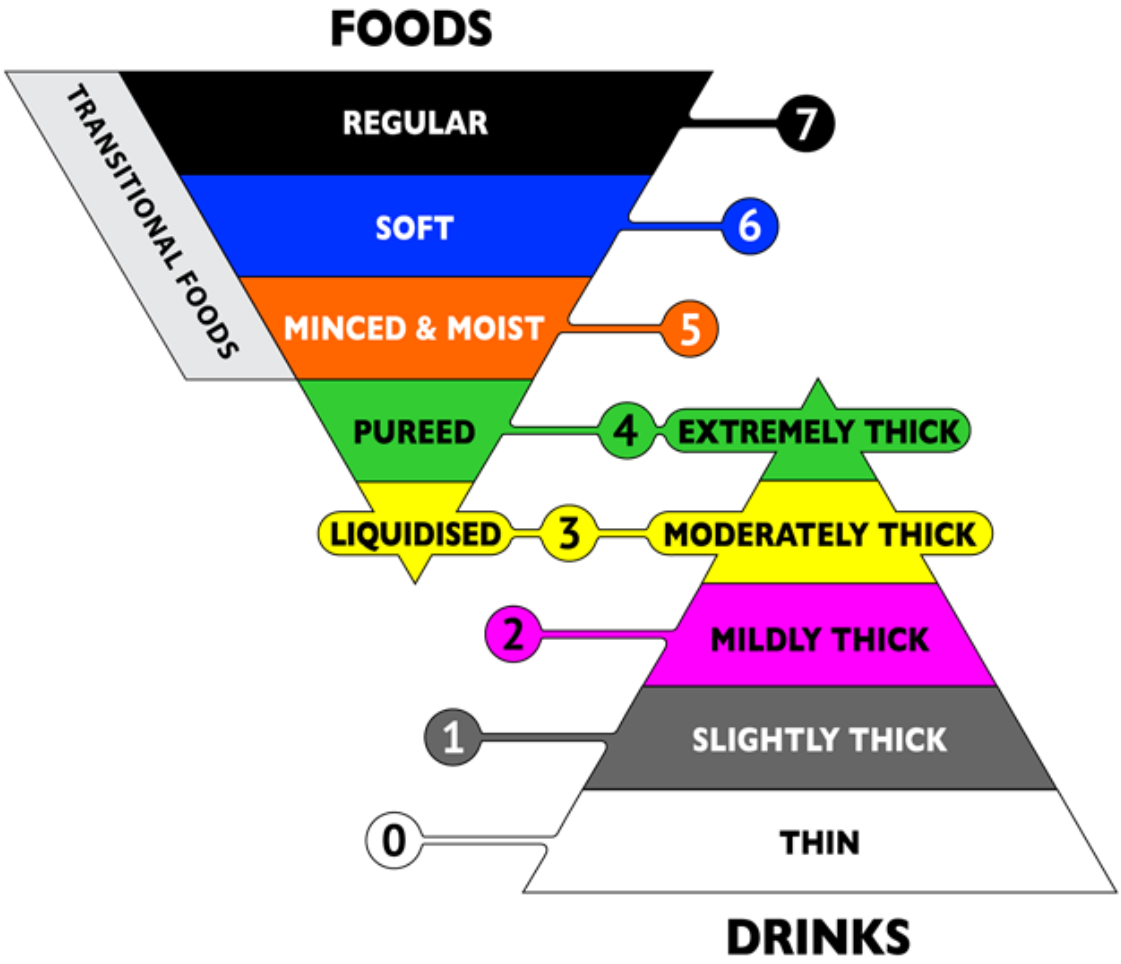
IDDSI

International Dysphagia Diet Standardisation Initiative



Detailed descriptions, Testing methods and Evidence

Food: Levels 3-7

INTRODUCTION

The International Dysphagia Diet Standardisation Initiative (IDDSI) was founded in 2013 with the goal of developing new global standardised terminology and definitions to describe texture modified foods and thickened liquids used for individuals with dysphagia of all ages, in all care settings, and all cultures.

Three years of ongoing work by the International Dysphagia Diet Standardisation Committee has culminated in a final dysphagia diet framework consisting of a continuum of 8 levels (0-7). Levels are identified by numbers, text labels and colour codes.

This document provides detailed descriptors for the 5 levels of foods in the IDDSI Framework (Levels 4-7, plus transitional foods). Descriptors are supported by simple measurement methods that can be used by people with dysphagia or by caregivers, clinicians, food service professionals or industry to confirm the level a food fits into.

The IDDSI Committee would like to acknowledge the interest and participation of the global community including patients, caregivers, health professionals, industry, professional associations and researchers.

The IDDSI Committee:

Co-Chairs: Peter Lam (CAN) & Julie Cichero (AUS);

Committee Members: Jianshe Chen (CHN), Roberto Dantas (BRA), Janice Duivestein (CAN), Ben Hanson (UK), Jun Kayashita (JPN), Caroline Lecko (UK), Joe Murray (USA), Mershen Pillay (ZAF), Soenke Stanschus (GER), Catriona Steele (CAN).

The International Dysphagia Diet Standardisation Initiative Inc. (IDDSI) is an independent, not-for-profit entity. IDDSI is grateful to a large number of agencies, organizations and industry partners for financial and other support. Sponsors have not been involved with the design or development of the IDDSI framework.

Evidence and Measurement

Evidence

A systematic review of the literature was conducted to examine the impact of drink thickness and food texture on swallowing behaviour across the age spectrum (Steele et al., 2015 Dysphagia, 30(1): 2-26).

Note, terms related to choking, airway obstruction or asphyxiation were not included in the search strategy for this review. With regards to foods, the results of the systematic review determined:

- The best available evidence regarding the selection of an optimal food consistency for a person with dysphagia comes from the careful exploration of tolerance for different foods in a comprehensive clinical swallowing assessment;
- Thicker and harder items require greater effort in oral processing and swallowing.

Of the 36 studies that met the eligibility criteria for the systematic review, 18 related specifically to food with one article covering both healthy adults and children. 12 studies related to healthy adults and two related to healthy children whilst five related to adults with dysphagia. Of these five studies, two related to neurological conditions, two specifically to stroke, one study to dysphagia following head and neck surgery, and one to individuals with dysphagia of mixed aetiology.

The results of international stakeholder surveys demonstrated the common use of regular food plus four to five levels of food texture modification for the management of swallowing problems across the age spectrum. A synthesis of the literature from the systematic review demonstrates broadly that solid, hard and adhesive (sticky) foods require an increased chewing rate, longer chewing duration and greater muscle effort. Pureed food requires the shortest chewing duration, least chewing and muscle effort. During normal chewing, the tongue and jaw move in a coordinated way to avoid injury from biting the tongue during chewing. This means, however, that there is no posterior tongue-to-palate seal during the chewing and oral processing of foods. This is in contrast to the pattern expected with liquids (Hiiemae & Palmer, 1999). It is not uncommon for particles of masticated food to collect in the pharynx, usually in the vallecular space, during oral preparation. Foods that require chewing do present a choking risk. Poor dentition and neurological conditions are consistently identified as risk factors for choking (Kennedy et al., 2014). In healthy people, regardless of the initial state of the food, after oral processing and at the point of swallow initiation, the bolus is a cohesive mass.

The paucity of research into the therapeutic use of food texture modification for dysphagia management means that the recommendations in this document regarding food texture are based on an understanding that altering food texture modification has demonstrated a therapeutic benefit for reducing the risk of choking. Recommendations regarding best practice are also based on clinical experience, surveys of reported practice patterns and expert opinion regarding the number of levels of food textures reported.

There is an urgent need to generate clear descriptions for different classes of chewable food, so that empirical evidence can be collected to demonstrate associated differences in oral processing and swallowing behaviour.

Measurement

Research to date in the area of food texture measurement requires complex and expensive machinery such as Food Texture Analysers. Given the difficulty with access to such equipment and the expertise required for testing and interpretation, many existing national terminologies for food texture have used detailed descriptors instead.

The systematic review demonstrated that the properties of hardness, cohesiveness and slipperiness were important factors for consideration. In addition, size and shape of food samples have been identified as relevant factors for choking risk (Kennedy et al., 2014; Chapin et al., 2013; Japanese Food Safety Commission, 2010; Morley et al., 2004; Mu et al., 1991; Berzlanovich et al. 1999; Wolach et al., 1994; Centre for Disease Control and Prevention, 2002, Rimmell et al., 1995; Seidel et al., 2002).

In view of this information, measurement of foods needs to capture both the mechanical properties (e.g. hardness, cohesiveness, adhesiveness etc.) and the geometrical or shape attributes of the food. The IDDSI descriptions of food texture and characteristics, food texture requirements and restrictions have been generated from existing national terminologies and the literature describing properties that increase risk for choking.

The systematic review suggested that food and fluid should be classified in the context of the physiological processes involved in oral processing, oral transport and flow initiation. To this end, different devices are needed to best describe the behaviour of the bolus.

IDDSI Flow Test (Syringe Test)
Drinks and liquids such as gravy and sauces are best assessed using the IDDSI Flow Test (Drinks - Levels 0-4) – see http://iddsi.org/wp-content/uploads/2015/10/26_10_15-Drinks_detailed-descriptors.pdf

Fork Drip Test
Thick drinks and fluid foods can be tested by assessing whether they flow through the slots/prongs of a fork and comparing against the detailed descriptions of each level.

Fork Pressure Test and Spoon Pressure Test
For hard or firm food, the fork has been chosen as it can uniquely be used for assessment of mechanical properties associated with hardness, in addition to assessment of shape attributes such as particle size. As such, a Fork Pressure Test is best used to assess foods in Levels 4-7 and transitional foods. The slots/gaps between the tines/prongs of a standard metal fork typically measure 4 mm, which provides a useful compliance measure for particle size of foods at Level 5 - Minced & Moist. For determining particle size safety for infants, samples that are smaller than the maximum width of the child's fifth fingernail (littlest finger) should not cause a choking risk as this measurement is used to predict the internal diameter of an endotracheal tube in the paediatric population (Turkistani et al., 2009).

For hard and soft solid foods, a maximum food sample size of ~1.5 x 1.5 cm is recommended, which is the approximate size of the adult human thumb nail (Murdan, 2011). A fork can be applied to the food sample to observe its behaviour when pressure is applied. Pressure applied to the food sample has been quantified by assessment of the pressure needed to make the thumb nail blanch noticeably to white, as demonstrated by the arrows in the image at left.

The pressure applied to make the thumb nail blanch has been measured at ~ 17 kPa. This pressure is consistent with tongue force used during swallowing (Steele et al., 2014). In the image at right, pressure is being demonstrated in kilopascals using an Iowa Oral Performance Instrument. This is one device that can be used to measure tongue pressure.

Image used with permission by IOPI Medical

For assessment using the Fork Pressure Test, it is recommended that the fork be pressed onto the food sample by placing the thumb onto the bowl of the fork (just below the prongs) until blanching is observed, as shown in the image at left.

It is appreciated that forks are not readily available in some parts of the world. Pressure applied using the base of a teaspoon may provide a useful alternative. Assessment with chopsticks has been included. Finger tests have been incorporated in recognition that this may be the most accessible method in some countries. Further work is required to develop an inexpensive but accurate tool to assist with food texture analysis.

Evidence for specific variables relating to different food textures and their accompanying grade of evidence (NHMRC, 2000) are shown in the table below. *Note,* despite best efforts, the list cannot be exhaustive, and will continue to evolve as a living document over time as further research is conducted and reported.

Variable	Reference	Grade of Evidence
Investigations of Level 3–Moderately thick/Liquidised in the research literature	As noted in Steele et al. (2015): Butler et al., 2004 Chi-Fishman & Sonies, 2002 Igarashi et al., 2010 Inagaki et al., 2008 Inagaki et al., 2009a Inagaki et al., 2009b Steel & Van Lieshout, 2004 Steele & Van Lieshout, 2005 Youmans et al., 2009	I IV IV IV IV IV IV IV IV III-2
Investigations of Level 4- Extremely thick / Pureed In the research literature	As noted in Steele et al. (2015): Barata et al., 2013 Bingjie et al., 2010 Bisch et al., 1994 Butler et al., 2004 Chen et al., 1992 Chi-Fishman & Sonies, 2002 Dos Santos et al., 2011 Gisel, 1991 Inagaki et al., 2008 Inagaki et al., 2009a Inagaki et al., 2009b Ishida et al., 2002 Kim & Han, 2005 Lin et al., 2011 Reimers-Neils et al., 1994 Taniwaki et al., 2013 Troche et al., 2008 Youmans et al., 2009	I IV III-2 III-2 IV IV IV III-2 IV IV IV IV IV III-2 IV IV IV IV III-2
Drinks that are too thick increase the risk of post swallow residue in the pharynx	Hind et al, (2012) Robbins et al. (2008)	IV II
Investigations of Level 5 – Minced & Moist In the research literature	Nil to date	
Investigations of Level 6 - Soft In the research literature	As noted in Steele et al. (2015): Anderson et al., 2002 Ashida et al., 2007 Funami et al., 2012 Ishida et al., 2002 Lee et al., 2012 Nagatomi et al., 2008 Taniwaki et al., 2013	I IV IV IV IV IV IV IV

Investigations of Level 7 - Regular In the research literature	As noted in Steele et al. (2015): Anderson et al., 2002 Ashida et al., 2007 Barata et al., 2013 Binjie et al., 2010 Chen et al., 1992 Hoebler et al., 1998 Ishida et al., 2002 Karkazis, 2002 Karkakazis & Kossioni, 1997 Karkakazis & Kossioni, 1998 Nagatomi et al., 2008 Ruark et al., 2002 Saitoh et al., 2007	I IV IV IV III-2 IV IV IV IV IV IV IV III-2 IV
Investigations of Mixed consistency foods In the research literature	As noted in Steele et al. (2015): Kim & Han, 2005 Lee et al., 2012 Saitoh et al., 2007	I IV IV IV
Investigations of Transitional Foods In the research literature	As noted in Steele et al., (2015): Gisel, 1991	I III-2
	Dovey et al., 2013	IV
Investigations of foods that are a choking risk In the research literature	Berzlanovich et al., 1999 Chapin et al., 2013 Centre for Disease Control and Prevention, 2002 Japanese Food Commission, 2010 Kennedy et al., 2014 Morely et al., 2004 Mu et al., 1991 Rimmell et al., 1995 Seidel et al., 2002 Siddell et al., 2013	III-2 III-2 III-2 III-2 I III-2 III-2 III-2 IV I
Investigations of food particle size and bite size In the research literature	Peyron et al., 2004 Woda et al., 2010 Archambault et al., 2010 Fotijn-Tekamp et al. 2004 Jalabert-Malbos et al., 2007	IV IV IV IV IV

Grading of evidence – National Health and Medical Research Council (2000)

I	Evidence from systematic review of all relevant randomised controlled trials
II	Evidence from at least one properly designed randomised controlled trial, retrospective studies
III-1	Evidence from well-designed pseudo-randomised controlled trials (e.g., alternate allocation or some other method)
III-2	Evidence from comparative studies with concurrent controls and allocation not randomised (cohort studies), case-control studies, or interrupted time-series with a control group (i.e. non-consecutive cohort study)
III-3	Evidence from comparative studies with historical control, two or more single-arm studies, or interrupted time series without a parallel control group
IV	Evidence from case series, either post-test or pre-test and post-test, or superseded reference standards

3 MODERATELY THICK LIQUIDISED

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Description/characteristics Texture restrictions shown in summary table	• **Can be drunk from a cup** • **Some effort is required to suck through a standard bore or wide bore straw (wide bore straw = 0.275 inch or 6.9mm)** • **Cannot be piped, layered or moulded on a plate** • **Cannot be eaten with a fork because it drips slowly in dollops through the prongs** • **Can be eaten with a spoon** • **No oral processing or chewing required – can be swallowed directly** • **Smooth texture with no 'bits' (lumps, fibers, bits of shell or skin, husk, particles of gristle or bone)**
Physiological rationale for this level of thickness	• If tongue control is insufficient to manage Mildly Thick drinks (Level 2), this Liquidised/Moderately thick level may be suitable • Allows more time for oral control • Needs some tongue propulsion effort • Pain on swallowing
Testing method IDDSI Flow Test* Fork Drip Test Spoon Tilt Test Chopstick Test Finger Test	• Test liquid flows through a 10 ml slip tip syringe leaving > 8 ml in the syringe after 10 seconds (see Syringe Test Guide*) • Drips slowly in dollops through the prongs of a fork • Tines/Prongs of a fork do <u>not</u> leave a clear pattern on the surface • Spreads out if spilled onto a flat surface • Easily pours from spoon when tilted; does not stick to spoon • Chopsticks are not suitable for this texture • It is not possible to hold a sample of this food texture using fingers, however, this texture slides smoothly and easily between the thumb and fingers, leaving a coating
Food specific or	The following items may fit into this category:

Other examples	• Infant “first foods” (runny rice cereal or runny pureed fruit) • Sauces and gravies • Fruit syrup

IDDSI Fork Drip Test

3 MODERATELY THICK LIQUIDISED

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Drips slowly or in dollops/strands through the slots of a fork

PUREED EXTREMELY THICK

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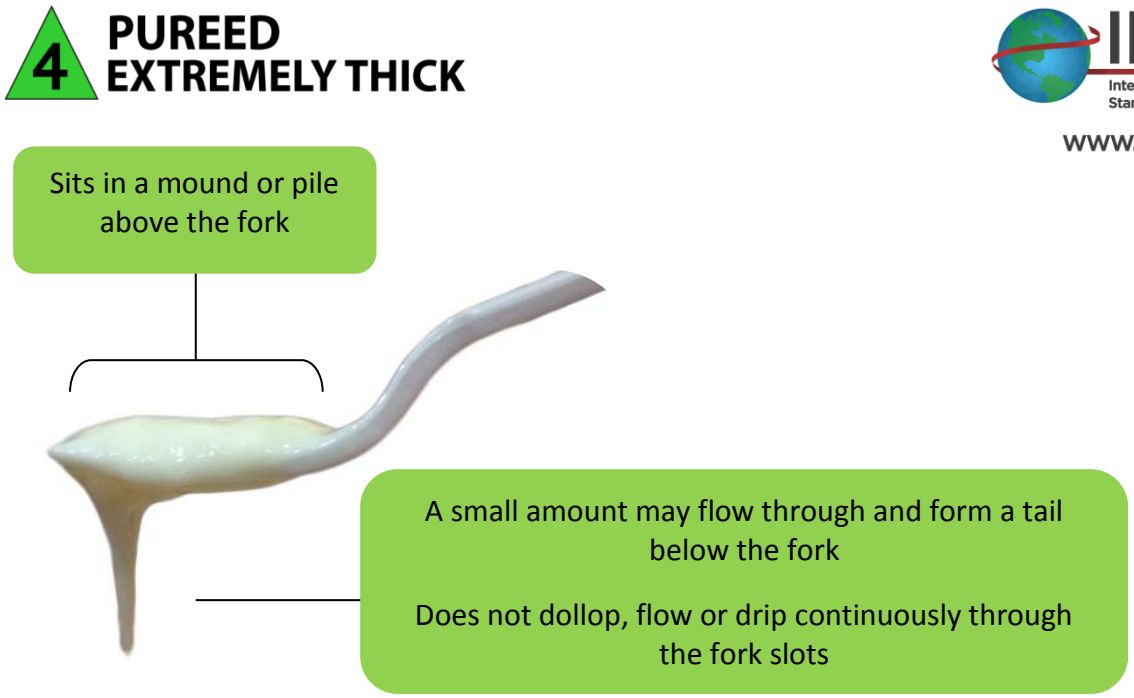
Description/characteristics Texture restrictions shown in summary table	• **Usually eaten with a spoon (a fork is possible)** • **Cannot be drunk from a cup** • **Cannot be sucked through a straw** • **Does not require chewing** • **Can be piped, layered or molded** • **Shows some very slow movement under gravity but cannot be poured** • **Falls off spoon in a single spoonful when tilted and continues to hold shape on a plate** • **No lumps** • **Not sticky** • **Liquid must not separate from solid**
Physiological rationale for this level of thickness	• If tongue control is significantly reduced, this category may be easiest to manage • Requires less propulsion effort than Minced & Minced (level 5), Soft (Level 6) and Regular (Level 7) but more than Liquidised/Moderately thick (Level 3) • No biting or chewing is 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
Testing Method IDDSI Flow test* Fork Pressure test Fork Drip test	• No flow or drip through a slip tip syringe after 10 sec (refer to IDDSI Flow test Instructions)* • The tines/prongs of a fork can make a clear pattern on the surface, and/or the food retains the indentation from the fork • No lumps • The food sits in a mound/pile above the fork; a small amount may flow through and form a tail below the fork tines/prongs, but it does not flow or drip continuously through the prongs of a fork

Spoon Tilt test	• Cohesive enough to hold its shape on the spoon • A full spoonful must plop off the spoon if the spoon is titled or turned sideways; a very 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; i.e. the sample should not be firm and sticky • May spread out slightly or slump very slowly on a flat plate
Chopstick test	• Chopsticks are not suitable for this texture
Finger test	• It is just possible to hold a sample of this texture using fingers. The texture slides smoothly and easily between the fingers and leaves noticeable residue
Indicators that a sample is too thick	• Does not fall off the spoon when tilted • Sticks to spoon
Food specific or Other examples	The following item may fit into this category: • Purees suitable for infants (e.g. pureed meat, thick cereal)

IDDSI Fork Drip Test



5 MINCED & MOIST

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Description/characteristics Texture restrictions shown in summary table	• Can be eaten with a fork or spoon • Could be eaten with chopsticks in some cases, if the individual has very good hand control • Can be scooped and shaped (e.g. into a ball shape) on a plate • Soft and moist with no separate thin liquid • Small lumps visible within the food (Paediatric 2-4 mm; adult 4mm) • Lumps are easy to squash with tongue
Physiological rationale for this level of thickness	• Biting is not required • Minimal chewing is required • Tongue force alone can be used to break soft small particles in this texture • Tongue force is required to move the bolus • Pain or fatigue on chewing • Missing teeth, poorly fitting dentures
Testing Method Fork Pressure test	• When pressed with a fork the particles should easily be separated between and come through the tines/prongs of a fork • Can be easily mashed with little pressure from a fork [pressure should not make the thumb nail blanch to white]
Fork Drip test	• A scooped sample sits in a pile or can mound on the fork and does not easily or completely flow or fall through the tines/prongs of a fork
Spoon Tilt test	• Cohesive enough to hold its shape on the spoon • A full spoonful must slide/pour off the spoon if the spoon is tilted or turned sideways or shaken lightly; the sample should slide off easily with very little food left on the spoon; i.e. the sample should not be sticky • A scooped mound may spread or slump very slightly on a plate
Chopstick test	• Chopsticks can be used to scoop or hold this texture if the sample is moist and cohesive *and* the person has very good hand control to use chopsticks
Finger test	• It is possible to easily hold a sample of this texture using fingers; small soft, smooth, rounded particles can be easily squashed between fingers. The material will feel moist and leave fingers wet.

Food specific or Other examples	MEAT • Finely minced or chopped, tender mince (pieces 2-4 mm) • Serve in extremely thick, smooth, non-pouring sauce or gravy • *If texture cannot be finely minced it should be pureed FISH • Finely mashed in extremely thick smooth, non-pouring sauce or gravy FRUIT • Serve mashed • Drain excess juice CEREAL • Very thick and smooth with small (2-4 mm) soft lumps • Texture fully softened • Any milk/fluid must not separate away from cereal. Drain any excess fluid before serving BREAD • Pre-gelled or slurried breads that are very moist and gelled through the entire thickness • No regular, dry bread unless recommended by a dysphagia specialist RICE • Not sticky or glutinous (particularly short grain rice) and should not be particulate or separate into individual grains when cooked and served (particularly long grain rice)

Example of Minced & Moist Food and IDDSI Fork Test

5 MINCED & MOIST

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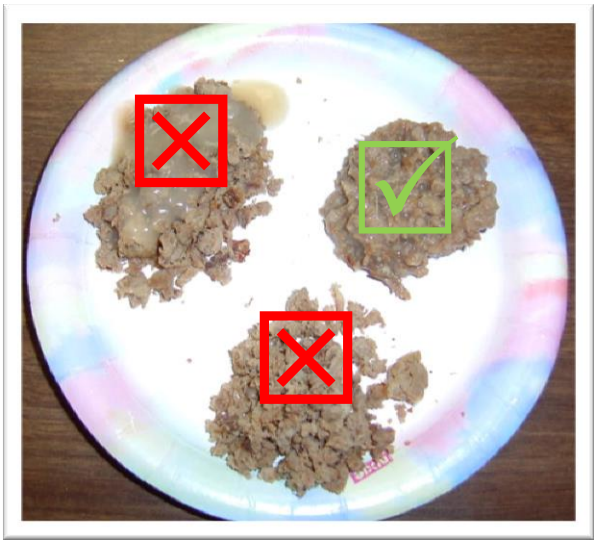
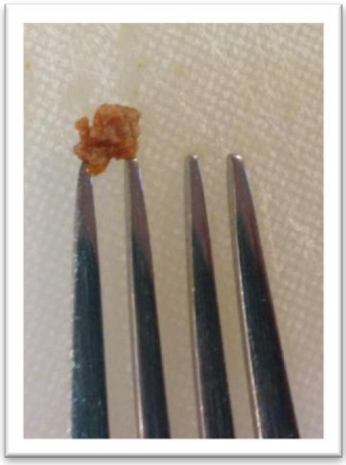
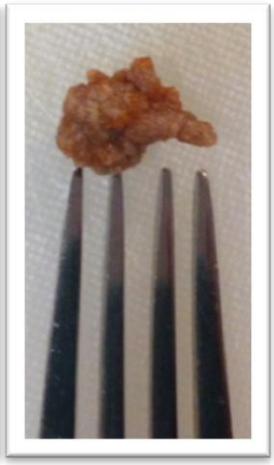


Use slot between fork prongs to determine whether minced pieces are the correct or incorrect size





Description/characteristics Texture restrictions shown in summary table	• Can be eaten with a fork, spoon or chopsticks • Can be mashed/broken down with pressure from fork, spoon or chopsticks • A knife is not required to cut this food, but may be used to help loading a fork or spoon • Chewing is required before swallowing • Soft, tender and moist throughout but with no separate thin liquid • 'Bite sized' pieces as appropriate for size and oral processing skills (Paediatric 8mm; Adults 1.5 cm)
Physiological rationale for this level of thickness	• 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
Testing Method Fork Pressure test Spoon Pressure test Chopstick test Finger test	 • Pressure from a fork held on its side can be used to 'cut' or break this texture into smaller pieces • When a sample the size of a thumb nail (~1.5x1.5 cm) is pressed with the base of a fork to a pressure where the thumb nail blanches to white, the sample squashes and changes shape, and does not return to its original shape when the fork is removed. • Pressure from a spoon held on its side can be used to 'cut' or break this texture into smaller pieces. • When a sample the size of a thumb nail (~1.5 cm x1.5 cm) is pressed with the bowl of a spoon, the sample squashes and changes shape, and does not return to its original shape when the spoon is removed. • Chopsticks can be used to break this texture into smaller pieces • Use a sample the size of the thumb nail (~1.5 cm x 1.5 cm). It is possible to squash a sample of this texture using finger pressure such that the thumb and index finger nails blanch to white. The sample will not return to its initial shape once pressure is released.

Food specific or Other examples	MEAT • Cooked, tender meat no bigger than 1.5 cm x 1.5 cm • If texture cannot be served soft and tender at 1.5 cm x 1.5 cm, serve minced and moist FISH • Soft enough cooked fish to break into small pieces with fork, spoon or chopsticks • No bones CASSEROLE/STEW/CURRY • Liquid portion must be thick • Can contain meat, fish or vegetables if final cooked pieces are no larger than 1.5 cm x 1.5 cm and are soft and tender • No hard lumps FRUIT • Serve mashed • Fibrous parts of fruit are not suitable • Drain excess juice • Assess individual ability to manage fruit with high water content (e.g. watermelon) where juice separates from solid in the mouth during chewing VEGETABLES • Steamed or boiled vegetables with final cooked size of 1.5 cm x 1.5 cm • Stir fried vegetables are often too firm and not soft or tender CEREAL • Smooth with soft tender lumps no bigger than 1.5 cm acceptable • Texture fully softened • Any excess milk or fluid must drained BREAD • No bread unless assessed as suitable by dysphagia specialist, on an individual basis RICE • Not particulate/grainy, sticky or glutinous

IDDSI Fork Pressure Test

6 SOFT

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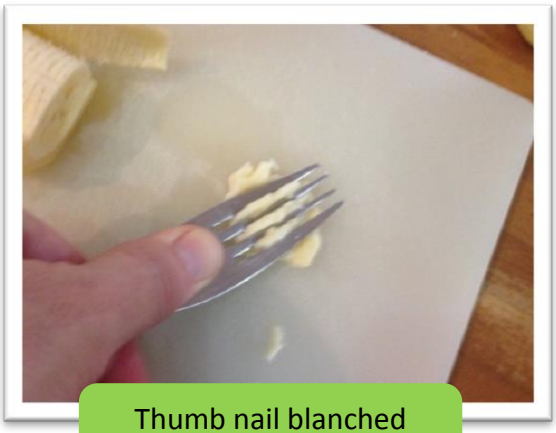

Thumb nail blanched to white

Sample squashes and does not return to its original shape when pressure is released

7 REGULAR

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Description/characteristics There are NO texture restrictions at this level	• Normal, everyday foods of various textures that are developmentally and age appropriate • Any method may be used to eat these foods • Foods may be hard and crunchy or naturally soft • Includes hard, tough, chewy, fibrous, stringy, dry, crispy, crunchy, or crumbly bits • Includes food that contains pips, seeds, pith inside skin, husks or bones
Physiological rationale for this level of thickness	• Ability to bite hard or soft foods and chew them for long enough that they form a soft cohesive ball/bolus that is 'swallow ready' • An ability to chew all food textures without tiring easily • An ability to remove bone or gristle that cannot be swallowing safely from the mouth
Testing Method	• N/A

TRANSITIONAL FOODS

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Description/characteristics	• Food that starts as one texture (e.g. firm solid) and changes into another texture specifically when moisture (e.g. water or saliva) is applied, or when a change in temperature occurs (e.g. heating)
Physiological rationale for this level of thickness	• Biting not required • Minimal chewing required • Tongue can be used to break these foods once altered by temperature or with addition of moisture/saliva ❖ May be used for developmental teaching or rehabilitation of chewing skills (e.g. development of chewing in the paediatric population and developmental disability population; rehabilitation of chewing function post stroke)

Testing Method
Fork pressure test
	• After moisture or temperature has been applied, the sample can be easily deformed and does not recover its shape when the force is lifted.
	• Use a sample the size of the thumb nail (~1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. Apply fork pressure using the base of the fork until the thumbnail blanches to white. The sample is a transitional food texture if after removing the fork pressure:
	  • The sample has been squashed and disintegrated and no longer looks like its original state
	  • Or it has melted significantly and no longer looks like its original state (e.g. ice chips).

Spoon pressure test	• As above, using the bowl of the spoon in place of the fork
Chopstick test	• Use a sample the size of the thumb nail (~1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. The sample should be easily broken apart using chopsticks with minimal pressure.
Finger test	• Use a sample the size of the thumb nail (~1.5 cm x 1.5 cm), place 1 ml of water on the sample and wait one minute. The sample will break apart completely by rubbing the sample between the thumb and index finger. The sample will not return to its initial shape.

TRANSITIONAL FOODS

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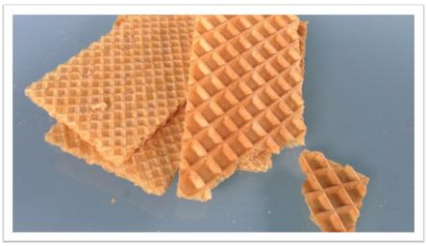
Food Specific or Other examples	This texture may include and is not limited to: • Ice chips • Ice cream/Sherbet if assessed as suitable by a Dysphagia specialist • Japanese Dysphagia Training Jelly sliced 1 mm x 15 mm • Wafers (also includes Religious Communion wafer) • Waffle cones used to hold ice cream • Some biscuits/ cookies/ crackers • Potato crisps – only the mashed type (e.g. Pringles) • Shortbread • Prawn crisps
Specific examples used in paediatric or adult disability dysphagia management	Commercially available foods that are transitional foods textures are shown in pictures below and include but are not limited to: • Veggie Stix™ • Cheeto Puffs™ • Rice Puffs™ • Baby Mum Mums™ • Gerber Graduate Puffs™

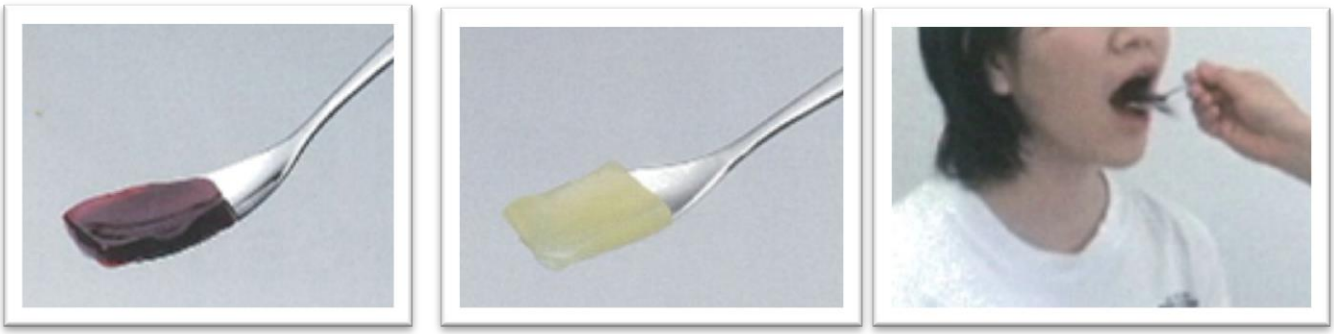
Transitional food *examples*

Cheese puffs



Wafers

Example of Japanese dysphagia training jelly - note size has been cut to 1mm x 15 mm



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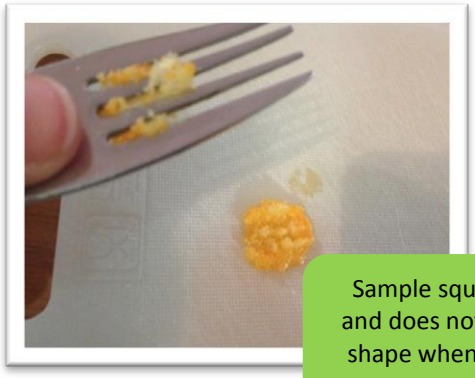
IDDSI Fork Pressure Test

TRANSITIONAL FOODS

- Apply 1 ml of water to sample
- Wait 1 minute

Thumb nail blanched to white



Sample squashes and fractures, and does not return to its original shape when pressure is released

FOOD TEXTURE REQUIREMENTS

A green shaded check mark ☑ in the summary table below indicates a characteristic that is required and acceptable for foods in each level.

A red shaded ☒ in the summary table below indicates a food characteristic that is <u>not</u> acceptable for foods in each level.

Description/Characteristics	3 Liquidised/ Moderately thick	4 Pureed/ Extremely thick	5 Minced and moist	6 Soft
No skin, no crust even after cooking, heating or standing	☑	☑	☑	☑
No separation of thin (watery) liquid	☑	☑	☑	☑
Will hold its shape on a plate, fork or spoon	☒	☑	☑	☑
Soft grainy texture quality	☒	☑	☑	☑
Visible lumps	☒	☒	☑	☑
Can contain soft, smooth, rounded, moist, small (2-4 mm) lumps if tender throughout	☒	☒	☑	☑
Can contain soft, moist large (8-15 mm) lumps if tender throughout	☒	☒	☒	☑

FOOD TEXTURE RESTRICTIONS

IDDSI International Dysphagia Diet Standardisation Initiative
www.iddsi.org

A green shaded check mark ☑ in the summary table below indicates a characteristic that is acceptable and may be included for foods in each level.

A red shaded ☒ in the summary table below indicates a food characteristic that is <u>not</u> acceptable and must be avoided for foods in each level.

Description/Characteristics	3 Liquidised/ Moderately thick	4 Pureed/ Extremely thick	5 Minced and moist	6 Soft	7 Regular
Mixed thin-thick textures (e.g. soup with pieces of food, cereal with milk; bubble tea)	☒	☒	☒	☒	☑
Hard or dry food (e.g. nuts, raw carrot, apple, crackling, hard crusty rolls)	☒	☒	☒	☒	☑
Fibrous or tough (e.g. steak, pineapple)	☒	☒	☒	☒	☑
Chewy (e.g. lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits)	☒	☒	☒	☒	☑
Crispy (e.g. crackling, crisp bacon, cornflakes)	☒	☒	☒	☒	☑
Crunchy (e.g. raw carrot, raw apple, popcorn)	☒	☒	☒	☒	☑
Sharp or spiky (e.g. corn chips)	☒	☒	☒	☒	☑
Crumbly bits (e.g. crumbly dry cakes or biscuits)	☒	☒	☒	☑	☑
Pips, seeds, pith (e.g. apple seeds, orange pith)	☒	☒	☒	☒	☑
Skins or outer shells (e.g. peas, grapes)	☒	☒	☒	☒	☑
Husks (e.g. psyllium, bran)	☒	☒	☒	☒	☑
Skin (e.g. chicken skin, salmon skin)	☒	☒	☒	☒	☑
Bone or gristle (e.g. chicken bones, fish bones)	☒	☒	☒	☒	☑
Round, long shaped foods (e.g. sausage, grapes)	☒	☒	☒	☒	☑
Sticky or Gummy foods (e.g. nut butter, overcooked oatmeal, edible gelatin; Konjac containing jelly, sticky rice cakes)	☒	☒	☒	☒	☑
Stringy foods (e.g. beans, rhubarb)	☒	☒	☒	☒	☑
Hard pieces, skins or crusts formed during cooking or heating	☒	☒	☒	☒	☑
'Floppy' textures (e.g. lettuce, cucumber, baby spinach leaves)	☒	☒	☒	☒	☑
'Juicy' food where the juice separates from the solid in the mouth (e.g. watermelon)	☒	☒	☒	☒	☑

FAQs: Foods

Q: My facility only uses two levels of texture-modified foods; do we have to use all of the IDDSI food levels?

A: No, although the IDDSI framework includes five different levels of increasing food texture modification, there is no expectation that every facility will use all five levels. For example, some aged care facilities may only use Level 7 - Regular, Level 6 -Soft, and Level 4 Puree/Extremely Thick. By labeling the foods in this way, when a patient/client moves from a facility with fewer food levels to a hospital with more food levels, it will be faster, safer and more accurate for health professionals and care staff to provide the appropriate food level.

Q: Won't it be confusing to use the same number to describe a food and a drink?

A: No. The fact that the food and the drink share the same number indicates they have the same flow properties. Whether it is a Level 3 Moderately thick drink or a Level 3 Liquidised soup, the flow properties should be the same.

Q: I've not heard of transitional foods before, what are they?

A: Transitional foods are used predominantly used by paediatric clinicians or clinicians who work with individuals with developmental disability. They refer to foods or substances that change quickly to become easier to chew or swallow with added moisture or a change in temperature. For example, items such as ice cream wafers or some potato crisps are firm in their original state but when moisture (e.g. water or saliva) is added, they break down quickly and easily with tongue to palate pressure. Chewing can be achieved with reduced effort and likelihood of fatigue. Ice chips also fall into this category, starting as firm solids that are slippery and easy to swallow, but melt at body temperature. In Japan, Japanese Training Jelly is firm yet slippery to facilitate swallowing. Often these foods or substances are used for therapeutic rehabilitation of chewing or swallowing due to their unique textural qualities.

Q: Jelly is typically not included on dysphagia diets, why is Japanese Dysphagia Training Jelly included (Transitional Foods)?

A: Jelly made with gelatin is typically not included in dysphagia diets as it often breaks apart in the mouth due to the increase in temperature from cold to warmer body temperature making it more challenging to swallow. Jelly, however, can be made from a number of different substances. Jelly made with konjac (also known as glucomanan, conjac, Konnyaku, taro powder or yam powder) has been associated with choking deaths that have resulted in the ban of jelly cups containing konjac in a number of countries around the world (Japanese Food Safety Commission, 2010). However, in Japan jelly made with carrageenan and locust bean gum has been shown to hold together in the oral phase and provide a slippery texture that has been shown to facilitate the rehabilitation of swallowing function. In addition to these textural properties, the Japanese Dysphagia Training jelly is specifically cut to a size that facilitates swallowing whilst avoiding choking risk (1 x15 mm).

Q: My facility tends to serve sandwiches with moist, minced fillings. Can this be included in the minced and moist (level 5)?

A: This needs to be addressed on a case-by-case basis by a dysphagia specialist. Bread cannot be fork mashed because of the fibres within it, so it does not fit the definition of a texture that is suitable for Level 5 Minced & Moist. Softened bread, e.g. gelled bread may be a suitable alternative.

Q: Bread provides an opportunity to offer patients variety. Why is it considered a choking risk?

A: Bread and sandwiches require the ability to both bite and chew. Although bread looks and feels soft, the chewing stress required to safely change bread into a soft cohesive ball is similar to that required to chew peanuts. For this reason, individuals who tire easily during chewing may find bread difficult to chew to a small enough size to be swallow-safe. Bread contains many fibres and this can be easily shown as it cannot be fork mashed. Bread also requires softening with saliva for effective chewing. For individuals with dry mouth, such as that associated as side effects of medication, bread is often not adequately wetted for swallowing resulting in food sticking in the throat. Bread does not dissolve when wet but does become sticky. Sticky or adhesive foods are a choking risk. The ability to safely manage bread and sandwiches can be assessed on a case-by-case basis by a dysphagia specialist.

Q: Why are 'mixed consistency' or 'dual consistency' or 'two phase' foods considered a choking risk?

A: Mixed or dual consistency foods by definition include both solids and liquids (e.g. vegetables in a soup broth). During oral preparation, this requires the ability to manage both components. Research has shown that the liquid component of these foods spills into the pharynx and collects there during chewing of the solid component (Saitoh et al., 2007). This may represent an increased aspiration risk in people with dysphagia. In some cases, the liquid is swallowed first so that the solid portion can be chewed, however this requires the ability to safely separate the liquid and solid components in the mouth. Considerable oral skill is required to manipulate and control "mixed" or "dual" consistency foods and for this reason they are considered particularly challenging and a choking risk.

Q: Should patients with missing teeth or dentures be placed on IDDSI diets or regular diets?

A: Individuals with missing teeth or dentures may benefit from an IDDSI diet to reduce risk associated with choking. Missing teeth, ill-fitting dentures and dental disease are correlated with autopsy results of sudden choking deaths (Berzlanovich et al., 2005; Wick et al., 2006). Dentures have been associated with poor chewing strength and poorly chewed boluses. People with removable dentures achieve only 25% of the chewing effectiveness of individuals with their own teeth. Research suggests that older adults with fewer than 13 teeth have an increased risk of coughing and choking (Okamoto et al., 2012).

Q: Although they are not foods, people are also asked to swallow pills, capsules and tablets. What diet levels would include an expectation to be able swallow whole tablets or capsules and for which diet levels would tablets and capsules pose a choking risk?

A: The ability to swallow pills or tablets and capsules varies from healthy person to healthy person and is also a concern for choking risk for people with swallowing difficulties. From a food texture perspective, individuals who are able to safely manage Level 7 Regular food and Level 6 Soft foods may be able to manage solid dose medications like tablets and capsules. Pills, tablets and capsules would be considered a choking risk for people who require Level 4 Pureed/Extremely Thick, however. Ability to swallow whole pills, tablets and capsules can be assessed on a case-by-case basis by a dysphagia specialist. In the event that the person is not able to swallow whole pills, tablets or capsules consult a Pharmacist for advice. Cutting or crushing of medication is NOT recommended, and may have critical adverse effects. Always seek advice from a Pharmacist before altering medication.

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