A condition where dysphagia is likely to be prevalent e.g. neurological/obstructive/muscular/old age/COPD/learning disability

CLINICAL CONSEQUENCES: Dysphagia can lead to:

Aspiration¹ Aspiration pneumonia^{1,2} Choking³ Increased risk of mortality⁴	• 52% of patients with dysphagia suffer from aspiration¹ • Increased risk of aspiration results in a number of serious consequences, including chest infections, aspiration pneumonia and increased incidence of mortality^{2,4}
Dehydration³ Weight loss⁴ Malnutrition⁴	• 58-75% of dysphagia patients suffer from dehydration^{3,5}, • 51% of people with dysphagia are at risk of malnutrition⁶ • The severity of dysphagia correlates with incidence of malnutrition⁴
Increased hospital length of stay⁷	• Patients with dysphagia have a 40% increase in length of hospital stay⁸
Reduced quality of life^{9,10}	• Over 50% of head and neck cancer patients report a decrease in their quality of life due to dysphagia¹¹

It is important that those experiencing symptoms of dysphagia are seen by a healthcare professional.

Causes of Dysphagia

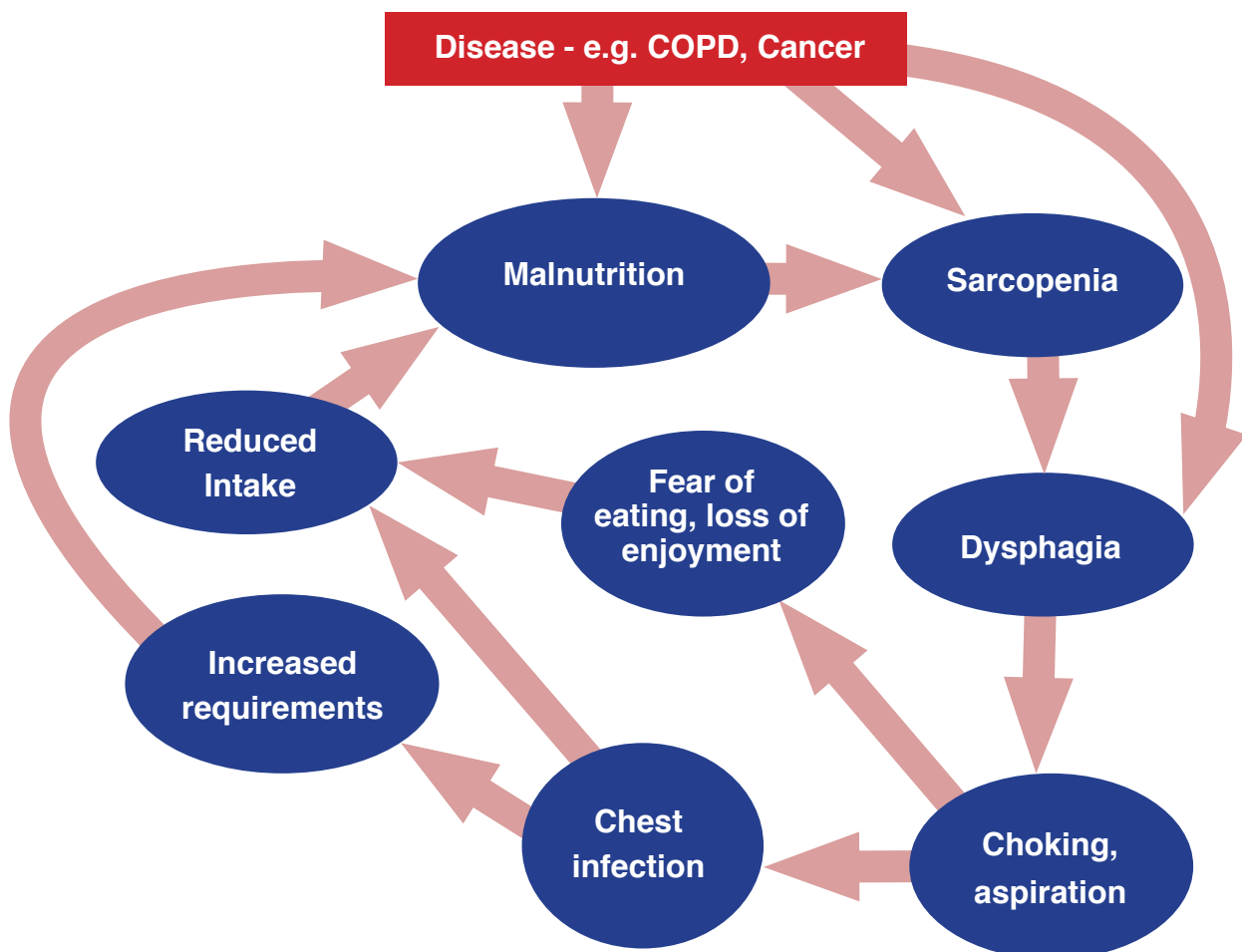
Causes can include:

- Neurological conditions e.g. stroke, multiple sclerosis, head injury, dementia
- Obstructive conditions e.g. head and neck cancer and its treatments, GORD, thrush
- Muscular causes e.g. scleroderma (connective tissue disorder) and achalasia
- Other causes e.g. ageing, COPD, learning disability, sarcopenia

Establishing the risk and severity of dysphagia, malnutrition, sarcopenia and underlying causes guides appropriate interventions and potential outcomes. In all patients with dysphagia, monitoring of progress and nutritional status is important to identify if food and / or fluid intake is adequate and determine the need for nutrition support.

Malnutrition can be a consequence of dysphagia and dysphagia can be a consequence of malnutrition - see figure 1. For further information on identifying and treating malnutrition see https://www.malnutritionpathway.co.uk/library/managing_malnutrition.pdf

Figure 1 – The cycle of malnutrition and dysphagia¹²



Choking and aspiration are more likely to arise as a result of dysphagia; in turn, this may make people fearful of eating, reduce their enjoyment of food, further contributing to a reduced food intake and worsening of malnutrition, setting up a vicious circle. Choking and aspiration increase the risk of chest infections and pneumonia, during which appetite may be adversely affected reducing intake at a time when nutritional requirements are increased to combat the illness. Existing dysphagia can be further compounded by malnutrition due to the loss of muscle mass in the oral cavity and / or pharynx (throat). A vicious cycle of deteriorating nutritional status and dysphagia can arise and requires effective interventions.

Prevalence of Dysphagia

Dysphagia is a symptom of a disease or condition rather than a disease or condition itself. It is most common in patients who have:

Condition	Prevalence
Stroke	<ul style="list-style-type: none"> Dysphagia has been reported in up to 78% of patients¹³ immediately post stroke and 81% of patients with initial dysphagia were found to have persistent swallowing abnormality at 6 months¹⁴ Malnutrition following stroke is reportedly present in up to 62% of patients¹³ and is related to poorer clinical outcomes¹⁶⁻¹⁸ Dehydration is also common and particularly associated with dysphagia, again being a predictor of poor clinical outcomes¹⁸
Dementia	<ul style="list-style-type: none"> 68% of those with dementia in care homes exhibit signs of dysphagia¹⁹ Prevalence of swallowing difficulties in patients with dementia has been found to range from 13-57%²⁰
Progressive Neurological Disease e.g. Parkinson's disease, Multiple sclerosis, Huntington's disease, Motor Neurone Disease (MND)	<ul style="list-style-type: none"> Dysphagia can be an initial symptom in a small number of patients however the majority will develop dysphagia with progression of the disease Dysphagia occurs in more than 80% of people living with MND as the disease progresses^{21,22} Dysphagia can occur in 200/100,000 UK population as a result of Parkinson's disease²³
Cancer	<ul style="list-style-type: none"> Oropharyngeal dysphagia, mostly to solid foods, has been found to be present in over 50% of patients with head and neck cancer¹¹ 14-80% of patients with head & neck cancer will have dysphagia²⁴ In lung cancer patients dysphagia may be caused as a result of extrinsic compression of the oesophagus within the mediastinum or as result of lymph nodes within the neck compressing the upper oesophagus²⁵ Late effects of radiation are now well documented including reduced laryngeal elevation, epiglottic deflection, tongue base retraction, and pharyngeal contraction leading to post swallow residue and silent aspiration²⁶ Side effects of radiotherapy can also include oesophagitis which can result in dysphagia²⁷
Chronic Obstructive Pulmonary Disease (COPD)	<ul style="list-style-type: none"> Coughing, choking and shortness of breath are common effects of COPD that affect daily life - approximately 27% of patients with COPD²⁸ will experience dysphagia which is generally due to disruption to the swallow respiration cycle; known as respiration dysphagia There is currently a developing research interest in the correlation between COPD and dysphagia, and in the relationship between dysphagia and increased exacerbations²⁹ Pharyngeal stage dysphagia has also been linked to reduced laryngeal elevation, delayed vestibular closure and cricopharyngeal dysfunction^{30,31} A study of veterans found dysphagia in approximately 85% of COPD patients³²
Old Age	<ul style="list-style-type: none"> An estimated 50-75% of nursing home residents have some difficulty swallowing³³ Dysphagia has also been found in 10% of acutely hospitalised elderly²⁵ An additional issue in older adults is that up to 50% of them are affected by sarcopenia (loss of muscle mass)³⁴ - sarcopenic dysphagia occurs as a result of loss of swallowing muscle mass and function associated with generalised loss of skeletal muscle mass and function

Managing patients with dysphagia

Management strategies for dysphagia may involve food and/or fluid modification, swallow rehabilitation and compensation strategies. An appropriately trained dysphagia practitioner will assess and advise patients on:

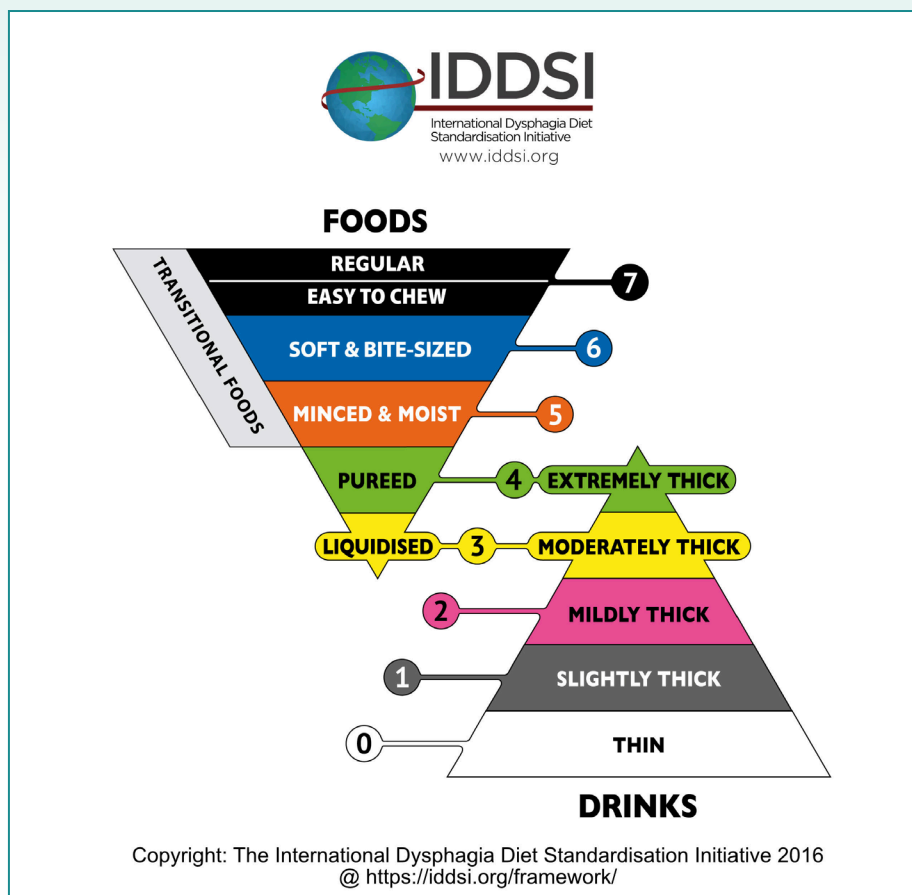
- Changing the consistency of fluids to make swallowing safer e.g. thickening drinks to help them move more slowly from the oral cavity, through the pharynx and down the oesophagus, allowing time for an effective swallow to protect the airway
- Modified texture diets to aid the preparation of food for swallowing particularly if there are difficulties chewing or where there is an oesophageal narrowing / obstruction
- Positioning, posture and specific equipment (such as dysphagia cups and spoons that limit the volume placed in the mouth) to assist patients when eating and drinking
- Exercises to help strengthen the muscles in the mouth and pharynx used for preparing food to swallow and clearing the oral cavity and pharynx of residue after the swallow

Texture Modification - The International Dysphagia Diet Standardisation Initiative (IDDSI)

In order to improve patient safety, an international team of experts developed standardised terminology to describe texture modified foods and thickened liquids to be used at a global level for all individuals with dysphagia, irrespective of culture, age, disorder or care setting³⁵.

The IDDSI framework consists of a continuum of 8 levels (0-7), where drinks are measured from Levels 0 – 4, while foods are measured from Levels 3 – 7. Levels are identified by numbers, text labels and colour codes. Detailed descriptors and simple testing methods accompany each level and can be used by people with dysphagia, caregivers, healthcare professionals, food service or industry to confirm the level a food or fluid falls within. See IDDSI Table in Appendix (page 7) for more information on descriptors, physiological rationale, testing methods and food examples.

The IDDSI framework has been extensively tested and reviewed. It enables compliance with the NHS improvement alerts. The British Dietetic Association (BDA) and Royal College of Speech and Language Therapists (RCSLT) advocate the adoption of IDDSI. **The categories are as follows:**



The International Dysphagia Diet Standardisation Initiative 2016 @ <https://iddsi.org/framework>

Attribution is NOT PERMITTED for derivative works incorporating any alterations to the IDDSI Framework that extend beyond language translation. Supplementary Notice: Modification of the diagrams or descriptors within the IDDSI Framework is DISCOURAGED and NOT RECOMMENDED. Alterations to elements of the IDDSI framework may lead to confusion and errors in diet texture or drink selection for patients with dysphagia. Such errors have previously been associated with adverse events including choking and death.

Increasing viscosity of fluids using thickener is a well-established management strategy for oropharyngeal dysphagia (OD)³⁶. Commercially available thickening powders can be added to drinks to achieve the required consistency and should be used in accordance with the instructions on the individual packaging and under instruction from an appropriately trained dysphagia practitioner. 'Clear' gum based thickeners maintain the normal appearance and taste of drinks thus avoiding adversely affecting the visual appeal and palatability. Thickening powders may also be used to maintain the consistency of pureed foods preventing fluid separation that can become a risk.

Texture modification can present considerable challenges as not all foods puree easily and some need further food preparation, for example sieving. Advice and resources for chefs and carers are available from manufacturers of the thickening agents and resources are also available online:

<https://iddsi.org/resources>

Managing Malnutrition

Patients receiving texture modified diets and fluids frequently fail to meet their nutritional and fluid requirements³⁷ and have an increased risk of malnutrition. Contributory factors include:

- Reduced palatability
- Self-limitation due to fear of aspiration with fluids or fear of choking on solids
- The addition of more liquid to produce a pureed meal may dilute the nutritional content and increase meal volume - the latter is a particular issue if appetite is limited
- Considerable additional fluid losses arising from continuous drooling - drooling in combination with dysphagia poses a further risk of dehydration
- Limited cooking skills affecting the ability to prepare and fortify modified texture meals
- Lack of support to prepare appropriate meals

Poor intakes have been observed amongst patients with dysphagia in hospital eating a texture-modified diet - one study showed that only 13% of these patients finished their meal and only 13% had the correct meal delivered. Intakes of protein and energy were approximately half of estimated requirements³⁷. This could lead to weight loss, sarcopenia (loss of muscle) and impaired recovery resulting in poorer outcomes.

There is limited published research that illustrates the challenges in achieving adequate intakes in patients on texture modified diets but several publications have demonstrated difficulties in achieving energy requirements^{37,38}, protein requirements^{37,38}, micronutrient requirements³⁹ and fluid requirements⁴⁰. Micronutrient (vitamin and mineral) intakes from a pureed diet can also be difficult to determine from a diet history due to the variation in composition and preparation.

It is important therefore that patients with dysphagia have their nutritional requirements assessed by suitably qualified healthcare professionals, working as part of the multi-disciplinary team, to ensure that appropriate and timely nutritional care plans are created.

For patients discharged into the community the 'Managing Adult Malnutrition in the Community'⁴¹ or 'Managing Malnutrition in COPD'⁴² malnutrition management pathways can be used as a practical guide to support the monitoring and management (<https://www.malnutritionpathway.co.uk>).

Nutritional considerations

Patients identified as being at medium risk of malnutrition should be provided with dietary advice to maximise their nutritional intake - an advice sheet 'Your Guide to Making the Most of Your Food' is available to download for free from https://www.malnutritionpathway.co.uk/library/pleaflet_yellow.pdf but ideas may require modifying to suit the individual's specific texture requirement. Patients should be monitored at least every 1-3 months - sooner if clinically indicated^{41,42}.

Patients identified at high risk of malnutrition, should be given dietary advice along with an appropriate oral nutritional supplements (ONS)⁴¹. Pre-thickened ONS will indicate IDDSI category and manufacturers may hold information on file with regard to their range of supplements. The advice leaflet 'Nutrition Drinks (known as Oral Nutritional Supplements)' is available free to download from https://www.malnutritionpathway.co.uk/library/pleaflet_red.pdf

Patients commenced on ONS should be regularly monitored for compliance and progress, as outlined in the malnutrition pathway⁴¹. See section on next page for further information on ONS.

Oral nutritional supplements (ONS)

ONS have been shown to be a clinically and cost effective way to manage malnutrition and can lead to reductions in complications, hospital readmissions and clinical outcomes⁴³⁻⁴⁶ (see https://www.malnutritionpathway.co.uk/library/ons_pathway.pdf for pathway for using ONS).

In patients requiring texture modified fluids, dysphagia is a prescribable condition for ONS, however it is the prescriber's responsibility to ensure ONS chosen is suitable - many manufacturers have developed pre-thickened ONS for the various IDDSI levels and also produce thickening agents.

When choosing an appropriate product, consideration should be given to patients' nutritional requirements, particularly in older adults and those with chronic conditions:

- Recent research has suggested that protein requirements in healthy older adults may be higher than previously recommended (1 - 1.2 g protein / kg body weight /day) and even higher for those at risk of malnutrition, and those with acute or chronic illness (1.2-1.5 g protein /kg body weight /day)⁴⁷
- Protein intakes are often inadequate in older adults⁴⁸ and restrictive diets such as texture modified foods may also impact on dietary protein intake and other essential nutrients. In such patients who are able to drink normal liquids, a low volume (125ml), high energy, high protein ONS may be suitable
- Higher energy density (>2kcal/ml) low volume (125ml) ONS may optimise compliance⁴⁹ particularly in patients who are unable to manage large volumes of fluids
- When ability to take oral nutritional supplements is challenging, very high energy, high protein oral nutritional supplements can be taken in small 30-40ml doses throughout the day, providing they are of the appropriate IDDSI level

NB: The addition of commercial thickening powders to ONS may lead to unsuitable lumpy consistencies. Pre-thickened ready to drink liquid ONS are recommended and available for patients requiring level 2, 3 or 4 thickened fluids ^{50,51,52,53}.

Practical issues

A holistic approach to nutrition is required when reviewing a patient with dysphagia in order to achieve the best possible outcomes and experience. It must be remembered that food provides more than just nutrients: it can also give pleasure and it has a role in social, emotional and cultural spheres⁵⁵. For many patients' meals are the highlight of the day, oral food and drink should therefore be encouraged where possible with the following considerations:

- Timing of meals - eating when fatigued may result in an increased risk of aspiration
- Appearance of food :
 - too large a portion can overwhelm an individual and they end up eating less than if a smaller more attractive portion were served
 - it can be challenging to make pureed meals look appetising, so it is important that advice is offered on preparation and carers assisting in feeding the patient show positivity during the feeding process
- Likes and dislikes – establishing preferences is important to maximise enjoyment
- Medication – side effects such as dry mouth may occur with a range of medications, the result of which will be reduced lubrication of mucosa and less saliva to coat and break down food

Enteral Nutrition

Enteral nutrition (also known as tube feeding) is when nutrition is administered via a tube into the gastrointestinal tract.

Many patients with dysphagia arising from an acute cause e.g. stroke (CVA) in whom swallow is improving will be weaning off tube feeding. Patients who are deteriorating e.g. those with neurological conditions such as motor neurone disease (MND) may commence with small amounts of tube feeding in conjunction with oral intake. It is advised with both of these groups of patients that a Speech and Language Therapist and Dietitian are regularly involved to guide the transitioning from one feed type or method to another⁵¹.

Further reading

Royal College of Speech and Language Therapists.

<https://www.rcslt.org/speech-and-language-therapy/clinical-information/dysphagia>

Appendix

IDDSI Level	Physiological Rationale	Testing Method	Food Examples
Level 0 Thin	Functional ability to safely manage liquids of all types	<ul style="list-style-type: none"> IDSSI flow test - completely flows through a 10ml syringe within 10 seconds leaving no residue 	
Level 1 Slightly Thick	Thicker than water. Requires a little more effort to drink than thin fluids. Flows through straw, teat, nipple, syringe.	<ul style="list-style-type: none"> IDSSI flow test - flows through a 10ml syringe leaving 1-4 ml in the syringe after 10 seconds 	
Level 2 Mildly Thick	If thin drinks flow too fast to be controlled safely, these will flow at a slightly slower rate. May be suitable if tongue control is slightly reduced	<ul style="list-style-type: none"> IDSSI flow test - flows through a 10ml syringe leaving 4 to 8 ml in the syringe after 10 seconds 	
Level 3 Moderately Thick (Liquids) Liquidised (Foods)	<p>If tongue control is insufficient to manage Level 2 this level may be suitable</p> <ul style="list-style-type: none"> is easier to control as flows slowly from a spoon or cup allows more time for oral control needs some tongue propulsion effort Pain on swallowing 	<ul style="list-style-type: none"> IDSSI flow test - flows through a 10ml syringe in 10 seconds leaving more than 8 ml in the syringe Fork test - drips slowly in dollops through prongs of a fork. Prongs of a fork do not make a clear pattern on the surface. Spreads out if spilled onto a flat surface Spoon tilt test - easily pours from spoon when tilted and does not stick to the spoon 	<ul style="list-style-type: none"> Infant first foods (e.g. runny cereal/ pureed fruit) Sauces & gravies Fruit syrup
Level 4 Extremely Thick (Fluids) Pureed (Foods)	<ul style="list-style-type: none"> If tongue control is significantly reduced, this category may be easiest to manage Requires less propulsion than Level 5 to 7 but more than Level 3 No biting or chewing required Increased residue is a risk if too sticky Any food that requires chewing, controlled manipulation or bolus formation are not suitable Pain on chewing or swallowing Missing teeth, poorly fitting dentures 	<ul style="list-style-type: none"> Fork test – the prongs of the fork can make a clear pattern on the surface and the food retains the indentation from the fork. No lumps. Sits in a mound/pile above the fork - a small amount may flow through and form a tail below the fork but does not flow or drip continuously Spoon tilt test - cohesive enough to hold its shape on the spoon. A full spoonful must plop off the spoon if the spoon is tilted/turned sideways; a gentle flick may be necessary to dislodge the sample from the spoon, but the sample should slide off easily with very little food left on the spoon. Spreads or slumps very slowly if spilled It is too thick if it sticks to the spoon/does not flow off the spoon when tilted 	<ul style="list-style-type: none"> Infant first foods (e.g. runny cereal/ pureed fruit) Sauces & gravies Fruit syrup
Level 5 Minced & Moist	<ul style="list-style-type: none"> Biting is not required Minimal chewing is required Tongue force alone can be used to break soft small particles Tongue force is required to form the bolus Pain or fatigue on chewing Missing teeth, poorly fitting dentures 	<ul style="list-style-type: none"> Fork test - when pressed with fork the particles can be easily separated between and come through the fork prongs. Can be easily mashed with little pressure from the fork. A scooped sample sits on a pile/mound and does not easily or completely flow through the fork Spoon tilt test - cohesive enough to hold its shape on the spoon. A full spoonful will slide/pour off the spoon if tilted sideways or shaken lightly, it should leave very little on the spoon (it should not be sticky) Chopstick test - can be used to scoop or hold this texture 	<ul style="list-style-type: none"> Finely minced or chopped meat Finely mashed fish Mashed fruit Finely minced, chopped or mashed vegetables Thick & smooth cereal
Level 6 Soft & Bite-sized	<ul style="list-style-type: none"> Biting is not required Chewing is required Tongue force and control is required to move the food for chewing and to keep it within the mouth during chewing Tongue force is required to move the bolus for swallowing Pain or fatigue on chewing Missing teeth, poorly fitting dentures 	<ul style="list-style-type: none"> Fork/spoon/finger pressure test – pressure from a fork or spoon held on its side can be used to cut or break this texture into smaller pieces When a piece the size of a thumb nail is pressed with the base of a fork/bowl of a spoon/finger pressure it squashes and changes shape and does not return to original shape when fork/spoon/finger is removed Chopstick test - can be used to break the texture into small pieces 	<ul style="list-style-type: none"> Tender cooked meat Soft cooked fish Casserole/stew/curry - thick liquid portion and no hard lumps Mashed fruit Steamed or boiled vegetables Smooth cereal with soft tender lumps
Level 7 Easy Chew (Foods)	<ul style="list-style-type: none"> Strong enough chewing ability to break down soft / tender foods without help or tiring easily Weaker chewing muscles for hard / firm textures Helpful if patients have been sick and are recovering strength Maybe used for teaching advanced chewing skills 	<ul style="list-style-type: none"> Foods should be able to be cut or broken apart with the side of a fork or spoon Easy to Chew food using the IDDSI Fork Pressure test 	<ul style="list-style-type: none"> Normal, everyday foods of soft/tender texture Food piece size is not restricted in Level 7, therefore foods may be a range of sizes.
Level 7 Regular Foods	<ul style="list-style-type: none"> An ability bite hard or soft foods and chew them for long enough that they form a cohesive ball/bolus that is ready to swallow Ability to chew all food textures without tiring easily Ability to remove bone and gristle that cannot be swallowed safely from the mouth 	N/A	<ul style="list-style-type: none"> Normal everyday foods

Information in the above table has been taken from the IDDSI Framework. Remember temperature can influence thickness levels. See <http://iddsi.org/Documents/IDDSIFramework-CompleteFramework.pdf> for more information. Further information on how to test consistencies that meet the standards can be found at <http://iddsi.org/Documents/IDDSIFramework-TestingMethods.pdf>

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