

A KITCHEN MANUAL FOR PREPARATION OF MODIFIED TEXTURE DIETS

(3rd Edition including IDDSI recommendations)



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This third edition of 'A Kitchen Manual for Preparation of Modified Texture Diets' has been updated to meet the requirements of the International Dysphagia Diet Standardisation Initiative (IDDSI). Standards for modified texture foods and fluids used previously in this publication (editions 1&2) now comply with the IDDSI Framework, and no alterations to the IDDSI Framework have been suggested. Diagrams provided by IDDSI have not been altered. Further information on IDDSI standards is available on the website. (<https://iddsi.org/resources/>).

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.

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Foreword

This third edition of the book 'A Kitchen Manual' has been written in times of change. The original goals of the book were to reflect current practices, improve presentation of meals and ensure safety for people with Dysphagia.

The International Dysphagia Diet Standardisation Initiative has taken this further and developed the testing as well as standardising terminology to ensure safety for people with Dysphagia. This edition of the Kitchen Manual is an introduction to the changes.

The ideas and recipes will still need to go through the testing processes. Our hospitals and care homes have become places where patients can expect a range of personnel involved in their care. In the past, particularly in institutional care, staff tended to be the same from day to day. Shorter times in hospital have meant that the care has had to be standardised with extra documentation and attention to ensure safety.

The patient with a chewing and swallowing problem, resulting from a neurological event or disease or damage to the throat area, will be investigated using Barium Swallow and other techniques to give more certainty to the prescription of the diet. The Speech Pathologist will prescribe a pathway to the safest texture of meals.

If improvement occurs, further rehabilitation would be the way forward. If the patient is discharged to a care home on modified texture they can expect to be given a safe diet as prescribed by the Speech Pathologist.

Previous editions of this Manual contained the practice of modification at the table - meant to be by staff who are well known by and familiar with the clients. Training in the new standards will clarify the responsibilities of all staff. Resources for this training are available on the website <https://iddsi.org/resources/>

Each item of food has to pass the required tests in the kitchen and dining room.- see implementation on the website with available videos and webinar recordings.

Section 2 in this book gives a summary of the individual diets and testing methods, as documented on the IDDSI Website.

Section 1

Introduction to the Presentation and Management of Dysphagia in a Patient Population.

Swallowing is as necessary to life as breathing. We swallow on average 1,200 times a day without even thinking about it. Difficulty with swallowing is called Dysphagia, and recent estimates report 22% of the general population are known to have some degree of swallowing impairment. Dysphagia can be stressful, unpleasant and unsafe.

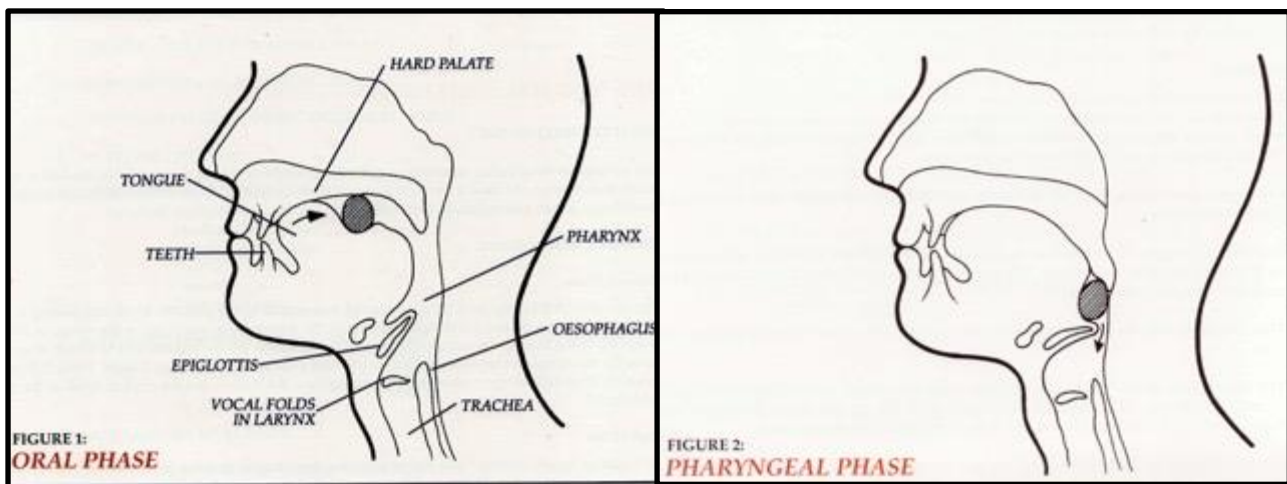
Swallowing can be divided into phases.

Psychic phase

This is where cooking smells from foods being prepared arouse thinking about the meal, and digestive juices begin to flow. The sight of the food contributes further to this process and saliva is produced in readiness to assist chewing.

Oral phase

Food is cut up and then bitten. In the mouth it is chewed, mixed with saliva and formed into a mass bolus ready to swallow. The tongue collects the food, moves it to the back of the mouth where the swallow reflex is generated. The tongue then propels the food into the throat (pharynx).



From Martin J. & Backhouse J., 1993, *Good Looking, Easy Swallowing*. Julia Farr Foundation, Adelaide.

Pharyngeal phase

The muscles in the throat assist in moving the food mass through the throat, past the entrance to the airway and into the oesophagus (or gullet). At the same time the soft palate closes preventing food or fluid from returning to the mouth, or entering the nose. The voice box (larynx) then moves forwards and upwards to prevent food or liquid passing into the airway.

Oesophageal phase

Once the food mass is in the oesophagus, rhythmic contractions push the food towards the stomach.

Gastric phase

At the end of the oesophagus and just before the stomach, there is a valve called the oesophageal sphincter. This valve relaxes to allow the food mass to enter the stomach. The valve then closes

to keep the food in the stomach. Food mixes with gastric acid in the stomach in preparation for digestion.

Problems can arise with the nerves or muscles, including difficulty with co-ordination from a stroke, other neurological diseases as well as ageing. Any of these areas may lead to difficulties in eating or drinking. Damage from radiotherapy for neck and head cancer also cause swallowing problems.

Recognition of simultaneous swallowing problems across the phases mentioned above (multiphase dysphagia) may require a number of specialists for diagnosis and management.

Symptoms of Dysphagia

These can be obvious or not so obvious, and include:

- Difficulty with, or prolonged, chewing.
- Bringing food back up (sometimes through the nose).
- Needing several attempts to swallow.
- Drooling of food or fluid.
- Feeling of food sticking in throat or chest.
- Persistent throat clearing.
- Frequent coughing or spluttering during or immediately after eating or drinking with recurrent chest infections.

Dysphagia may be temporary or long term. It has many causes including:

- Neurological (to do with nerves) e.g. brain injury, stroke, dementia, cerebral palsy.
- Oesophageal reflux.
- Mechanical e.g. abnormal structure resulting from cancer, including from Human Papilloma Virus (HPV).
- Surgery in the mouth, or radiotherapy for cancer, causing swelling.
- Medications.

Malnutrition

People with significant dysphagia can be expected to lose some weight and consequently feel and look unwell. Chewing and swallowing difficulties with meals result in fatigue because of the effort involved. It is commonsense to provide good looking, extra small, hard to resist, 'energy dense' items to make it easier to maintain weight.

These will need to meet recognised standards for the prescribed modified texture foods as well as standards for nutritional adequacy. Supplementing recipes with the addition of full cream or skim milk (fresh or powdered) eggs, cream (thick, thin, sour, fraiche, mascarpone), olive oil, margarine or butter should be encouraged. The dietitian will guide modification when other clinical diagnosis need to be taken into account. There are nutrition supplements available as powders and liquids, to add to the diet to meet additional protein/energy needs. There is strong evidence that these will help to meet nutrition needs. See your dietitian for products available. If thickened supplements are needed these are best supplied as 'Ready To Drink Products'. These are currently available from Flavour Creations website (flavourcreations.com.au) worldwide. These products are based on IDDSI framework standards including colour coding. Nestlé Healthcare Nutrition also supply liquid supplements that have IDDSI levels as a guide.

Which professionals are involved in diagnosis and treatment of Dysphagia?

Often the environment is different for those people who are in care and need help with their meals. A number of Health Practitioners, as well as family and significant others, can be involved in the care of the person. Family at home may be the first to notice eating difficulties with

subsequent weight loss. The **General Practitioner** will be able to advise on appropriate Specialists to provide accurate diagnoses of the type of dysphagia suspected.

Speech Pathologists are central to the management of oral-pharyngeal dysphagia and will prescribe the type of food, fluids and supplements for safe eating. A team approach is recommended to ensure holistic care including medication and physical environment adjustments. The team may include **Medical Specialists, Nursing Staff, Dentists, Dietitian, Pharmacist, Occupational Therapist, and Physiotherapist.**

A decision about independence with managing to feed adequate quantities of meals is of basic importance. Separation of the food on the plate to give a fork or spoon size portion is a particular skill to be assessed. In general, presentations with shape and height will need to be managed by the patient. Tests may show the food meets the texture standard, but the patient needs to be able to manage to feed themselves. Documentation for dining room staff is essential. Food services play a central role in provision of meals for clients in hospital or residential care. Food technologists are a useful resource for the management of sensory properties of food. Additives may be needed to improve texture in meal preparation and storage.

Chefs have a major role in food modification. Increasingly, they are having to use new products to create gluten free meals and 'freeze thaw' products with modified starches and gum thickeners to stabilise and improve texture of meals.

Individual people with dysphagia will differ in terms of both their dietary requirements, and the modifications required to avoid problems with swallowing. Meal textures will have to be modified accordingly, to meet one of seven of the current textures recommended:

'Regular Easy To Chew' (7) ; 'Soft & Bite-Sized' (6) ; 'Minced & Moist' (5); 'Puréed' (4) (also defined as a fluid 'Extremely Thick'); 'Liquidised' (3) (also defined as a fluid 'Moderately Thick') .

(See Section 2 for a detailed description of these diets).

The Speech Pathologist is the person with the skills and responsibility to prescribe the diet and fluids required, and to recommend both the texture, and any meal instructions with regard to feeding. These clinical decisions often depend on the cognitive awareness of the person identified as having a chewing and/or swallowing problem. A person aware of their swallowing problem and able to make appropriate decisions about whether the food in front of them is of a texture that is safe to swallow, is different from a person who is not able to make those types of decisions. Training for staff on the management of dysphagia can be assisted by access to the website of the **International Dysphagia Diet Standardisation Initiative (IDDSI)**, where there are relevant videos and online webinars. Care staff and cooks may often not have had the experience needed to prepare modified texture diets, and training is essential. This will take time, and commitment from relevant **Senior Management Staff** as an initial requirement. This is where 'Duty of Care' becomes an important part of the equation and discussion.

Dining room staff and carers need to be trained in feeding, as well as in keeping an eye on what is being served to patients. Of course, individual dislikes of clients for particular items will play a part in their menu choices. Well presented food from the kitchen, served with appropriate sauces, improves the initial visual meal appeal in a variety of ways. Recognition of items served using smell, colour, shape, taste, is important. Sauces improve salivation, and all of these considerations will increase quality of life for the patient. This can be particularly poignant in the Aged Care population, where life long eating patterns have been set, chewing and swallowing difficulties are common, and cognitive impairment may be variable.

Again, the Speech Pathologist is in the front line for recommendations. However, a rehabilitation facility needs a complex mix of professional skill to manage improvements in chewing and swallowing. Family members can become an important part of the team, and emphasising the need for texture requirements is essential for ongoing safety, particularly if care is shared between home and the care facility . The global initiative from IDDSI to improve

the lives of people with dysphagia has been achieved by creating standardisation and testing methods available to everyone.

Section 2

Food Textures and Thickness Standards

Standards have recently been redefined in Australia, using recommendations of the International Dysphagia Diet Standardisation Initiative. This has led to an agreed terminology for the prescribed texture of modified diets and thickened fluids to be used in Australia.

Textures of meals are graded according to the difficulty of chewing and swallowing of individual items of food or fluid.

The following pages provide a framework of terminology and definitions including reasons for use and testing methods to be used. Although here they are described as handouts, they provide essential reading for staff as well as patients. Posters are available from the IDDSI website to illustrate and assist implementation, including testing methods.

Promotion of these standards is essential for creating menus for modified texture diets to ensure consistent practice across the health sector and to avoid confusion over terms.

The new classifications are numbered from 0-7 and the groups overlap between fluids and puréed foods that share similar textural properties.

Each number has a standard colour to be used for product labelling by industry who manufacture standard items.

The following pages are for adults and can be used as handouts starting with the least modified foods as number 7.

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What is the IDDSI Framework?

Some people have problems feeding, chewing or swallowing. This means some foods and drinks are a danger for choking or for material to 'go down the wrong way' and into the airway.

The International Dysphagia Diet Standardisation Initiative (IDDSI), through consultation and following best practice principles, has developed a global standardized way of describing foods and drinks that are safest for people with feeding, chewing or swallowing problems. The Framework can be used for people of all ages, in all care settings and can be applied to all cultures.

Simple measurement methods are included in the Framework. These measurement methods confirm the IDDSI Level a food or drink belongs to, or if it is unsafe for people with feeding, chewing or swallowing problems.

The measurement methods are included on our handouts. We created these handouts in consultation with clinicians and patients. The handouts can be used by people who have feeding, chewing or swallowing problems, their caregivers and clinicians.

You can find out more about IDDSI at www.iddsi.org



My IDDSI **food** level is  My IDDSI **drink** level is 

Clinician's Name: _____

Clinician's Contact Number: _____



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7 REGULAR



Level 7 Regular for Adults

What is this food texture level?

Level 7 – Regular Foods:

- ✓ Normal, everyday foods of various textures that are developmentally and age appropriate
- ✓ Ability to 'bite off' pieces of food is required
- ✓ Chewing ability is required for hard *and* soft food
- ✓ Ability to chew all types of food textures without tiring easily
- ✓ May include 'mixed consistency' foods (for example, cereal with milk or soup with vegetables pieces)
- ✓ Includes sandwiches



Why is this food texture level used for adults?

Level 7 – Regular food may be used if you **do not** have problems with chewing or swallowing that would increase your risk for choking. Serve food as normal without restriction on the size of the pieces or the texture of the food.

How do I test my food to make sure it is Level 7 Regular?

There are no specific tests for Level 7 Regular



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REGULAR EASY TO CHEW



EXAMPLES of Level 7 Regular *Easy to Chew* food for Adults

- * **Meat** cooked until tender. If you cannot serve soft and tender, serve as Minced and Moist
- * **Fish** cooked soft enough to break apart easily with the side of a fork or spoon
- * **Fruit** are soft enough to break apart into smaller pieces with the side of a fork or spoon (drain any excess liquid). Do not use the fibrous parts of fruit (for example, the white parts of an orange). Be careful when eating fruit with a high water content, where the juice separates from the solid in the mouth during chewing (for example, fruits like watermelon or other melons)
- * **Vegetables** are steamed or boiled until tender. Stir fried vegetables may be too firm for this level
- * **Cereal** is served with texture softened. Drain excess liquid before serving
- * **Check with your clinician for direction about bread and sandwiches (and appropriate sandwich fillings)**
- * **Rice** does not have any special cooking requirements at this level



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See videos of the IDDSI Fork Pressure Test at www.IDDSI.org/framework/food-testing-methods/

Thumbnail blanches white

Must be able to break food apart easily with the side of a fork or spoon

Easy to Chew foods must break apart easily and pass Fork Pressure Test!

IDDSI Fork Pressure Test

To make sure the food is soft enough, press down on the fork until the thumbnail blanches to white, then lift the fork to see that the food is completely squashed and does not regain its shape

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REGULAR EASY TO CHEW



Avoid these food textures for adults who choose
Level 7 Regular *Easy to Chew*

| Food characteristic to AVOID | Examples of foods to AVOID |
|------------------------------|--|
| Hard or dry food | Nuts, raw vegetables (e.g. carrot, cauliflower, broccoli), dry cakes, bread, dry cereal |
| Tough or fibrous foods | Steak, pineapple |
| Chewy | Lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits, sticky foods |
| Crispy | Crackling, crisp bacon, cornflakes |
| Crunchy food | Raw carrot, raw apple, popcorn |
| Sharp or spiky | Corn chips/crisps |
| Pips, seeds | Apple seeds, pumpkin seeds, white of orange |
| Bone or gristle | Chicken bones, fish bones, other bones, meat with gristle |
| Sticky or gummy food | Edible gelatin, konjac containing jelly, sticky rice cakes |
| Stringy food | Beans, rhubarb |
| Extra Clinician notes | |
| | |

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6 SOFT & BITE-SIZED



Level 6 Soft & Bite-Sized for Adults

What is this food texture level?

Level 6 – Soft & Bite-Sized Foods:

- ✓ Soft, tender and moist, but with no thin liquid leaking/dripping from the food
- ✓ Ability to 'bite off' a piece of food is *not* required
- ✓ Ability to chew 'bite-sized' pieces so that they are safe to swallow *is required*
- ✓ 'Bite-sized' pieces no bigger than 1.5cm x 1.5cm in size
- ✓ Food can be mashed/broken down with pressure from fork
- ✓ A knife is *not* required to cut this food



Why is this food texture level used for adults?

Level 6 – Soft & Bite-Sized food may be used if you are not able to bite off pieces of food safely but are able to chew bite-sized pieces down into little pieces that are safe to swallow. Soft & Bite-Sized foods need a moderate amount of chewing, for the tongue to 'collect' the food into a ball and bring it to the back of the mouth for swallowing. The pieces are 'bite-sized' to reduce choking risk. If you notice the food pieces are not being chewed well though, please contact your clinician to make sure you are on the correct food texture to reduce choking risk. Soft & Bite-Sized foods are eaten using a fork, spoon or chopsticks.

How do I test my food to make sure it is Level 6 Soft & Bite-Sized?

It is safest to test Soft & Bite-Sized food using the IDDSI Fork Pressure test.

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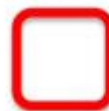
See videos of the IDDSI Fork Pressure Test at www.IDDSI.org/framework/food-testing-methods/

IDDSI Fork Pressure Test

For **adults** the lump size is *no bigger than 1.5cm x 1.5cm*, which is about **the width** of a standard dinner fork.

To make sure the food is soft enough, press down on the fork until the thumbnail blanches to white, then lift the fork to see that the food is completely squashed and does not regain its shape

No bigger than 1.5cm x 1.5cm bite size for adults



Soft & Bite-Sized food must pass both size and softness tests!



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6 SOFT & BITE-SIZED



EXAMPLES of Level 6 Soft & Bite-Sized Food for Adults

- * **Meat** cooked tender and chopped so pieces are no bigger than 1.5cmx1.5cm lump size. If cannot serve soft and tender, serve as Minced and Moist
- * **Fish** cooked soft enough to break and serve in pieces no bigger than 1.5cmx1.5cm
- * **Fruit** soft and chopped to pieces no bigger than 1.5cmx1.5cm pieces (drain any excess liquid). Do not use the fibrous parts of fruit (for example, the white parts of an orange). Be extra careful if you are eating fruit with a high water content, where the juice separates from the solid in the mouth during chewing (for instance, fruits like watermelon or other melons)
- * **Vegetables** steamed or boiled with final cooked size no bigger than 1.5cmx1.5cm. (Stir fried vegetables are *too firm* and are *not* suitable)
- * **Cereal** served with pieces no bigger than 1.5cmx1.5cm, with their texture fully softened. Drain excess liquid before serving
- * **NO REGULAR DRY BREAD** due to high choking risk! See <https://www.youtube.com/channel/UC0I9FDjwJR0L5svIGCvIqHA/featured?reload=9> for instructions on how to make a Level 5 Minced & Moist sandwich, as this is also suitable for use on Soft & Bite-Sized diet
- * **Rice** requires a sauce to moisten it and hold it together. Rice should *not* be sticky or gluey and should *not* separate into individual grains when cooked and served. May require a thick, smooth, non-pouring sauce to moisten and hold the rice together



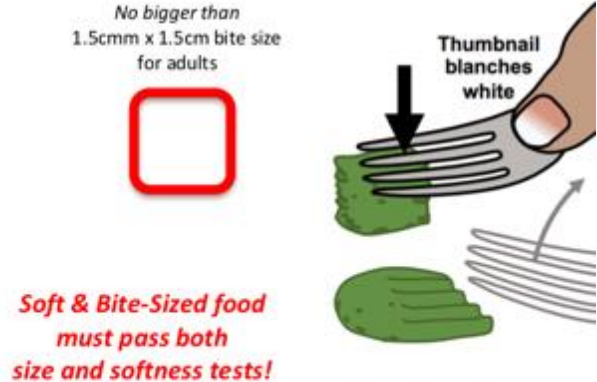
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See videos of the IDDSI Fork Pressure Test at www.IDDSI.org/framework/food-testing-methods/

IDDSI Fork Pressure Test

For **adults** the lump size is **no bigger than 1.5cm x 1.5cm**, which is about the **width** of a standard dinner fork.

To make sure the food is soft enough, press down on the fork until the thumbnail blanches to white, then lift the fork to see that the food is completely squashed and does not regain its shape



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6 SOFT & BITE-SIZED



For safety, **AVOID** these food textures that pose a choking risk for adults who need Level 6 Soft & Bite-Sized Food

| Food characteristic to AVOID | Examples of foods to AVOID |
|--|--|
| Mixed thin + thick textures | Soup with pieces of food, cereal with milk |
| Hard or dry food | Nuts, raw vegetables (e.g. carrot, cauliflower, broccoli); dry cakes, bread, dry cereal |
| Tough or fibrous foods | Steak; pineapple |
| Chewy | Lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits, sticky foods |
| Crispy | Crackling, crisp bacon, cornflakes |
| Crunchy food | Raw carrot, raw apple, popcorn |
| Sharp or spiky | Corn chips and crisps |
| Crumbly bits | Dry cake crumble, dry biscuits (add sauce to make these suitable) |
| Pips, seeds | Apple seeds, pumpkin seeds, white of orange |
| Food with skins or outer shell | Peas, grapes, chicken skin, salmon skin, sausage skin |
| Foods with husks | Corn, shredded wheat, bran |
| Bone or gristle | Chicken bones, fish bones, other bones, meat with gristle |
| Round, long shaped food | Sausage, grape |
| Sticky or gummy food | Nut butter, overcooked oatmeal/porridge, edible gelatin, konjac containing jelly, sticky rice cakes |
| Stringy food | Beans, rhubarb |
| Floppy foods | Lettuce, cucumber, uncooked baby spinach leaves |
| Crust formed during cooking or heating | Crust or skin that forms on food during cooking or after heating, for example, cheese topping; mashed potato |
| 'Floppy' food | Lettuce, cucumber, baby spinach leaves |
| 'Juicy' food | Where juice separates from the food piece in the mouth, for example watermelon |
| Large or hard lumps of food | Casserole pieces larger than 1.5cmx1.5cm, fruit, vegetable, meat, pasta or other food pieces larger than 1.5cmx1.5cm |
| Extra Clinician notes | |
| | |

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5 MINCED & MOIST



Level 5 Minced & Moist Food for Adults

What is this food texture level?

Level 5 – Minced & Moist Foods:

- ✓ Soft and moist, but with no liquid leaking/dripping from the food
- ✓ Biting is **not** required
- ✓ Minimal chewing required
- ✓ Lumps of 4mm in size
- ✓ Lumps can be mashed with the tongue
- ✓ Food can be easily mashed with just a little pressure from a fork
- ✓ Should be able to scoop food onto a fork, with no liquid dripping and no crumbs falling off the fork



Why is this food texture level used for adults?

Level 5 – Minced & Moist food may be used if you are not able to bite off pieces of food safely but have some basic chewing ability. Some people may be able to bite off a large piece of food, but are not able to chew it down into little pieces that are safe to swallow. Minced & Moist foods only need a small amount of chewing and for the tongue to ‘collect’ the food into a ball and bring it to the back of the mouth for swallowing. It’s important that Minced & Moist foods are not too sticky because this can cause the food to stick to the cheeks, teeth, roof of the mouth or in the throat. These foods are eaten using a spoon or fork.

How do I test my food to make sure it is Level 5 Minced & Moist?

It is safest to test Minced & Moist food using the IDDSI Fork Drip Test *and* the IDDSI Spoon Tilt Test.

See videos of the IDDSI Fork Test and IDDSI Spoon Tilt Test at www.IDDSI.org/framework/food-testing-methods/

IDDSI Fork Test
For *adults* the lump size is **4mm**, which is about the gap between the prongs of a standard dinner fork.

ADULT 4mm
CHILD 2mm

Minced & Moist food must pass both tests!

IDDSI Spoon Tilt Test
Sample holds its shape on the spoon and falls off fairly easily if the spoon is tilted or lightly flicked

Sample should **not** be firm or sticky

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5 MINCED & MOIST



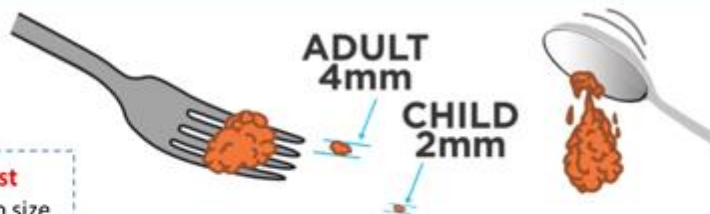
EXAMPLES of Level 5 Minced & Moist Food for Adults

- * **Meat** served finely minced or chopped to 4mm lump size served in a thick, smooth, non-pouring sauce or gravy
- * **Fish** served finely mashed or chopped to 4mm lump size served in a thick, smooth, non-pouring sauce or gravy
- * **Fruit** served finely mashed or use a blender to finely chop it into to 4mm lump size pieces (drain any excess liquid)
- * **Vegetables** cooked, finely mashed or use a blender to finely chop it into to 4mm lump size pieces (drain any excess liquid)
- * **Cereal** served thick with small soft 4mm lumps. Any milk/fluid should not separate from the cereal. Drain any excess liquid before serving
- * **Rice** requires a sauce to moisten it and hold it together. Rice should *not* be sticky or gluey and should *not* separate into individual grains when cooked and served. May require a thick, smooth, non-pouring sauce to moisten and hold the rice together
- * **NO REGULAR DRY BREAD** due to high choking risk!
See <https://www.youtube.com/channel/UC0I9FDiwJR0L5svIGCvIqHA/featured?reload=9> for instructions on how to make a Level 5 Minced & Moist sandwich



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See videos of the IDDSI Fork Test and IDDSI Spoon Tilt Test at www.IDDSI.org/framework/food-testing-methods/



IDDSI Fork Test
For *adults* the lump size is *4mm*, which is about the gap between the prongs of a standard dinner fork

IDDSI Spoon Tilt Test
Sample holds its shape on the spoon and falls off fairly easily if the spoon is tilted or lightly flicked
Sample should *not* be firm or sticky

Minced & Moist food must pass both tests!

Intended for general information only
Please consult with your health care professional for specific advice for your needs



5 MINCED & MOIST



For safety, **AVOID** these food textures that pose a choking risk for adults who need Level 5 Minced & Moist Food

| Food characteristic to AVOID | Examples of foods to AVOID |
|--|--|
| Mixed thin + thick textures | Soup with pieces of food, cereal with milk |
| Hard or dry food | Nuts, raw vegetables (e.g. carrot, cauliflower, broccoli), dry cakes, bread, dry cereal |
| Tough or fibrous foods | Steak, pineapple |
| Chewy | Lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits, sticky foods |
| Crispy | Crackling; crisp bacon, cornflakes |
| Crunchy food | Raw carrot, raw apple, popcorn |
| Sharp or spiky | Corn chips and crisps |
| Crumbly bits | Dry cake crumble, dry biscuits |
| Pips, seeds | Apple seeds, pumpkin seeds, white of orange |
| Food with skins or outer shell | Peas, grapes, chicken skin, salmon skin, sausage skin |
| Foods with husks | Corn, shredded wheat, bran |
| Bone or gristle | Chicken bones, fish bones, other bones, meat with gristle |
| Round, long shaped food | Sausage, grape |
| Sticky or gummy food | Nut butter, overcooked oatmeal/porridge, edible gelatin, konjac containing jelly, sticky rice cakes |
| Stringy food | Beans, rhubarb |
| Floppy foods | Lettuce, cucumber, uncooked baby spinach leaves |
| Crust formed during cooking or heating | Crust or skin that forms on food during cooking or after heating, for example cheese topping, mashed potato |
| 'Floppy' food | Lettuce, cucumber, baby spinach leaves |
| 'Juicy' food | Where juice separates from the food piece in the mouth, for example watermelon |
| Large or hard lumps of food | Casserole pieces larger than 4mmx4mmx15mm; fruit, vegetable, meat or other food pieces larger than 4mmx4mmx15mm |
| Extra Clinician notes | |
| | |

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4

EXTREMELY THICK



Level 4 Extremely Thick Liquids for Adults

What is this thickness level?

Level 4 – Extremely Thick drinks:

- ✓ Are usually eaten with a spoon
- ✓ Cannot be drunk from a cup or sucked through a straw
- ✓ Do **not** require chewing
- ✓ Have a smooth texture with no lumps
- ✓ Hold shape on a spoon
- ✓ Fall off a spoon in a single spoonful when tilted
- ✓ Are **not** sticky



Why is this thickness level used for adults?

Level 4 - Extremely Thick drinks may be used if your tongue control is not good enough to manage Moderately Thick, Mildly Thick, Slightly Thick or Thin drinks. Extremely Thick drinks allows more time for the tongue to “hold and move” the liquid. It’s important that Extremely Thick drinks are not too sticky because this can cause the food to stick to the cheeks, teeth, roof of the mouth or in the throat. Extremely Thick drinks are best taken using a spoon.

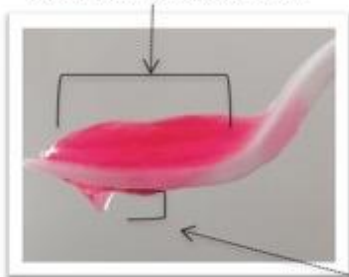
How do I measure my liquid or drink to make sure it is Level 4 Extremely thick?

It is safest to measure Extremely Thick drinks using the IDDSI Fork Drip Test **and** the IDDSI Spoon Tilt Test.

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See videos of the IDDSI Fork Drip Test and IDDSI Spoon Tilt Test at www.IDDSI.org/framework/food-testing-methods/

Extremely thick liquids sit in a mound or pile above the fork



IDDSI Fork Drip Test
Liquid does **not** dollop, or drip continuously through the fork prongs

A small amount may flow through and form a tail below the fork



IDDSI Spoon Tilt Test
Sample holds its shape on the spoon and falls off fairly easily if the spoon is tilted or lightly flicked
Sample should **not** be firm or sticky

Extremely Thick drink or liquid must pass both tests!

Intended for general information only. Please consult with your health care professional for specific advice for your needs



4 PUREED



Level 4 Pureed Food for Adults

What is this food texture level?

Level 4 – Pureed Foods:

- ✓ Are usually eaten with a spoon
- ✓ Do **not** require chewing
- ✓ Have a smooth texture with no lumps
- ✓ Hold shape on a spoon
- ✓ Fall off a spoon in a single spoonful when tilted
- ✓ Are **not** sticky
- ✓ Liquid (like sauces) must not separate from solids



Why is this food texture level used for adults?

Level 4 – Pureed Food may be used if you are not able to bite or chew food or if your tongue control is reduced. Pureed foods only need the tongue to be able to move forward and back to bring the food to the back of the mouth for swallowing.

It's important that puree foods are not too sticky because this can cause the food to stick to the cheeks, teeth, roof of the mouth or in the throat. Pureed foods are best eaten using a spoon.

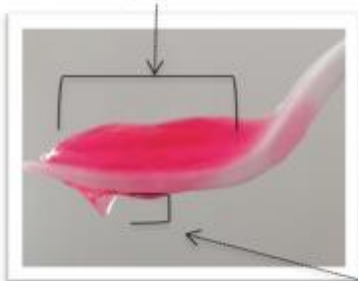
How do I test my food to make sure it is Level 4 Pureed?

It is safest to test Pureed Food using the IDDSI Fork Drip Test **and** the IDDSI Spoon Tilt Test.

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See videos of the IDDSI Fork Drip Test and IDDSI Spoon Tilt Test at www.IDDSI.org/framework/food-testing-methods/

Extremely thick liquids sit in a mound or pile above the fork



IDDSI Fork Drip Test
Liquid does **not** dollop, or drip continuously through the fork prongs

A small amount may flow through and form a tail below the fork



IDDSI Spoon Tilt Test

Sample holds its shape on the spoon and falls off fairly easily if the spoon is tilted or lightly flicked

Sample should **not** be firm or sticky

Pureed food must pass both tests!

Intended for general information only
Please consult with your health care professional for specific advice for your needs



4 PUREED



For safety, **AVOID** these food textures that pose a choking risk for adults who need Level 4 Pureed food

| Food characteristic to AVOID | Examples of foods to AVOID |
|--|--|
| Mixed thin + thick textures | Soup with pieces of food, cereal with milk |
| Hard or dry food | Nuts, raw vegetables (e.g. carrot, cauliflower, broccoli), dry cakes, bread, dry cereal |
| Tough or fibrous foods | Steak, pineapple |
| Chewy | Lollies/candies/sweets, cheese chunks, marshmallows, chewing gum, sticky mashed potato, dried fruits, sticky foods |
| Crispy | Crackling, crisp bacon, cornflakes |
| Crunchy food | Raw carrot, raw apple, popcorn |
| Sharp or spiky | Corn chips and crisps |
| Crumbly bits | Dry cake crumble, dry biscuits |
| Pips, seeds | Apple seeds, pumpkin seeds, white of an orange |
| Food with skins or outer shell | Peas, grapes, chicken skin, salmon skin, sausage skin |
| Foods with husks | Corn, shredded wheat, bran |
| Bone or gristle | Chicken bones, fish bones, other bones, meat with gristle |
| Round, long shaped food | Sausage, grape |
| Sticky or gummy food | Nut butter; overcooked oatmeal/porridge, edible gelatin, konjac containing jelly, sticky rice cakes |
| Stringy food | Beans, rhubarb |
| Floppy foods | Lettuce, cucumber, uncooked baby spinach leaves |
| Crust formed during cooking or heating | Crust or skin that forms on food during cooking or after heating, for example, cheese topping, mashed potato |
| 'Floppy' food | Lettuce, cucumber, baby spinach leaves |
| 'Juicy' food | Where juice separates from the food piece in the mouth, for example watermelon |
| Visible lumps | Lumps in pureed food or yoghurt |
| Extra Clinician notes | |
| | |

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3 LIQUIDISED



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Use of Level 3 Liquidised Food for Adults

What is this thickness level?

Level 3 – Liquidised Food:

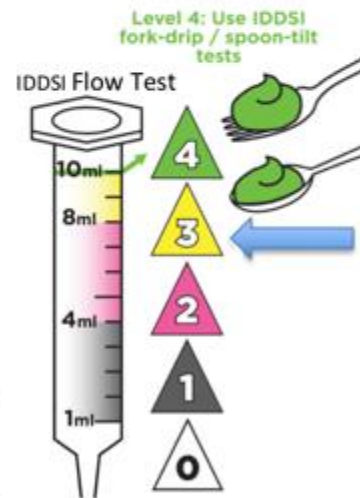
- ✓ Can be eaten with a spoon or drunk from a cup
- ✓ **Cannot** be eaten with a fork because it drips through the fork prongs
- ✓ Has a smooth texture with no 'bits' (lumps, fibers, husk, bits of shell or skin, particles of gristle or bone)

Why is this thickness level used for adults?

Level 3- Liquidised foods may be used if you have trouble moving your tongue. The thicker consistency gives more time for the tongue to "hold and move" the liquidised food. It is easiest to eat liquidised food with a spoon. Seek help about nutrition when using this texture to be sure you are getting the right amount of nutrition to meet your needs.

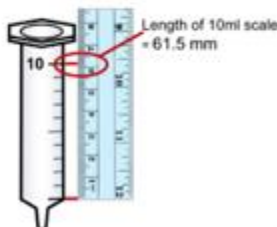
How do I measure my liquid or drink to make sure it is Level 3 Liquidised?

It is safest to measure the thickness of Liquidised food using the IDDSI Flow Test *and* the IDDSI Fork Test. These tests measure how thick a liquid is by how fast it flows through a 10 mL syringe in 10 seconds and how quickly it flows through the prongs of a dinner fork. IDDSI recommends that you use a 10 mL syringe to check to make sure you have the correct thickness level using the instructions below. For Level 3 – Liquidised foods there should be **no less than 8 mL remaining** in the syringe after 10 seconds of flow. Your clinician may give you a specific number between 8-10 mL to aim for. Using the IDDSI Fork Test the liquid drips slowly in dollops through the prongs of a fork.

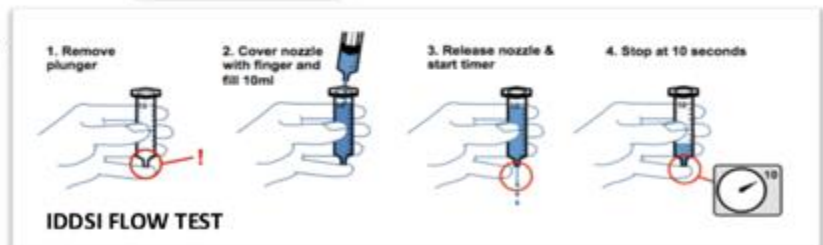


See videos of the IDDSI Flow Test and IDDSI Fork Drip Test at www.IDDSI.org/framework/drink-testing-methods/

Before you test...
 You **must** **check** your syringe because there are differences in syringe lengths. Your syringe should look like this



IDDSI Fork Drip Test
 Drips slowly in dollops through the prongs of a fork



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MODERATELY THICK



Level 3 Moderately Thick Liquids for Adults

What is this thickness level?

Level 3 - Moderately Thick drinks:

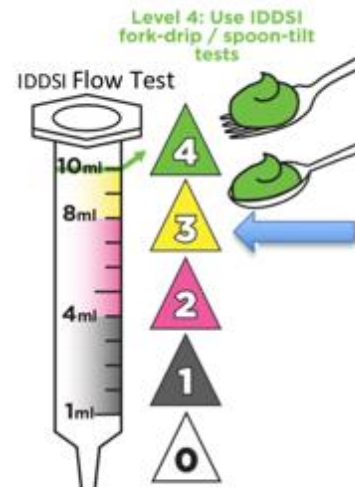
- ✓ Can be drunk from a cup or taken with a spoon
- ✓ Need some effort to drink them through a *wide* diameter straw
- ✓ Have a smooth texture with no lumps, fibers or seeds

Why is this thickness level used for adults?

Level 3 – Moderately Thick drinks may be used if your tongue control is not good enough to manage Mildly Thick, Slightly Thick or Thin drinks. Moderately Thick drinks allows more time for the tongue to “hold and move” the drink. These drinks are best taken from a cup or using a spoon.

How do I measure my liquid or drink to make sure it is Level 3 Moderately thick?

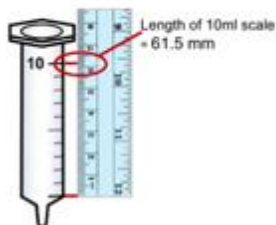
It is safest to measure Moderately Thick drinks using the IDDSI Flow Test *and* the IDDSI Fork Drip Test. These tests measure how thick a liquid is by how fast it flows through a 10 mL syringe in 10 seconds and how quickly it flows through the prongs of a dinner fork. IDDSI recommends that you use a 10 mL syringe to check to make sure you have the correct thickness level using the instructions below. For Level 3- Moderately Thick liquids there should be *no less than 8 mL remaining* in the syringe after 10 seconds of flow. Your clinician may give you a specific number between 8-10 mL to aim for. Using the IDDSI Fork Test the liquid should drip slowly in dollops through the prongs of a fork.



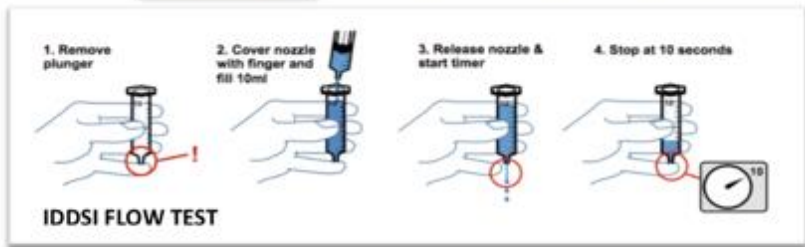
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See videos of the IDDSI Flow Test and IDDSI Fork Drip Test at www.IDDSI.org/framework/drink-testing-methods/

Before you test...
You *must* **check** your syringe because there are differences in syringe lengths. Your syringe should look like this



IDDSI Fork Drip Test
Drips slowly in dollops through the prongs of a fork



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2 MILDLY THICK



Use of Level 2 Mildly Thick Liquids for Adults

What is this thickness level?

Level 2 - Mildly Thick liquids:

- ✓ Are 'sippable'
- ✓ Pour quickly from a spoon but slower than Thin drinks and Slightly Thick drinks
- ✓ Need some effort to drink this thickness using a standard straw

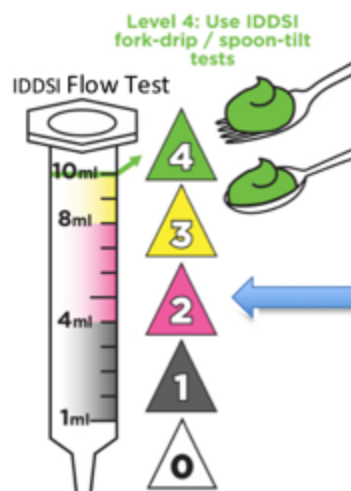
Why is this thickness level used for adults?

Level 2 – Mildly Thick drinks may be used if Thin drinks (water, milk, and others) and Level 1 Slightly Thick liquids flow too quickly for you to swallow them safely. Some milk shakes and thick shakes may be this thickness level already, but other drinks may need thickener added to reach the correct thickness level. Use the IDDSI testing methods below to check.

Mildly Thick drinks flow at a slower rate. Your clinician will help you find a thickener to thicken your drinks or help you find some pre-thickened drinks. Mildly Thick can be taken using a straw or from a standard cup.

How do I measure my liquid or drink to make sure it is Level 2 Mildly Thick?

It is safest to measure the thickness using the IDDSI Flow Test. The IDDSI Flow Test measures how thick a liquid is by how much goes through a 10 mL syringe in 10 seconds. IDDSI recommends that you use a 10 mL syringe to check to make sure you have the correct thickness level using the instructions below. For Level 2- Mildly Thick liquids, there should be **4-8 mL remaining** in the syringe after 10 seconds of flow. Your clinician may give you a specific number between 4-8 mL to aim for.

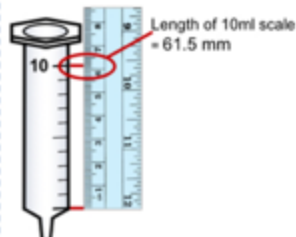


See videos of the IDDSI Flow Test at

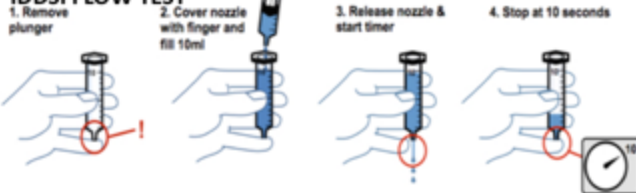
www.IDDSI.org/framework/drink-testing-methods/

Before you test...

You **must check** your syringe length because there are differences in syringe lengths. Your syringe should look like this



IDDSI FLOW TEST



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January 2019



1 SLIGHTLY THICK



Use of Level 1 Slightly Thick Liquids for Adults

What is this thickness level?

Level 1 - Slightly Thick drinks:

- ✓ Are thicker than water
- ✓ Can flow through a straw

Why is this thickness level used for adults?

Level 1 – Slightly Thick is most often used if you have swallowing problems with thin liquids. Slightly Thick liquids are thicker than water, but still thin enough to flow through a straw.

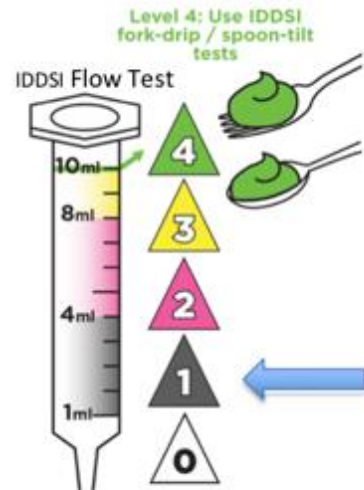
Some drinks may naturally be slightly thick (like some fruit nectars or milks). Thin liquids like water, milk, tea, coffee, juice and others may need to be thickened to the Slightly Thick level.

Your clinician will help you find a thickener to help thicken your drinks, or help you find some pre-thickened drinks. Slightly Thick drinks can be taken using a straw or from a standard cup.

How do I measure my liquid or drink to make sure it is Level 1 Slightly Thick?

It is safest to measure the thickness using the IDDSI Flow Test. The IDDSI Flow Test measures how thick a liquid is by how much goes through a 10 mL syringe in 10 seconds. IDDSI recommends that you use a 10 mL syringe to check to make sure you have the correct thickness level using the instructions below.

For Level 1- Slightly Thick liquids, there should be **1-4 mL remaining** in the syringe after 10 seconds of flow. Your clinician may give you a specific number between 1-4 mL to aim for.

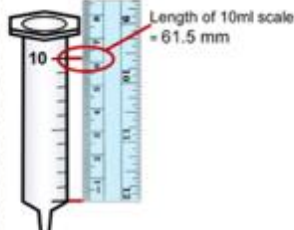


See videos of the IDDSI Flow Test at

www.IDDSI.org/framework/drink-testing-methods/

Before you test...

You **must check** your syringe length because there are differences in syringe lengths. Your syringe should look like this



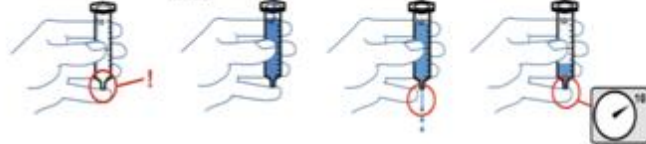
IDDSI FLOW TEST

1. Remove plunger

2. Cover nozzle with finger and fill 10ml

3. Release nozzle & start timer

4. Stop at 10 seconds



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0 THIN



Use of Level 0 Thin Liquids for Adults

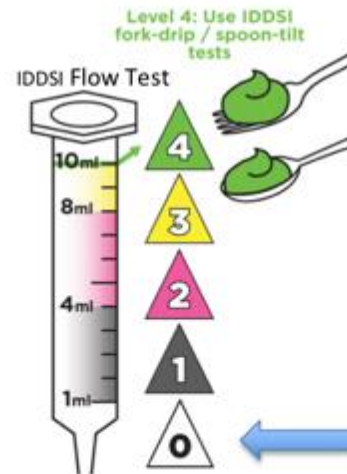
What is this thickness level?

Level 0 - Thin drinks:

- ✓ Flow like water
- ✓ Can flow through a straw or teat/nipple

Why is this thickness level used for adults?

Level 0 – Thin liquids are most often used if you do not have a swallowing problem with liquids. Water, milk, tea, coffee, and juice are all examples of the Level 0 Thin thickness level. Thin liquids can be taken through a straw or standard cup.



How do I measure my liquid or drink to make sure it is Level 0 Thin?

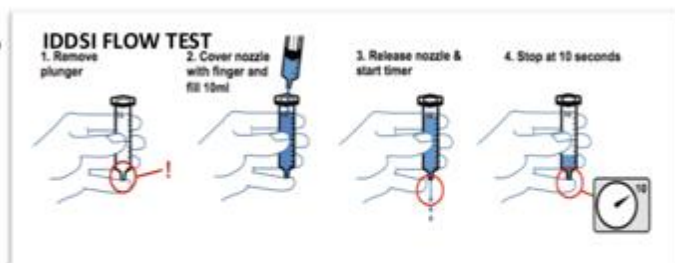
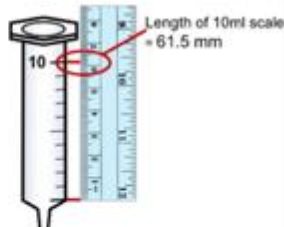
It is safest to measure the thickness using the IDDSI Flow Test. The IDDSI Flow Test measures how thick a liquid is by how much goes through a 10mL syringe in 10 seconds.

IDDSI recommends that you use a 10 mL syringe to check to make sure you have the correct thickness level using the instructions below. For Level 0 Thin thickness liquids, there should be **less than 1 mL remaining** in the syringe after 10 seconds of flow.

See videos of the IDDSI Flow Test at

www.IDDSI.org/framework/drink-testing-methods/

Before you test...
You **must check** your syringe length because there are differences in syringe lengths. Your syringe should look like this



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TRANSITIONAL FOODS

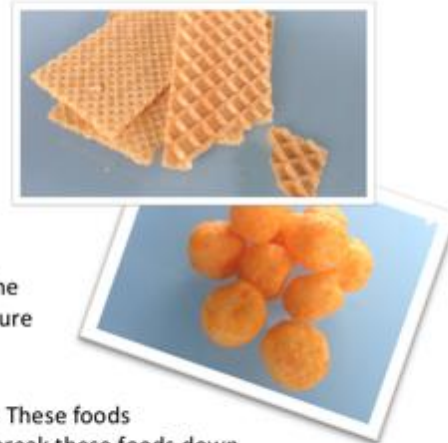


Transitional Foods for Adults

What is this food texture level?

Transitional Foods:

- ✓ Foods that start as one texture but change into another texture when moisture like water or saliva is added or when a change in temperature occurs (for instance, when the food is heated)
- ✓ Biting is not required
- ✓ Minimal chewing is required
- ✓ Tongue pressure can be used to break these foods once the texture has been changed by moisture/saliva or temperature
- ✓ May be used to teach chewing skills



Why is this food texture level used for adults?

Transitional food may be used to help re-teach chewing skills. These foods require very little chewing. Tongue strength alone is able to break these foods down when they are softened. Transitional foods often do not have much nutrition so they cannot be relied on for a full diet. Your clinician might suggest they be used together with Level 5 Minced & Moist, Level 6 Soft & Bite-Sized or Level 7 Regular Foods.

How do I test my food to make sure it is Transitional food?

To test transitional food, use a piece of food 1.5x1.5cm. Add 1 mL of water to the food and wait for one minute for the food to soften, then test using the IDDSI Fork Pressure Test. Serve food pieces in the size recommended by your clinician.

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See videos of the IDDSI Fork Pressure Test at www.IDDSI.org/framework/food-testing-methods/

1. Add 1mL of water to 1.5cm x 1.5cm sample and wait 1 minute.



2. Then complete the IDDSI Fork Pressure Test.

Thumbnail blanches white



IDDSI Fork Pressure Test for Transitional Food

Take a piece 1.5cmx1.5cm, which is about the width of a standard dinner fork. Add 1 mL of water to the sample and wait 1 minute. *To make sure the food is soft enough*, press down on the fork until the thumbnail blanches to white, then lift the fork to see that the food is completely squashed, broken apart, and does not regain its shape

Some examples of Transitional foods include: Wafers, shortbread, Veggie Stix™, potato crisps, Cheeto Puffs™, Rice Puffs™, ice chips, ice cream

Intended for general information only
Please consult with your health care professional for specific advice for your needs

Section 3

Thickened Fluids including Supplements

Thickening foods and fluids with starches such as wheat flour, corn flour or tapioca starch, is commonplace. Gravies and custards are homemade fluids that have used these starches for many years. When the grains of starch come into contact with boiling water they absorb the water and expand, thickening the fluid. Unfortunately when left to cool the starch can break down and the product 'weeps' water. So in the food industry modified starches and vegetable gums are preferred. They double as thickening agents, gelling agents, emulsifiers and stabilisers. Most gums are polysaccharides (soluble fibre and/or insoluble fibre eg xanthan gum). Some mostly soluble gums such as guar and pectin, can have a laxative effect if used in large quantities (>12g per day). Xanthan gum is not recommended in quantities greater than 10g per day. This is worth noting for patients on thickened fluids, who may need to be supplied with a variation of thickened fluids made with varied ingredients to suit their individual needs. Nursing staff should check products used if bowel issues occur.

Commercial thickening agents created for the market by nutrition companies are excellent, and can be used to good effect with both foods and fluids. The range of required thickening is clearly defined on the product containers. (*Information available in Australia at the time of publication.*) For example possibilities include:

Nestlé Health Science Resource^R ThickenUp^R Clear

A Trolley Chart card is available from the website as a pdf download. This has clear instructions for basic liquids such as water, juice, cordial, tea and coffee and milk, alcoholic drinks, carbonated drinks, Milo, Sustagen and Movicol to be thickened with the powder. A more complete preparation guide with illustrations is available from Nestlé HealthScience and should be used for training with the understanding that the recipes are a guide only. It is the responsibility of the person thickening the drinks to ensure the liquids are mixed to the appropriate consistency. Check with the IDDSI syringe flow test see pages 15 and 19-22.

Precise^R have developed a liquid thickener also useful for drink and medication trolleys which gives instructions for level 1-4 fluids and thickens a wide range of beverages, supplements and laxatives. Free online training is available on the website.

<https://elearning.precisethickn.com.au>

Nutricia also have a thickener called 'Nutilis' powder. This has a table of levels of scoops for thickening levels 1-4 (given as a guide only). Support is available from nccl@nutricia.com. Standardisation of thickened fluids is outlined towards the end of **Section 2**. Moderately thick fluids are aligned with a Liquidised Diet and extremely thick fluids are aligned with a Puréed Diet. Mildly thick, Slightly Thick and Thin fluids may be recommended by the speech pathologist for a number of reasons. This has led the way to a number of ready made commercial products becoming widely available. These come in small portion controlled containers with clear standardised labels and colour coding. They solve the problem of who takes responsibility for making the thickened fluid using the syringe test for safety – is it the kitchen staff, or should it be nursing staff at the ward level?

A large range of prethickened fluids as juices or supplements are available from **Flavour Creations**. Nestlé Healthcare also have supplements as powders and liquids with IDDSI levels of thickness. These are labelled with the colours which represent the thickness level. Other companies may also be able to supply products with the levels evaluated.

Whether made on site or purchased as standard prethickened products, you need to be aware that temperature and shelf life can play a part in the thickness of a product. Any signs of change

in the product should be checked using the IDDSI 'Flow Test'. Whether in the kitchen, or ward pantry, training for staff is essential for them to become familiar with the descriptions of 'thin', 'slightly thick', 'mildly thick', 'moderately thick' and 'extremely thick'. Giving wrong consistency can be dangerous and may lead to chest infections. Training includes recommendations for sauces added to meals. The terms Extremely Thick (for puréed food sauces) and Moderately Thick (for Liquidised food sauces) are also applied to sauces served with meals.

Some patients may have digestive issues with the thickeners. Check with your local dietitian for individual optimum patient fibre intake, and tolerance, and check the fibre content of the given fluids. An increase in fibre may lead to reduction in appetite, and may affect meal enjoyment and food intake. Puréed foods served as moulds will also contain thickeners which will also contribute to the fibre intake. This will generally not be more than would be expected from the fibre content of included vegetables. The hospital or nursing home will have a contract for products with a specific nutrition company. This may limit what products your service can order, but should include enteral tube feeds and equipment as well as nutrition supplements and thickeners. The company will provide training for the use of these products.

Recommendations for mixing will vary depending on the product used. Generally mixing fluids is made easy using a small whisk and a wide mouth measuring jug where the quantity is visible from above.



Mixing Jug with Whisk

Place the required number of scoops in the clean dry container, then add just enough of the liquid to cover the powder. Mix for 10-20 seconds until the mixture starts to thicken, then gradually add the rest of the supplement tetrapak or bottle, mixing well after each addition. The product needs time to thicken. Other recommendations will be on the container or be available from the company.

The presumption that the patient can manage the supplement all in one go may be unrealistic. How the supplement is served is important; chilled, in a glass, with or without an appropriate straw or with assistance from a carer. The result should be documented for follow up by the dietitian or carer.

SUSTAGEN® powder comes with or without fibre and can be added to foods and fluids. It is an energy dense nutritional supplement. It can be thickened to prepare different consistency fluids such as Slightly Thick, Mildly Thick, Moderately Thick, and Extremely Thick. It is relatively stable. Again use the syringe flow test. See the Preparation Guide from Nestlé Health Science for detailed information.

It can be presented alongside thick purée fruit as an Extremely Thick texture. It can be used as a moderately thick fluid custard. Other useful Nutrition products from Flavour Creations are available for different levels of thickness. Ask the Representative for details, or use their websites.

A recent additional use of SUSTAGEN® Hospital Formula Active Neutral Flavour is to prepare a **No Melt Ice cream** adding SUSTAGEN® to Nestlé DOCELLO Mousse Mix and custard. The combined mixture should hold its shape on a spoon and is suitable for a puréed diet. Contact your dietitian and Nestlé Representative for details of this.

Other nutritious Puréed Food recipes using SUSTAGEN® and Resource® Thickenup® Clear are available on the website. **Puree Food Molds** mentioned on **p.35** are part of these recipes. Implementation of moulds is discussed in **Section 4 Kitchen Matters**.

Section 4

Kitchen Matters

Senses involved in food appreciation

Knowing and recognising something about the food we are about to consume is essential for our enjoyment, and we have **five senses** to draw upon for the experience:

Smell

Cooking smells make anticipation of a meal strong and lead to a particular pleasure when the food is recognised

Visual Appearance

This gives us information about the product with a sense of the texture expected. An easy to manage texture may bring relief to the person who is aware of their problems. The human experience that says 'see food eat it' is delayed if the food is not recognised. We are programmed to eat safe food above all else and puréed food is instinctively recognised as strange and possibly unsafe. This is partly due to its similarity in appearance to food digested by micro-organisms if left over time in a warm environment.

There is a left over primaeval sense of warning from the visual experience. The 'texture look' is important. If you are the one feeding the patient, you must be wary of expressing inappropriate reactions such as 'what on earth is that?' This will immediately put the patient off.

Colour

As cooks, we work hard to retain the natural colours of the foods we serve in an effort to allow recognition of the items. Mixing of colours can lead to a disaster even if it tastes ok. Research tells us that a variety of strong bright colours are associated with the antioxidants properties essential for promoting human health. Cookbooks tell us to bake until light golden in colour to guarantee the right taste and texture. Colour is important.

Shape

Food shape is also a hallmark for recognition. Round shapes for minced meat are reminiscent of the popular hamburger. Sausages have a familiar look with memories of the backyard barbeque. Food shape can be important. Enthusiasm for recent introduction of food moulds in 'Cook Chill' systems is novel and suits some purposes.

Feel

Use of eating utensils gives a second hand 'feel of the food'. Finger food gives us a more direct feedback and is popular with patients suffering Dementia (a chronic persistent disorder of the mental processes caused by brain disease or injury and marked by memory disorders, personality changes, and impaired reasoning).

Also, 'mouth feel' is a strong predictor of acceptance of the food. 'Smooth and Creamy' is infinitely more acceptable than 'Dry and Gritty'. 'Firm and Sticky' can be problematic. Particle size gives the feel of an item, and creates a challenge to work on for rehabilitation of a chewing and swallowing problem. Items puréed for mould presentation using thickeners to provide smoothness will be consistent but gives the same on-going textural feel for all foods. This may or may not be a desirable property. Some puréed foods retain acceptable particle size giving variety and acceptance if it is presented in a thick cohesive medium.

Sound

This can indicate the freshness of the items; simply recognising the 'Crunch' gives information. Snack foods can be crunchy (advertisers make good use of the concept). A few products crunch but also dissolve in the mouth. The Speech Pathologist can help with this choice. Family

members like to know if they can bring in any items for variety and sharing, and this will need careful discussion.

Music can be a positive by providing pleasant memories. Conversely, it can be negative if there are hearing problems (and/or hearing aids) as sound may often be distorted. Probably the sounds around us also give information as other people react to or comment on the food items on offer. 'Oh yuck' is probably not encouraging, whereas 'Oh yum' is. A simple 'that looks nice' is better.

Taste

Last but not least, our quest for the 'bliss point' is a mark of eating enjoyment, a measure of the best a food can and should taste according to our expectations.

Pairing of traditional flavours like 'Roast Lamb and Mint Sauce', 'Sausages, Sauce and Mash', 'Pasta and Pesto', 'Chinese dishes with Soy Sauce', 'Curry and Yoghurt or Tzadziki', 'Strawberries and Cream' will all bring back memories for people. Of course, young people may demand a more novel creative menu to enjoy. If we truly want the best for our clients, it is worth exploring the favourites of the population being served.

All these points are important in food presentation

It is not just about the latest trends for creating 'stacks' or the garnish style; it is the whole experience - including environmental aspects, e.g. familiarity of the room, eating utensils, , seating comfort and the company of friends.

In a caring environment where patients/clients/residents and staff all work together on the various aspects of care, teamwork is essential to create a positive view of the dining experience. The work done in the kitchen is an important contributor to the pleasure brought about by good food on a dining table. And for this work to succeed you need a happy, cooperative and knowledgeable team. Something to aspire to!

Team discussion of practical issues

An appreciation of the working environment is essential. A review of points to consider may include, new menu decisions, as well as new responsibilities and help to be sought. From the kitchen point of view food preparation of modified texture meals using the IDDSI framework will basically stay the same, using the same traditional techniques of casserole cooking to soften meats, mincing and blending to create minced meals and puréed foods. The difference is in standardising the textures using the fork pressure test, lump or particle size, and the IDDSI spoon Tilt test. There are posters illustrating these tests available on the IDDSI website, giving clear diagrams and drawings to follow. These will affect the presentation, as too much firmness (for stability of the shape) in **Minced & Moist** and **Puréed** foods, and too much stickiness giving adhesiveness in the mouth, are not acceptable.

Overly firm products will not slide off the spoon to pass the 'tilt test' but need to hold their shape on the spoon when not tilted. If thickeners are used, the quantity added to maintain shape and stop liquid leakage needs to be exact. More detailed information is available as videos on the IDDSI site.

A strong food service team including chefs, supervisors, nursing staff, a speech pathologist, a dietitian and possibly a community representative, can be enormously important when implementation of a quality modified texture menu is required. A savvy electronics person to assist in menu design and implementation would be useful in larger services. Bringing in the new IDDSI standards takes full commitment from everyone and takes time. The advantage of consistent and universal recommendations is obvious.

A research and development team would be a wonderful addition to a food service to trial new tastes and novel presentations. Discussion of changing population expectations alongside new

national standards gives opportunities to improve satisfaction with meals. It also provides extra opportunities for training and discussions around who is responsible for the safety of feeding patients unable to make their own choices. This can become a difficult issue unless guidelines are clear, staff have been informed and are in agreement with what is needed.

Thickened Fluids

Recognition of skills, safety issues and time needed for standardisation of thickened fluids (as outlined towards the end of **Section 2**) need to be made clear, to allow the new standards to be effective. See discussion in **Section 3**.

Whether in the kitchen or in the ward pantry, training is essential. Even if the thickened fluids are bought in, staff need to know the importance of the labels. The descriptions of **Thin, Slightly Thick, Mildly Thick, Moderately Thick and Extremely Thick** may be unfamiliar, as may be the reasons for their use. Giving the wrong consistency can be dangerous, and may lead to problems with coughs and/or chest infections.

There are as many safety issues from the liquid being too thick as being too thin. The goal should be to avoid overthickening, for quality of life and risks of dehydration as well as residue being left in the mouth after swallowing.

Training includes recommendations for **Sauces**. The terms **Extremely Thick** and **Moderately Thick** will apply to **sauces** added to meals either at the table or on the plating line. The standard for **Puréed Diets** will be the provision of an **Extremely Thick** sauce, The standard for **Liquidised Diets** will be provision of a **Moderately Thick** sauce .

The type of sauce for **Minced & Moist Diets** will need to be smooth and thick so as to be generally non-pouring. For safety of the individual patient, the Speech Pathologist may request a particular thickness. The client may need extremely thickened sauces or be safer with a thinner sauce. To manage these options the sauce will need to have the flow test documented as it leaves the kitchen for delivery to the client.

Modified texture diet clients may have a safety issue with '**mixed consistency**' being too difficult to manage. Soup is the obvious example, where there may be food pieces in a runny product. Puréed soups such as Vichysoisse are more adaptable to getting the consistency correct. Again the flow test may be needed for safety.

Plating and Serving Lines

Central plating is often used to promote workplace safety and efficiency. Standardisation of plating with trained staff is likely to improve presentation in the hospital setting. If food is served fresh, stabilisation with thickeners may not be necessary. However, modified texture, with its various textures and choices can create longer plating lines with often unmanageable numbers of choices. It may be that an attractive **Puréed food** is suitable for all texture menus and a good quality product can solve the 'too many choices' issue, by simply being made available to everyone. Smooth blended soups, mousse products, loaf structures or puréed vegetable sauces are good examples.

These issues need to be dealt with by the food production team using a problem solving approach and knowledge of the needs of the population. Support from management is useful at this stage of new processes.

Correct size scoops are often an issue with a requirement of 75g or half a cup for cooked vegetables being the standard. Even if the starting point for serve size is maintained, the finishing serve size after cooking and processing may be smaller. This issue again needs discussion with the team to ensure the number of menu choices is adequate. Plating of modified texture meals, making them look attractive and not too overwhelming for the client with eating problems, is quite a challenge. If the kitchen has a '**Cook Serve**' system, the plating line staff need support as they have the final complexity to manage leading to heightened tension.

A '**Cook Chill**' 5-day short shelf life system with reheating may allow for better flexibility. However, variations can occur when the product is reheated if the original items included traditional thickening agents (such as starches like Corn and Arrowroot which tend to break down on storage). Modified starches (eg. **modified maize starch** (from **Puree Food Molds Pty Ltd**) & gelling agents such as **Shape It** (from **Flavour Creations**) can be useful. An extended shelf life system of '**Cook Chill**' or '**Cook Freeze**' may also be used with a process of storing, defrosting and reheating (retherming) at a recommended temperature to serve in dining rooms or kitchens. Extensive special equipment is needed when the plating is not central. Food safety systems are essential. A useful resource about food safety, focussed on vulnerable persons, can be found at www.foodauthority.nsw.gov.au/Document/industry/vulnerable_persons_guidelines.pdf.

Presentation Issues for the Production Team

Regular Easy To Chew diets and Soft & Bite-Sized diets (see **Section 2** for definitions), in the community are accepted as mostly normal. The addition of the safety aspect of 'targeted particle' or cut up size in **Soft & Bite-Sized** can create a dilemma. It can be produced in the kitchen, or cut up by staff for the patient at table. The point of this is to avoid a choking episode by giving a mouthful that will not get stuck in the airways if accidentally inhaled instead of swallowed. A smaller chunk can be coughed up. However, particle size of 1.5cm if ordered in from the butcher for the kitchen (which may occur for efficiency) can often end up as a mushy casserole as the meat breaks down to more of a mince when cooked. Traditional diced meat is more likely to be 2.2 -2.5cm.

Recognisable chunks of meat are considered better quality by the customer as well as food service staff. However, choking on this size is often experienced in the community even when dysphagia is not present. The issue needs to be thought through carefully, in the service context and taking the population into account.

The braising of a meat or chicken portion and consequent presentation as a whole piece needs to be thought through carefully as it is also a quality issue and this has been acknowledged in the **Regular Easy To Chew** Level in the IDDSI Standard. Appropriate cuts and their acceptability by the patient often depend on the quality of meat or chicken used for the dish. For instance chicken breast is often quite dry and fibrous -even if served with a sauce. In contrast chicken thigh fillets are usually more moist, due to a higher fat content, and are more suitable when chewing is not strong. A thin cut, well pounded, chicken breast may pass the fork test. (**See Section 2**, p.9, for an illustration of fork pressure test.)

Specific beef cuts for braising and stewing are traditionally cooked for quite a long time, with skimming of fat from the top after cooling. In a kitchen where time is at a premium, and saturated fat levels in meals are expected to be low, cuts of beef may be chosen to show no visible fat, but they can remain tough after cooking. Again, the fork pressure test can be used to test suitability.

The methods of managing particle size (kitchen or at the table) differs from one aged care facility to another hence the importance of documentation. From a safety point of view and particularly in an aged care environment, particle size selection cannot be left to the person with swallowing difficulties. Staff in dining rooms may have an expectation that the kitchen will provide the correct particle size. If presentation as part of food service is a priority, and all staff are willing to participate in giving as safe a product as possible then dining room staff will need to know the importance of particle size, be aware of the need to modify particle size at the table if necessary, and be trained in how to do this. Ultimately everyone is responsible for the patient's safety.

Facilities need to ensure they have a documented method in place, whether it be the correct particle size from the kitchen, or in some cases modification at the table. The method then needs

to be communicated so that all team members understand whose responsibility it is, hence the importance of documentation.

The decision whether to serve vegetables from a menu as cooked until soft or cooked until just crisp also needs discussion. Obviously the soft choices need to be cooked until soft whereas patients eating the normal menu may prefer the crisper option.

Bread and sandwiches can be a contentious issue. Bread is quite difficult to eat on its own and the **Regular Easy To Chew** diet recommendation from the Speech Pathologist may be to cut off crusts and use extra spread to moisten the product. Use of very soft moist sandwich fillings such as egg/mayonnaise, cream cheese or broken up tinned fish etc, will be necessary.

For other diet texture bread recommendations see **Section 5**.

All snack biscuits (savoury or sweet) need to be suitable for **Regular Easy To Chew** diets (level 7). Savoury biscuits such as **Jatz** or **Clix** with a generous spread may be suitable for Level 7 (it does make them soft if left over time) but Rice Crackers can have a dry shatter quality which generally renders them unsuitable for soft diets. Again, the Speech Pathologist will be the person to set the hospital or other facility menu standards taking the resident population into account.

Minced & Moist diets can use items and dishes that are already considered normal in the community, as part of variety in weekly choices. The difference in a diet for dysphagia will be in the need for a thick non-pouring sauce to create a cohesive quality within the meal.

If all foods and dishes go through the mincer, different meals may all look the same unless efforts are made to increase variety of presentation. The use of mashed potato or other vegetable topping in Shepherd's Pie, white sauce toppings with egg (as in Moussaka) cheese sauce with small pasta shapes (4mm), soft polenta, rice or quinoa in an appropriate thick sauce all help to make meals look different. Another option is to use a fruit or vegetable topping made with eggs (often created as a roulade). See Meal Solutions p.46.

Although processed cheese melts more evenly, addition of a grated cheddar-type cheese or parmesan can enhance presentation, flavour and nutrition of a meal. However, it will need to be finely grated and mixed in.

Not every meal has to be visually spectacular. The other senses are important (see p.27).

Mashing of high carbohydrate vegetables like potato, sweet potato, parsnips, broad beans, legumes and lentils for **Minced & Moist** diets will need mixing with a liquid and/or margarine or oil, and then strong mashing or blending to pass the spoon tilt test as they can mash as solid and maybe sticky. These are popular served with gravy or other sauce.

Vegetables are tricky with this grade. Putting well-cooked vegetables through a mincer and serving as a scoop may provide a cohesive texture preserving the colour and recognition of the option. A food processor may achieve the same result. This may work for moderate carbohydrate vegetables like steamed cauliflower, green beans, onion, leeks, Brussels sprouts, carrots, swede, turnips, fennel, beetroot, pumpkin, parsnip, capsicum. Water may need to be at a minimum. Some vegetables need to be dried after steaming to avoid water leakage on plating. Drying in the oven with a little oil and seasoning gives a stronger taste.



Mashed Potato, Sweet Potato and Carrot

Skins on peas and corn can be tough and get stuck in the throat of patients with dysphagia so this type of item should be avoided. Straining or sieving can be helpful but often lead to a runny purée product that then needs to be thickened.

Legumes such as red and green/brown lentils often mash well into a product that does not have hard skin pieces. Soy beans can have the perfect texture.



Scoops of Legumes to show variation in texture

Fish

Flaked (4mm) boneless fish fillets with an appropriately thickened sauce provide an attractive meal for **Minced & Moist** diets. Presentation in a ramekin works well. There are many varieties of fish (including tinned tuna and salmon) and sauces that could be suitable. Cheese, onion or herb sauces are popular.

Roasts

The loss of the Sunday roast to some older populations may be important enough for the production team to come up with some compromises. Mincing cooked roast meats and serving with gravy can be problematic as the texture of cooled then minced roast may be tough; and commercial gravy made thick will contain a lot of salt. Ultra thin slicing, followed by chopping into 4 mm size (check with the Speech Pathologist) can provide a quality meal if mixed with gravy made with meat juices and thickened using some commercial gravy powder and flour to achieve the cohesive consistency.

Puréed Diets Presentation

These are probably the most difficult in terms of variety and attractive presentation. A common misconception is that the patient on a puréed diet is not going to be aware; this may not be true. If caregivers believe that their patient or relative is aware then the production team are obliged to be creative to please both client and carer.

Belief that a thin-ish fluid is easier to manage than a thick purée is common, and wrong. The idea needs to be corrected. Different coloured puddles on the plate do not give adequate nutrition in terms of energy or ability to consume. Height and thickness of the items and the ability to feed adequate quantities with a spoon are essential. **A liquidised** diet will give a thinner consistency and needs to be recommended by the Speech Pathologist.

Taste must be the most needed quality for the team to create for all the diets. Use of a steam then bake oven (combi oven) to cook vegetables like pumpkin, sweet potato, carrot, parsnip etc. all with a spray of olive oil, minimal roasting to give a light caramelised look is a great idea to give flavour. Blending without added water is preferable. Mashing these vegetables for a **Puréed texture** needs special consideration with an emphasis on mashing finely. Addition of less starchy vegetable items to the potato will also give a smoother less sticky product.

Examples include pumpkin, carrot, celeriac, fennel, cauliflower. A food processor followed by stick blender can then be used without creating a sticky product, however the flavour and colour may change. The addition of milk/margarine does improve the texture but getting a smooth potato without lumps can be a challenge. Different varieties of potato give different results. Many kitchens resort to a reliable standard product like instant mashed potato.

If small cheap liquidisers/ blenders are used to purée items, liquid may need to be added to blend efficiently. This inevitably gives a product which is 'wet' and may leach water on standing. Modern thickeners e.g. modified maize starch can correct this. Thickeners like gums and modified starches will be needed for stability when chilling and reheating.

For quality tasty menu items the mixer must have adequate power for thicker products; and care must be taken to avoid accidental lumps being left in the mix. Food processors followed by Bamix Style Stick Blenders used with steamed vegetables (not boiled in water) or part 'steam/bake' can give an ideal fresh purée product that does not leak water and sits as a scoop on the serving plate. If thickeners are required the Bamix style blender also works well.

Stick blenders can be used to create thick smooth soups e.g. potato and leek, pumpkin, pea and ham, lentil and vegetable, tomato and carrot. See photo of tomato soup with yogurt pinwheel garnish on the front cover.



Large Bamix Blender With Soup

Extra vegetable used in soups to create the **Extremely Thick** fluid (described as level 4 in the standards) can provide an item suitable for people with small appetites. This variety of meal presentation, even in a small serve, is often appreciated.

Blending of meat does not always give a smooth product. For example, cooked chicken breast gives an unpleasant sandy mouth feel when blended, whereas thigh fillet creates a better product. Patés traditionally use pork or chicken liver to give a smooth paste in a terrine (recipe p. 58). Addition of cream or yoghurt and mayonnaise to give a 'mouseline' can be used as in the lamb salad loaf (see recipe p. 60). These principles assist development of suitable products if chefs are allowed and encouraged to be part of the team.

Terrines, roulades, layered dishes and gelled products will provide variety in production but take time to prepare.

Custards, sauces and gravies, as jugs of extras on the trolley, can be provided as **Extremely Thick** consistency to be used with plated **Puréed** or **Minced & Moist** items. Obviously the result needs to remain as a thick purée unless advised otherwise by the Speech Pathologist.

Jelly made with gelatine can be a hazard on a **Puréed** diet unless the patient is safe on thin fluids. Mixing jelly with purée fruit, purée vegetable, cake, or whipped with evaporated milk can slow down the softening to a thin fluid. If the product does not melt in the mouth before swallowing it will be safe. Some patients may delay their swallow and this needs assessment by the speech pathologist.

This type of dessert may be worth a trial in aged care where desserts are important. However, it should be tested by the Speech Pathologist for correct texture and consistency for that population. An alternative jelly option is to use the gelling product **Shape It** from Flavour Creations and adding their supplement **Advital™** to create interesting nutritious dessert dishes. Again the Speech Pathologist needs to advise on this option for the individual. **Shape It** used as a jelly does not melt in the mouth and can be heated up to 75°C before it breaks down. If the cake (as in a jelly cake) has a soaked cake part and a firm jelly part this may be classified as a mixed consistency. Check with the Speech Pathologist for the individual. The firm jelly part can be minimised by removing it before serving. Some of these recipe ideas which cover all texture menus are soft enough to not need to be chewed, and do not need cutting into pieces 1.5cm. for the **Soft Bite-Sized** diet. Check with the Speech Pathologist.

Ice creams can be a hazard as they melt either before the patient receives, or is able to get to, dessert, or in the mouth due to a delayed swallow. Once again patients safe with thin fluids should not be denied this option.

Cold **Extremely Thick** smoothies made with fruit, coconut cream and yoghurt with an appropriate thickener can provide an ice cream like product for a special occasion.. Tofu is also useful to thicken smoothies. Use the IDDSI flow test or fork drip test (see **Section 2**, p. 15).

Implementation of Food Moulds for Puréed Diets

There is no doubt that for some sites this has led to delightful presentations of foods, and stories of increase in pleasure for residents in aged care, including those with dementia. Peter Morgan from HammondCare Media has written a book for finger food meals, together with Lisa Greedy, Prudence Ellis and Danielle McIntosh called 'It's all about the food not the fork'. There are recipes for, modified texture diets using the **Shape It** product from Flavour Creations Queensland. A range of Food Moulds are available and come with a recipe book (including bulk recipes and clear instructions) using **Shape It** (a shape stabiliser) and **Thickplus** (thickener). The addition of **Shape It**, a product to add to puréed foods and moulded into three - dimensional shapes, ensures the regeneration of items is secure without water leakage.

The decision to introduce this system to your kitchen should be made by the team on-site and take into account considerations of food hygiene, cook chill, and ward or dining room delivery methods. The use of the moulds and the product **Shape It** needs to be experimental to begin

with for the team to agree it is right for that facility. The time needed to introduce the new IDDSI framework alongside changes in work practices is considerable with up to a year being reported. The IDDSI website is an excellent resource.

As a dietitian having worked in aged care, hospital systems and long term care for people with neurological disease, I have been working with modified texture meals for 20 years to improve presentation and nutrition. Implementation of new menus, allowing for aged care needs and meeting nutrition standards alongside the new IDDSI framework is quite a task and I would like to make a few summary points to emphasize considerations when introducing new menus and work practises:

- Australian Dietary Guidelines are a good place to start for portion sizes for nutritional adequacy. Experience shows that the cooked product will often shrink in size after processing compared to unprocessed foods. This is to be expected.
- Recommendations for older people are to increase protein foods (animal and plant).
- Dairy food recommendations are 4 daily serves after age 50 years for women and 70 years for men. These foods (including soy milk products) provide protein, calcium and other nutrients particularly helpful for frail elderly.
- Fruit, vegetables and wholegrains in adequate quantities will provide vitamins, minerals and phytochemicals, as well as adequate fibre for easy laxation and healthy gut bacteria. Wholegrains can introduce a 'grainy' feel to foods providing a bit of variety often acceptable if in a cohesive texture.
- Food modification will reduce levels of important nutrients and supplementation may be required. A product to fortify foods called **Advital™** is included in the recipes available in the Flavour Creations package. For other supplements see Section 3.
- Testing methods for the levels of texture and consistency are essential to ensure safety for the patient. The level of stability of the moulded products is a big question. If they are too solid they will not pass the spoon tilt test. This means that the patient would need the skill to crush the food with their tongue to form a bolus for a safe swallow.
- An alternative product for thickening food is a modified maize starch. I used a product from '**Puree Food Molds Inc.**'. Using this starch will prevent water leakage from puréed foods. The company also provide moulds and more general instructions to create freeze thaw stable products. The addition of the thickener during blending means the food is not diluted (unless some liquid is added) and the thermal regeneration is not restricted to 75°C. This is in contrast to the agar agar base of **Shape It** which needs activating with heat in liquid but then will melt if rethermed above 75°C. See recipes on pages 61-63 for some examples of the use of modified maize (corn) starch and freezing in moulds.
- Experimenting with the quantities of foods and gelling and thickening agents to get the product to pass the tests and for it to be a quality improvement process, is essential before mass production begins. Less gelling agent may allow the tests to be successful but may produce a product not as stable as the staff would like for easy handling. Some foods may work better than others, starchy vegetables have always allowed a scoop presentation easier to handle. These are the reasons for experimental time involving the team. Using scoop presentations with the **Shape It** before investing in the moulds could be a valuable practice before decisions are made. The moulds would add a new dimension to the presentations if the experiments pass the tests.
- Food processors and blenders need to be able to work with thick mixes.
- The Speech Pathologist will need to be available for food testing time.

There are a lot of points to consider. But careful planning with your team will pay dividends. The type of services offered at the hospital or care facility will be an indication of the patient or client population and their ongoing needs. It may be that malnutrition has been identified as an issue. Institutionalised care, when clients' meals become their only source of nutrition, need

delicious favourites to become part of the menu, including items which are generally considered 'sometime foods'. Adequate protein and energy will be need to be considered with snacks and nutrition supplements part of the menus, (see **Sections 5 and 6** for some ideas).The dietitian as part of the team has a strong role to play.

Section 5

Meal Solutions To Meet Standards

Creating the correct textures prescribed can be solved by using a mincing machine with a 4mm size option and a blender/vitamiser and this may be all that can be managed in the kitchen. A facility may decide not to provide all the diet and fluid levels 0-7 described in this manual and focus on creating the standards required for the diets they can manage. This will obviously depend on the population being served and the prescriptions of the Speech Pathologist involved in the admission and ongoing care. Providing the meal solutions planned provide successful safety for the population with chewing and swallowing problems, pass the tests, and give mealtime satisfaction that is all that is required.

Meeting the challenge of the new standards will need teamwork as discussed in **Section 4**.

Webinars are available on the IDDSI You Tube channel via IDDSI 'Resources' tab
<https://iddsi.org/resources/>

- Webinar 2 shows the Flow Test for liquids levels 0-3
- Webinar 3 - the Fork Drip & Spoon Tilt Test level 4
- Webinar 4 - the Fork Pressure & Particle Size level 5
- Webinar 5 – the Fork Pressure & Particle Size level 6

The following recipes are examples taken from quality improvement programs developed to allow creative ideas to be introduced with the aim of meeting nutrition needs for a vulnerable population. They were developed before the testing methods from IDDSI were available and will need review by your service and modified accordingly. Some dilemmas have been discussed under **Kitchen Matters** in **Section 4**.

High protein/energy solutions

Use of milk, eggs, cream, sugar, margarine, oil or butter have always been used to improve taste and nutrition. Dietary guidelines for health have perhaps restricted these additions within hospitals and care homes in addition to guidelines to manage salt, saturated fat and sugar levels in the foods. Problems with dysphagia can often lead to weight loss, and patients can become scared to eat. Adherence to the IDDSI standards with a model of compliance with testing, will help patients to trust the food placed in front of them. The next question is how to make the food tasty and something to look forward to.

Bread In Modified Texture Diets

Gelled soaked breads and cakes are listed in the standards as suitable for Level 7 **Regular Easy To Chew**, Level 6 **Soft Bite-Sized** and Level 5 **Minced & Moist** diets. These can provide a finger food option, but may need to be eaten with a fork or spoon. How is this option created?



Gelled Sandwich fork test

The bread sandwich recommendations are to use the soaked bread methods or gelled bread methods (available from Flavour Creations recipe book, using the **Shape It** product with soaked whole bread but also with bread processed into fine crumbs for safety). The method on the IDDSI website is to finely chop the bread, add an equal amount of water and margarine or butter; mix, making it into a shape and serving. This saves the worry that the soaking is not complete, as any thickening products used, thicken quite quickly, but can leave dry sections which are not soaked. Top with a finely chopped or blended egg/mayonnaise or tinned fish/tartare sauce, paté or cream/feta cheese mix. The fillings can be adjusted to suit the diet requirement. The combination of water and fat reduces the stickiness of the bread and improves bolus cohesion. It can be eaten with a fork or spoon unless served as a finger food.

Always test for suitable textures having a focus on dryness and or stickiness.

The tried and true Bread and Butter Pudding recipe with bread soaked in egg and milk works well to increase protein and energy. (See recipe p. 56). If it is cooked in a vessel in hot water in the oven (or use a steam oven) until the custard mix sets through the bread, it is a way of serving bread and meeting the criteria as gelled bread. The quantities need to be adjusted to ensure the egg/milk combination is soaked up by the bread to avoid a mixed consistency.

The same egg and milk bread product can be used to create sandwich finger foods. These will easily pass the fork test and may be used for Level 7 **Regular Easy To Chew** if the bread available cannot easily be cut with the edge of a fork.

The question of cutting into bite sized pieces for the Level 6 **Soft Bite-Sized** needs to be assessed for the individual patient.



Egg and Milk Meat Paste Sandwiches

The fillings used need to be extra tasty to avoid a bland product. Once again a creative production team is essential to explore these options and make them popular. One snack option is to create pinwheel sandwiches with vegemite. These can be chopped into bite-sized pieces.

Sweet breads/buns (Brioche) also work well using this technique and have the advantage of the extra nutrition from the milk and eggs in the bread. Another way of increasing nutrition is to enrich the milk with skim milk powder or **SUSTAGEN®** for a further boost of energy, protein calcium, vitamin D and all the essential micronutrients to make every mouthful count. Another popular snack recipe idea is to use Chocolate Ripple biscuits soaked in cream and cream cheese. Again **SUSTAGEN®** can be added to provide extra nutrition. See **SUSTAGEN®** website for other recipes to adapt for modified texture standards. Soaking the biscuits is the key for a soft smooth product. Test with fork tests, and spoon tilt test for diet suitability.



Chocolate Ripple Cream Log Slice

Dry cakes are not recommended for modified texture diets in general. Self saucing puddings as snacks or desserts can be used. There are many different flavoured products which could be adapted. The key would be to have enough of a thick sauce to meet the standards and possibly process the cake and sauce together for **Minced & Moist or Puréed** diets. This chocolate and pear self-saucing pudding recipe needs no further modification. (See recipe p. 64).



Chocolate and Pear Self-saucing Pudding

Scones with Jam and Cream

These are traditional snacks in Hospitals or Care and Nursing homes and the effort to modify and meet standards, is worth while.

Level 6 and 7. A light textured scone made moist with a little milk and served with jam and cream is welcome on a **Soft Bite-Sized** diet. It may need to be chopped into pieces 1.5 cm. An alternative idea is to process the scone into crumbs before soaking with a little milk and mixing with jam and cream ensuring no extra liquid pools around the product.

Level 5. Minced & Moist diet will require more moisture. Process the scone into crumbs and soak with cream plus a little milk. Pile as a shape ensuring no extra liquid pools around the product. and spread with jelly jam.

Level 4. Puréed diets will need the product to be blended. Thickeners may need to be used to stabilise the product. Placed in a small bowl and spread with the jelly jam mixed in a little.

Other ideas for snacks and mini meals are suggested in the **Shape It** recipe book from Flavour Creations which also includes ideas for using their supplement **Advital™** to boost energy and protein levels. Ready made supplements from Flavour Creations are also available to use as snacks.

Sauces

Starches and gums used to thicken foods and sauces come as a variety of single ingredients recorded on labels such as modified maize starch, vegetable gum, xanthan gum etc.. They are used throughout the food industry to create the ideal consistency/texture of the products. Many delicious sauces are available to enhance the taste of our traditional foods and they often come as thick products. For example dijonnaise, béchamel, hollandaise, aoli, tomato and 'brown'. Use of these should be guided by the Speech Pathologist.

Chutneys and pickles blended or finely chopped would add interest and provide flavour to add to dishes like curries or salads and sandwiches.

Gravies are also available as multiple flavours with instant thickening when added to hot water.

Purée vegetable can add tasty thickening to a sauce e.g capsicum, tomato, fennel, parsnip, caramelised onion, mushroom. Vegetable sauces are often used in restaurants for a pleasing effect. Take care with mixing colours.

Other traditional flavour booster concentrates to add to gravies and sauces are Duxelles and Mirepoix. These can be stored as frozen amounts to add later to recipes to give flavour. See recipes on pages 53-54.

Traditional thickeners in recipes are created by melting butter/margarine in a heavy bottomed pan, adding the flour and cooking for a few minutes (roux). Liquid is added to create the sauce. This is heated to thicken and simmer until no flavour of the thickener (flour) is left. Examples of these sauces are Bechamel, cheese, mustard, onion and parsley. These are probably only suitable for a cook fresh system. Commercial White Sauce from a powder may be more versatile. Refined starches (corn, potato, arrowroot) are often used with Asian style meals giving a pleasing translucent and glossy look. Quantities required will vary considerably and may be only suitable for a cook fresh system.

Simmering of sauces is also used to evaporate water and 'reduce' the sauce to a thicker consistency. This is standard cooking practise and is considered 'quality practise' by chefs. The table below may make sense to kitchen staff but is only a guide to getting the consistency correct to meet the IDDSI tests for the various levels in the diets

| Type of Sauce | Thickening required for 500ml liquid | Where used |
|----------------------------------|---|--|
| Binding sauce (extremely thick) | 100g roux or 50g ground cereal or flour | Fillings for pies, roulades, puréed vegetables, milk desserts. |
| Masking sauce (moderately thick) | 75g roux or 40g ground cereal or flour | Sauce for meat, fish, egg dishes, vegetables, pasta. |
| Pouring sauce (mildly thick) | 50g roux or 25g ground cereal or flour | Sauce at the table. |

Custards can be made with variations in consistency and flavours, to be used as sauces or to be served as an extremely thick dessert. Yogurts also come with variation in consistency but provide essential nutrients and probiotic value for health. Modified starches give instant thickening to sauces and provide freeze/thaw stability. An example is modified maize starch.

Vegetables and Legumes for Modified Texture

Basic Potato and Vegetable Mixes

Mashed potato/ sweet potato/ parsnip/ pumpkin/ carrot, if mashed well without coarse pieces left in the mash, are acceptable for all textures diets. A problem may occur for **Minced & Moist and Pureéd** diets if the mash is very starchy or sticky (as may occur with potato) but traditional practice of mashing with milk/margarine can solve the problem. See pages 31-32, for other solutions.

Use of mashed potato (particularly instant mashed potato) to give a firmer structure to foods and avoid water leaking around the edges on plating is sometimes used strategy but will give a 'blandness' to the taste. If not over-used this may be one solution.

Piped items such as duchesse potatoes are traditionally made prior to plating using the oven to create a crunchy finish. However, piping of a creamed duchesse style potato basted with margarine and or egg and briefly browned in the oven to give a golden colour allows for another 'look' to the meal. (See recipe p. 57). A 'nest' can be created with the meat placed in the centre. The standards do not allow a skin or tough finish, and testing is essential.



Duchesse Potato Nest with Meat filling



Creamed Potato Nest with Puréed Meat Filling and Creamed Pumpkin Egg Based Top

Patients with eating problems may need an energy-dense meal. Potato is an ideal vehicle to add egg and/or cheese for extra nutrition. (See p. 56) for Nourishing Potato/Pumpkin mash recipe and other ways to use nutrition supplements.

A simple vegetable terrine can be structured using egg to give adequate texture. Herbs and spices add acceptable flavours if desired. It can be served hot or cold. See recipe p. 57.



Vegetable Terrine

This vegetable dish, despite having added egg is not suitable for a main course by itself. To create a main dish with 'good enough' adequate protein, an addition of a puréed legume like butter beans or cannellini beans to the cauliflower section would be acceptable.

Salads on the **Regular Easy To Chew** menu can include normal everyday soft/tender texture foods.



Example of Level 7 - Regular Easy To Chew Salad

Other examples of components of soft/tender salads include well cooked legumes, soft chicken, ham cut thin, egg, tinned fish, soft cheeses with any acceptable cooked vegetable e.g. sweet potato, carrot, peas, broccoli, pumpkin, skinless tomato, skinned capsicum as well as cooked pasta and rice. Level 6 as **Soft Bite-Sized** salads can also be on the menu but have to include the restricted particle size of 1.5cm. An essential component is the dressing.

Salad items for the **Minced & Moist** and **Puréed** diets would be an important variation on the menu. Minced salad options take a lot of chopping and take care because of the need for a cohesive texture. Some suggestions as for **Puréed** diets may be acceptable.

Examples of modified texture salad vegetables are:

- Mashed potato, sweet potato, parsnip or mixed combinations of vegetables blended with mayonnaise and or yogurt and served with an '**Extremely Thick**' puréed red pepper sauce or other strong flavours such as onion and herbs (see below).
- Cooked beetroot and apple puréed, thickened for stability
- Cooked carrot and pineapple juice, thickened for stability.
- Tzadziki made with Greek yogurt, puréed cucumber and mint, thickened for stability.



Modified Mash Potato with Red Pepper Sauce

Cold slices, mousses, terrines etc. can be made as layered products using texture modifiers such as cream, mayonnaise, yoghurt, eggs or cottage cheese to give smooth purées suitable for **Level 4 Puréed**. If they are then set with a gelling agent, to give a pleasant mouth feel, they fit well into this category of gelled products. Usually a piquant sauce is served alongside. An example is Chicken and Apricot Mousse Salad. The exact quantities of thickening and gelling agents in appropriate quantities needs be part of staff training either in the catering schools or on-site using the chosen thickeners. (See recipes pages 59-60.) They also fit on a normal menu as part of a salad to give variety. Once again the Speech Pathologist should be included in the testing of the product for suitability for the different level diets. The new presentations need to be marketed to staff for education.

The recipes from **Flavour Creations** in the book supplied with the products **Shape It** and **Thick Plus** are good places for other innovative ideas on modified texture salads.

Vegetables for Minced and Moist Diets

Dilemmas on vegetables for this texture including mashed vegetable and legumes have been discussed in **Section 4 Kitchen Matters**.

Vegetables for Smooth Puréed Diets

The process of vitamising or puréeing a vegetable such as cooked spinach or zucchini often gives a product where water leakage occurs. Frozen spinach steamed and blended with the stick blender gives a stable product. Traditionally cream has been used (hence the term 'creamed spinach' or 'cream of vegetable soup') to prevent this. Smooth puréed diets are always very low in fat so addition of cream to recipes can be advantageous to increase energy as well as taste.

If a low fat product is required, modern thickening agents can be used including those supplied by nutrition companies. A common combination is starch (maize), xanthan and guar gum. Commercial soups and sauces use modified starches and gums routinely to give a quality consistency acceptable to the customer.

If a 'home made' product is wanted, there is no reason why a thick puréed soup should not be included on all menus. This will add nicely to the vegetable intake recommended for a healthy diet. For example lentil and vegetable, potato and leek or pumpkin made with enough puréed vegetable to create a thick texture where a figure of eight drawn in the centre slowly disappears (or stays) in the soup. (Use the syringe test for certainty).

Main Meals for Modified Texture Diets

Meat and Poultry

Minced moist foods can be suitable for Level 7, 6 and 5 if attention is paid to particle size, texture and sauce consistency.

Traditional menu items like meat loaves, skinless sausages, Kofta or Chevapcicci style presentations, spaghetti bolognese, (using appropriate pasta shapes) can be adapted.

Patties can also be adapted, altering the texture to meet the appropriate standard of the diet concerned.

Once again the production team is responsible for creating a product which binds together adequately for stability but presents as an appetising meal.



Meat slice with pasta in sauce topping

The toppings as mentioned on p. 31 used to improve presentation may be steamed/baked in the oven to give a golden look to meals. Any skin or hard parts created during this process will need to be removed as appropriated for the different levels of diets.

Very soft cooked or uncooked meats/fish minced, mixed with cooked lentils or mashed potato, and fine breadcrumbs or oatmeal and sauce can be made into patties to be served on the plating line.



Minced & Moist Patties

These can be suitable for **Soft-Bite Sized** and **Minced & Moist** diets. They will need testing using the fork pressure and spoon tilt test.

Sausage shapes can also be prepared for **Soft & Bite-Sized** diets to be cut into pieces 1.5 cm either at the table (to improve presentation and acceptability), or in the kitchen. A younger patient group such as motor vehicle accident victims may appreciate this presentation.



Two different beef patties, 1 example of meat mixed with red lentils as a binding agent (left), see recipe p. 53 and 1 traditional style burger (right). Note difference when tested. This recipe can be used if adapted for **Puréed** diets by blending further with an appropriate sauce and served as a scoop.

Fish

Fish and fish cakes are easy to cook as soft items. Fish and Chip takeaway is a popular meal in the Australian community. However deep fried battered fish can be challenging for people with chewing and swallowing problems. An alternative is to dip pieces of fish into a batter made from white sauce and eggs (400mls of white sauce plus two eggs beaten until mixed). Bake in a combi oven until light golden colour. Adapt for the different texture diets.



Baked Fish in Modified Batter

Eggs

Scrambled eggs blended and served as a **Level 4 Puréed** tend to leak water on standing. Traditionally cream has been used to prevent this happening. Alternatively, soft bread crumbs can be added to bind the water that tends to leak. Flavour Creations have a recipe using their thickener products.

Eggs and cream have always been part of improving texture in cooking perhaps to bind or create a light smooth mouth feel. Roulades can be adapted to suit all diet types. This is achieved by mixing egg yolks with a puréed vegetable (1 yolk to 60-100g vegetable depending on water content). The egg whites are whisked until firm, folded into the egg yolk mixture and baked in a swiss roll type tin. It can also be used as a topping (see photo below). A suitable filling to create attractive colours and flavours is spread onto the lightly baked surface and rolled. The extent to

which it can be rolled will depend on the ingredients used and the softness of the product. Variation in particle size of products will determine the suitability for diets Levels 6, 5, 4.



Puréed Diet Spinach & Cheese Roulade



Puréed Diet Meat Pie with Egg Topping

Fritatas or no pastry quiches, if made with an appropriate mix of eggs, cream or ricotta and milk (4 eggs/60ml cream/60ml milk) can be created with layers of puréed, brightly coloured vegetables. This will set without challenging tough parts if cooked in steam combi oven.

Pasta, Rice, Polenta & Pastry for Modified Texture

A limited serve of very small pasta shapes, or well-cooked rice can be served with a thick sauce for **Minced & Moist Diets**. e.g. Pasta Bolognese, or Kedgeree.

The process of blending starchy foods such as rice or pasta can give a very sticky, gluey product. Addition of milk, margarine or melted cheese to a hot pasta for blending can help, but once again the production team will be needed for problem solving. See p. 54 for recipe.



Piping the product can be very effective for a special occasion.



Piped Flavoured Puréed Pasta

To create a lasagne the colours will differentiate the layers of pasta, puréed meat and/or vegetables, and the topping of Bechamel sauce is important to give the dish identity. Steaming the lasagne will avoid any hard crusts. The combination dish will again save hot box numbers.



Minced & Moist and Puréed Diets - Beef Lasagne

Rice can be cooked as a porridge and blended with savoury or sweet items/sauces again served as a layered product to give visual appeal. The Asian Congee is popular and can be adapted to meet standards for the different diets. It is often served as a breakfast dish. Savoury rice mixed with thick sauce (as in Kedgeree) is suitable for Minced & Moist Diet.



Minced & Moist Diet - Rice Kedgeree

Ground rice has many uses and does not have the sticky qualities to modify but can have a grainy texture to consider. Check for acceptable mouth feel. Mixing with flour will moderate the grainy texture and an acceptable rice pudding can be created using the appropriate flavours. Alternatively, see p.55 for rice recipe for **Puréed** Diets.

Polenta made as a soft product can be used to create toppings, pizza or just rounds or medium long chip shapes to serve with plenty of sauce and presented as a hamburger or as an addition to the meal. Italian communities appreciate this option.



Minced & Moist and Puréed Diet - Polenta Pizza

A small amount of pastry made as 'super short' creates a product which 'melts' in gravy or sauce. Used as a topping on a pie or a base for a tart, it can be chopped up to pieces less than 1.5 cm to give a very tasty meal option for **Soft & Bite-Sized** diets. The use of wholemeal flour works well but gives a grainy feel and may not be suitable for some patients.



Spinach and Ricotta Tart



Chicken Pie to be served with sauce.

These can only be used if tested by the Speech Pathologist, modified in the kitchen and served with a sauce to ensure it is appropriate. See p. 55 for Short Pastry recipe.

Desserts for Modified Texture Diets

Commercial products for easy preparation of smooth textured desserts are readily available. The range includes multiple flavoured mousses, pannacotta, tiramisu, crème brulee, semifreddo, no bake custard, blancmanges etc. The prepared items store well and can be made earlier in the day. The spoon tilt test will be essential for a cohesive product not too firm.

Variety in presentation using cake/biscuit bases and attractive garnishes can be used for level 7 if the fork pressure test is met. For level 6 it may be necessary to chop into 1.5cm pieces. Purée fruit is also readily available commercially with the texture reliably stable (stabilisers already added).

Thick custard mixed with creamed rice gives a product that is easier to chew and swallow (suitable for levels 7, 6 & 5) and enables easier blending until smooth for Level 4.

Cakes soaked in normal jelly as trifle or simply jelly cake can be suitable if the cake is completely soaked but there is no extra jelly around the edges. This extra jelly will melt quickly in the mouth (gelatine melts at 28°C whereas mouth temperature is 36-37°C and becomes a thin fluid before the swallow is initiated. For the person with a delayed swallow this is not acceptable. The cake soaked in jelly avoids the problem of the jelly melting too quickly. However, if this use of normal jelly is not considered suitable by the Speech Pathologist the gelling agent **Shape It** can be used. (info. also in 'Kitchen Matters' p.34). However, it should be tested. As an alternative simple jelly dessert option **Shape It** is worth considering as a dessert dish. Again the Speech Pathologist needs to advise on this option for the individual.

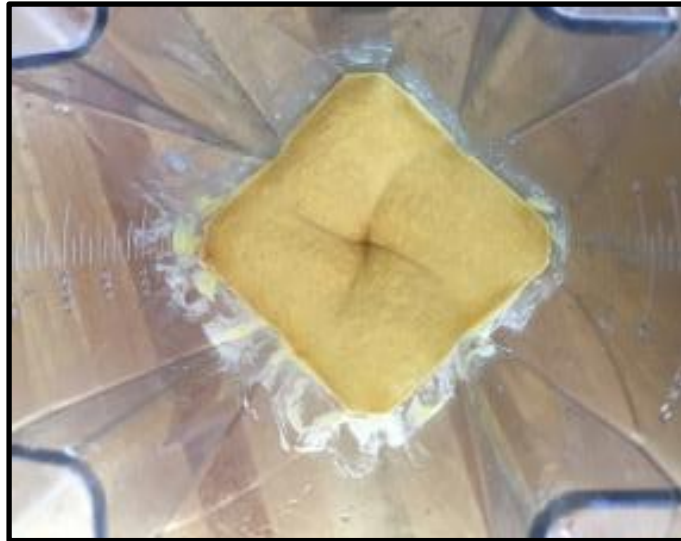


Jellied Swiss Roll

Section 6

Equipment for texture modification.

As previously mentioned both small and large Bamix style blenders can be used to blend well-cooked vegetables to give a smooth thick product. However, care is required to avoid leaving pieces in the mix. A more traditional blender, providing it has a powerful motor (3HP is good) with robust housing is more efficient. Chopping, grinding (for meats), and blending for purées can be achieved for delicate through to tough ingredients. The range of speeds allows this to be achieved. These blenders come in a variety of sizes to meet the need for the numbers of modified texture diet requirements. The perfect purée has a result as shown.



Blended Purée Consistency

Mincers in Kitchens are a traditional piece of equipment. They have a range of sizes of blades. For a **Minced & Moist Diet** the size of minced pieces should be approx. 4 mm.

Food processors for chopping and mixing are also very useful. Check out the resulting size of cooked foods when pulsed on your food processor. If it is easy to chop to 4mm size or slightly less for **Minced & Moist Diet**, the result is a cohesive texture and you are on a winner for much of your meal preparation. Different sizes of food processors are available depending on the number of meals to be produced.

The combi oven is one of the most powerful and versatile machines for a professional kitchen. A multipurpose combination oven cooks food using steam, convection or a mixture of both to deliver the desired result. It can roast, grill, bake, poach, steam or shallow fry and takes the place of bain-marie style cooking in a a bowl or tin of water often used to ensure a soft texture. This flexibility makes it essential for cooking a variety of foods including standardised modified texture items in the most efficient way.

Examples of Trial Recipes for Modified Texture Diets

This is a collection of a few recipes mentioned in **Section 5: Meal Solutions To Meet Standards**. It is hoped cooks and chefs will take courage from the ideas and work on making them successful in their own environment, expanding the menus for the pleasure of the residents or patients.

Dessert Recipes

Hospitals and nursing homes can be a bleak experience for a client when away from home. Appetite becomes a bit jaded when favourite foods are missing. Family visits become important to give pleasure and maybe some treats. A variety of desserts from the supermarket may be suggested by the Speech Pathologist as suitable and safe for the family to offer.

The following ideas for desserts from the hospital or nursing home kitchen will be worth considering on the menu. (See also p. 50).

Cereal puddings

Favourite breads and cereals may be off limits for modified texture which leaves space for introducing grains in a different form. Milk puddings made with processed grains are perfect for this purpose and often appreciated by older people. Semolina, rice, ground rice and sago are traditional pudding choices to which flavours of nutmeg or cinnamon, chocolate, lemon, vanilla can be added.

Whisked egg helps to give the puddings a light texture and serving with a purée fruit sauce will give colour (see p. 64 for the recipe for Semolina Pudding). There are many other recipes to trial in standard cook books. Use the standard testing methods to check diet suitability.

Basic Meat Slurry Mixes

The slurry is used as a foundation to prepare a quality texture for purée, thick menu items that are not naturally smooth and thick.

Meat broth can be used as a basis for creating meat slurries. Addition of other flavours and seasonings to suit the dish together with thickeners are used to create a sauce consistency to mix with the matching puréed meat. Some thickeners require heating to thicken. (wheat flour can be used but is not freeze thaw stable). If plating to give shape, a thick sauce will be needed. Traditional roux as thickening will give the best flavour for a fresh cooked product. Modified maize starch can be used as an instant thickener. It will be freeze thaw stable.

Beef, lamb, chicken, pork and fish can be prepared using appropriate stocks and this method. Plate as scoops, hand shaped, layered or rolled according to the required dish. See page 61 - Beef Stroganoff Layered Rolls .

Meat cuts most useful for modified texture are those recommended for slow cooking. Beef shin and blade if seared for flavour then slow cooked at 150°C for several hours will pass the fork test for soft diets and will mince and purée well.

As previously mentioned mixing minced meats with a extremely thick purée made from perhaps non-sticky starchy vegetable and adding an egg to bind a shape can meet standards. Using lentils will give extra fibre and protein. Spices and herbs from different cuisines can add variety in flavour. The minced meat will need chopping to 4mm, this can be achieved in the food processor for small numbers. The food processor will give non uniform size compared to a mincer but if used well it will give 4 mm and smaller which helps to bind a product. It could be shaped as a burger to have a topping of suitable vegetables (see illustration on **'Minced and Moist'** handout p. 12).

Another example would be to flavour the meat mix (mince plus pureé lentils) with tomato paste and mixed herbs, placed in a suitable tin and topped with small pasta shapes and sauce or soft polenta for an Italian dish. This is cut into squares for single serves and served with extra sauce. It could be considered for other soft diets including regular level 7. See page 44 for illustration.

RECIPES

Beef (or other meat) and Red Lentil Pattie

| Ingredients | Serves 12 |
|-------------------------|-----------------------|
| 1 cup red lentils | 1 egg |
| 750 mls stock | 1 zucchini chopped |
| 500g regular beef mince | salt and pepper |
| 2 cloves garlic | 1 ½ tbsp tomato paste |
| 1 tsp mixed herbs | |

Method

1. Cook the lentils in the stock for 10-15 minutes until all the stock has been absorbed. Cool and chill in the fridge overnight. This will create a thick mix.
2. Fry the beef mince, chopping it as much possible to cook evenly. Add finely chopped garlic. Cook until the beef is brown. Cool.
3. Grate the zucchini in the food processor and add the cooked lentils, egg, beef, tomato paste and herbs. Pulse the processor until well mixed but still has some minced texture pieces. Season well. If the mixture is too sloppy to handle mix in some panko breadcrumbs (1/3 - 1/2 cup).
4. To give a consistent shape use a suitable muffin/pie tin, 8 cm diameter, or disposable foil pie cases and line the base with baking paper and fill to just over three quarters full. Depending on the type of oven you have bake/steam the patties until they are just cooked. (approx 15-20 mins at 180°C). Use the fork and spoon tilt tests to test the texture. Cook at a lower temperature if the option not available.
5. Serve with suitable vegetables.

Steaming vegetables until soft, mincing or chopping to 4 mm then pressing into a scoop, may give sufficient cohesiveness to meet standards for a minced diet . (See p. 31-32). This method and presentation can be considered for other soft diets including regular level 7. See p. 45 for fork and spoon test illustration.

Flavour Boost Concentrates for Extra Taste

Can be puréed after cooking.

Duxelles (Used in soups, stews or gravies)

| Ingredients | Makes 2 cups |
|--------------------|--------------------------|
| 500g mushrooms | 2 tbsp butter |
| 2 medium onions | 1 tbsp oil |
| 2 shallots | salt and pepper to taste |

Method

1. Process cleaned mushrooms, onions and shallots in a food processor until finely chopped.
2. Heat butter and oil in a pan and cook finely chopped vegetables on medium for 1-2 minutes then on low for 10 minutes until all the moisture has evaporated.
3. Season with salt and pepper and store refrigerated for 1 week or freeze in portions for 1 month.

Mirepoix (Used to enhance flavour of brown or white sauce)

| | |
|--------------------|---------------------|
| Ingredients | Makes 2 cups |
| 4 rashers bacon | 2 sprigs thyme |
| 1 large onion | 1 large bay leaf |
| 1 medium carrot | 125 ml dry sherry |
| 1 stick celery | Pepper to taste |

Method

1. Remove rind and excess fat from bacon, cut into small pieces and place in the food processor with the roughly chopped peeled carrot, onion and celery.
2. Pulse several times until chopped into 4 mm pieces.
3. Fry in non stick pan until just soft.
4. Add sherry, bay leaf, thyme and pepper. Simmer covered for 10 minutes.
5. Remove bay leaf and thyme , and store refrigerated for 1 week or freeze in portions for 1 month.

Basic Pasta Mix for Puréed Diets

This can be used to create layered pasta dishes. See page 47 for examples.

| | |
|------------------------|--------------------------|
| Ingredients | Serves 8 |
| 4 cups cooked pasta | 2½ tbsp oil or margarine |
| 1 cup skim milk powder | ¼ cup water |

Method

1. Rinse and soak cooked pasta in water for 30 minutes.
2. Combine all ingredients except water and blend for 30 seconds. If desired parmesan cheese can be added for taste should the pasta dish need it.
3. Scrape down sides of blender and add the ¼ cup water. Process for a further 30 seconds. The pasta should be like a thick batter. It will further tighten or thicken when reheated.

Variation

Add 1 cup ricotta cheese instead of skim milk powder, omit margarine and increase water to ½ cup. This works well as a soft pizza base.

For flavoured pasta add vegetable while blending.

Spinach pasta - 4 tbsps cooked creamed spinach per cup of pasta (cooked as above).

Tomato pasta - 1 tbsp tomato paste and 30g of cheese per cup of pasta (cooked as above).

See illustration page 47.

Basic Rice Mix for Puréed Diets

This can be used to create layered presentations both savoury and sweet dishes. Avoid sticky rice. Medium grain rice may give a less sticky product. Jasmine rice is preferred for Asian diets see p.62 for an alternative cooking method for puréed rice.

Ingredients

Serves 8

4 cups of briefly fried then steamed rice
½ cup skim milk powder 2½ tbsp oil or margarine
1 tsp garlic powder (optional) ¼ cup water

Method

1. Briefly fry the rice in the oil then add water to cook. Simmer for 30-40 minutes until the rice is cooked, has absorbed the water, but still moist. Add salt and pepper if desired.
2. Combine all ingredients and blend for 30 seconds.
3. Scrape down sides of bowl and process for another 30 seconds. The rice will further tighten or thicken when reheated.

Short Pastry

This pastry can be used in small amounts as a base or topping or garnish for modified texture diets. Staff need to be aware this is a presentation issue/trick as the pastry needs modification for the different diets. It needs chopping into pieces 4mm for **minced and moist diets**, and blended **for puréed diets**. Check with the Speech Pathologist for individual cases. The taste of the short pastry is an essential part of a tart or pie, from the food recognition point of view, and the very short 'melt in the mouth' texture, may be suitable for level 7 and level 6 if chopped.

Ingredients

Serves 4-6

60g butter or margarine
60g cream cheese
60g wholemeal self-raising flour

Method

1. Use food processor to chop butter and cream cheese.
2. Add flour and process until dough forms a ball.
3. Refrigerate until required.

Spinach & Ricotta Tart

Ingredients

Serves 4-6

60g butter 60g ricotta cheese
75g wholemeal flour 240g frozen spinach
2 eggs 190g ricotta cheese
30g tasty cheddar finely grated salt and pepper

Method

1. Place butter, ricotta cheese and flour in the food processor and process until a ball of pastry is formed. Refrigerate until cold.
2. Roll out the pastry on a floured surface and line a pie dish.
3. Blend defrosted cooked spinach, eggs, ricotta and grated cheddar in vitamiser.
4. Season to taste and pour into the pie dish on top of the pastry.

5. Bake in a moderate oven approximately 30 minutes until cooked.

This tart uses ricotta in the pastry for convenience. An adjustment of quantity of flour is used to obtain the texture in the pastry required to roll it out and get a suitable product. Making it in bulk will need an experienced pastry cook to manage and adjust the recipe.

Testing is needed for the different diets using an appropriate sauce to obtain a suitable product. A trial is worth the effort even if the visual appeal is compromised. The taste is unique. See photo on p.49 for a cut up version for soft bite sized diets.

Gelled Bread Sandwiches (Bread and Butter Pudding)

Ingredients

Serves 2

4 slices bread (tough crusts removed) wholemeal or white no seeds.

1 egg 250ml milk

Margarine or butter Tasty spread for sandwich

Method

1. Whisk egg and milk together.
2. Pour ½ of the solution into a flat pan where the bread slices will have a good fit.
3. Spread margarine or butter and the filling onto the bread slices. Make into a sandwich.
4. Place the sandwich into the pan in a single layer.
5. Prick slices several times with a fork.
6. Pour over remaining egg/milk solution.
7. Cover and steam/bake at low moderate temperature until product is set.
8. Cool and portion into triangles or squares. (See photo p. 37). May need to be cut into 1.5 cm size for **Soft Bite-Sized** Diets

Options

Smooth, not too sticky spreads such as vegemite, cinnamon and honey mix, flavoured cream cheeses, commercial dips, meat or fish pastes, chocolate spread. Jelly jams can be added after cooking if the bread is cooked without filling.

Nourishing Potato and Pumpkin Mash

Ingredients

Serves 4-6

500g potato

2 eggs, beaten

300g pumpkin

80g cheese, finely grated

30g margarine

Method

1. Steam potato and pumpkin until soft. Dry in oven if wet.
2. Beat all ingredients together until smooth. Serve as 2 scoops with gravy or white sauce. (check consistency matches diet type)

Variation

SUSTAGEN® Hospital Formula can be added to potato with pumpkin, and mashed together to boost energy and nutrients. Suggested quantity 40g in one cup of mash.

Neopolitan Vegetable Slice

Ingredients

300g carrots peeled and sliced
500g cauliflower chopped
500g spinach or broccoli chopped
¼ tsp nutmeg

Serves 4-6

1 medium onion chopped
50g parmesan cheese finely grated
3 eggs
salt and pepper

Method

1. Oil inside of 1.2-1.5 litre terrine or loaf pan and line with baking paper.
2. Steam carrots, cauliflower, spinach or broccoli, and onion separately until soft.
3. Place carrots, 1/3 of onion, 1 egg, nutmeg and seasoning into the blender and blend until smooth. Use a spatular to transfer carrot mixture to the base of the terrine.
4. Place cauliflower, 1/3 onions, 1 egg, cheese, and pinch of pepper into the blender and blend until smooth. Use a spatular to carefully transfer cauliflower mix to the top of the carrot in the terrine.
5. Place spinach* or broccoli, 1/3 onion, 1 egg and seasoning into the blender and blend until smooth. Transfer mixture carefully to top of cauliflower and smooth the top.
6. Cover the terrine with foil and place in boiling water or steam /bake at 180°C for approximately 45 mins or until set.
7. Let terrine stand for 5-10 minutes then carefully turn out.
8. When cutting into slices, catch each slice with a spatular to prevent it falling apart.

To boost protein add 1 can of drained white beans to 250g of the cooked cauliflower and blend together at stage 4.

*Frozen spinach will retain the colour better than fresh. Mint will add to the flavour.

See p.41 for photo.

Duchesse Potato Nests

Use these small quantities for a trial, and increase recipe if trial successful.

Ingredients

600g potatoes, peeled
2 egg yolks

Serves 4-6

30g butter
salt & pepper to taste

Method

1. Cook potatoes in boiling water until soft.
2. Drain well and place in oven to dry out a little.
3. Add potato, egg yolk, butter to a food processor and pulse until smooth. Season to taste.
4. Place the mix into a piping bag with a medium nozzle and pipe double layered rings with enough space to put a minced or purée meat item in the centre. Baste with egg or butter.
5. Bake/steam in a moderate hot oven for 5 minutes until very slightly golden. Do not allow to harden.
6. Serve with gravy or sauce.

This may take a little practice to get the texture right for the different level diets.

See p. 41 for photo example.

Meat Salad Dishes

Country Style Terrine (Meat loaf style)

Ingredients

125g veal
60g raw ham
125g pork
60g pigs liver
125g soft breadcrumbs
4 slices streaky bacon

Serves 4-6

Pinch allspice, 1 Bayleaf
1 clove garlic, crushed
50ml brandy or sherry
50ml stock or water
pinch salt and pepper

Method

1. Remove all sinew, gristle and visible fat from veal, ham, pork and liver. Mince these meats.
2. Place the meats, garlic, allspice and brandy in the food processor and process until a thick paste is formed. Add the stock, breadcrumbs and seasoning and mix.
3. Layer the bacon in the base of a terrine mould or small loaf pan and pile the meat mixture on the top. Press the meat down, smooth over and add bay leaf.
4. Wrap tightly in aluminium foil until sealed. Stand in hot water. Place in moderate oven or use a combi oven.
5. Cook for approximately 1 hour until the terrine is firm
6. Take out of oven and leave until cold.
7. Cut into slices to serve removing the bacon garnish. Test for each standard texture creating a suitable particle size.



Country Style Terrine

The product may be suitable for a **Puréed Diet** if cooked slices are further blended with stock. Serve with a modified chutney for each level.

Chicken and Apricot Mousse Salad



Ingredients

| | |
|--|---------------------------|
| 1kg chicken loaf | 300g egg whole, boiled |
| 1 1/4 cups plain yoghurt | gelatine dry powder |
| xanthan gum or RESOURCE® THICKENUP Clear | |
| 300ml apricots, drain juice | 300g lettuce raw |
| 300g celery raw (no tough stringy parts) | 60ml mayonnaise |
| 300g tomato and vegetable Juice | 300g apricots (for sauce) |
| 40ml cream light | |

Serves 12

Method

1. Dissolve gelatine (270ml water to 48g gelatine).
2. Blend chicken and plain yoghurt to give a smooth consistency. Add 7 tbsp dissolved gelatine, 1½ tsp xanthan gum and blend until smooth thick texture is achieved. If using RESOURCE® THICKENUP Clear place 3 scoops in large bowl and slowly mix in chicken/yogurt mix and blend with Bamix blender.
3. Blend all fruit and vegetable ingredients separately until smooth. Add the following amounts of xanthan gum or RESOURCE® THICKENUP Clear and gelatine to each. Substitute 1tsp xanthan gum for 2 slightly heaped scoops RESOURCE® THICKENUP Clear.

Recommended Quantities

Apricot-1/2 tsp xanthan gum, 1.5tbsp gelatine
Lettuce-1tsp xanthan gum, 2 tbsp gelatine
Celery-1tsp xanthan gum, 3 tbsp gelatine
Veg. juice- 2 tsp Xanthan gum, 3 tbsp gelatine
Egg-1/4 cup mayonnaise, 2 tbsp cream, 1/2 tsp xanthan gum, 1.5 tbsp gelatine

1. Layer mousse in loaf tin in following order - chicken, celery, tomato juice, chicken, lettuce, egg, apricot, chicken.
2. Set in the cool room for at least 1 hour and serves slices with a suitably thickened puréed apricot sauce.
3. Test for each standard texture creating a suitable particle size.

(Adapted from a Toowoomba District Hospital recipe)

Lamb Mousse Salad Loaf



Ingredients

1kg Lamb (slow cooked)
1¼ cups low fat mayonnaise
xanthan gum or RESOURCE® THICKENUP Clear
500g Spinach, frozen
300ml V-8 juice
250 ml guacamole dip, puréed

Serves 12

1½ cups cream
gelatine powder
300g eggs, hard boiled
300g cooked carrots

Method

1. Dissolve gelatine (270ml water to 48g gelatine).
2. Blend cooked lamb with 1 cup of the mayonnaise and all but 2 tbsp of the cream. Add 1 tsp xanthan gum or 2 heaped scoops RESOURCE® THICKENUP Clear and 3½ tbsp liquid gelatine and blend until smooth. If using RESOURCE® THICKENUP Clear place 2 scoops in large bowl and slowly mix in smooth lamb mix and blend with bamix blender.
3. Blend all vegetables separately until smooth. Add the following amounts of xanthan gum or RESOURCE® THICKENUP Clear and gelatine to each vegetable.

Recommended Quantities

Spinach- 1 tsp xanthan gum or 2 scoops RESOURCE® THICKENUP Clear, 6 tbsp gelatine. Egg-1/4 cup mayonnaise, 2 tbsp cream, ½ tsp xanthan gum or 1 scoop RESOURCE® THICKENUP Clear, 1.5 tbsp gelatine.

Veg Juice-2 tsp xanthan gum or 4 scoops RESOURCE® THICKENUP Clear, 3 tbsp gelatine.

Carrot- ½ tsp xanthan gum or 1 scoop RESOURCE® THICKENUP Clear, 1 tbsp gelatine.

1. Layer the salad into a loaf tin and cool to set. Dress with 1 tbsp guacamole dip.
2. Test for each standard texture creating a suitable particle size.

(Adapted from a Toowoomba District Hospital recipe)

Example of a hot combination dish

Presentation as a roll can be adapted to a large variety of dishes both hot and cold. The eggs added in this example add a firmness to enable the roll to be sliced to display contrasting colours and flavours. The principle can be used with other classic menu choices.

The photo is of a **Puréed Diet** presentation but can be used for other texture diets using appropriate ingredients. Testing to meet current standards in the workplace is essential.

Beef Stroganoff Layered Roll



Ingredients

| | |
|--|--------------------------------|
| 2 cups of a thick beef slurry (see p.52) | 1 medium onion |
| 1 cup button mushrooms | 1 tbsp sweet paprika |
| Basic pasta mix (see page 54) | 2 tbsp parsley flakes, crushed |
| 4 cups lemon carrots | 6 eggs |
| 200ml light sour cream | |

Serves 8-10

Method

1. **Prepare beef slurry** - Remove all fat from slow cooked roast beef and cube. Use 320gm for 10 serves as in this recipe. Chop mushrooms and onion. Fry onion until soft, Add 1 tbsp sweet paprika for traditional flavour . Fry for 1 minute. add mushrooms and cook 3 mins. Add thickening at this stage using a roux or other freeze thaw stable thickener such as modified maize starch.. Mix it in 1 cup beef broth.
2. Adjust seasoning, and process beef slurry until smooth thick texture is achieved. Add 2 eggs and process for a further 10 seconds.
3. **Prepare basic pasta** then process with 2 eggs and crushed parsley flakes for 10 seconds.
4. **Prepare lemon carrots** – Peel, chop and steam carrots until soft. Combine carrots, 2 tbsp margarine, 1 tbsp lemon juice, 2 tsp dried mint and process 15 seconds. Process for 30 seconds until smooth. Add 2 eggs and process for a further 10 seconds.
5. Place a greased aluminium sheet in pan (approx 40 cm x 45cm). Spread pasta to a (30 cm x 20 cm) size on the aluminium sheet. Spread the beef over the pasta and spread the carrots over the meat. Lift the length of the foil and roll over. Cover roll with ends of foil turning in ends to secure. Steam/Bake in oven 150°C for 1 hr 15mins. Until firm to touch. Cool 15 minutes before unwrapping, then cut into portions. Serve with sour cream or gravy.
6. Test for each standard texture creating a suitable particle size.

Using this method for a purée diet the IDDSI Test is for a Fork Drip Test where the liquid does not dollup or drip continuously through the fork prongs and the Spoon Tilt Test where the sample holds its shape on the spoon and falls off fairly easily if the spoon is tilted or lightly flicked. The sample should not be firm or sticky.

Variation

Smooth bean purée blended with onion, garlic, cheese would provide a tasty vegetarian option in place of the beef slurry. Roll as example above. Trial the popular flavours of Mexican Burrito or soft Chicken Taco.

Try a Fish Florentine using creamed spinach as a layer on top of the pasta followed by cooked fish blended or flaked and mixed with a tataré style smooth sauce.

Other options are chicken or fish with herbs and spices using the above method.

Ensure the appropriate tests are routinely done to prove the safety of the meal.

Hainanese Chicken Rice

This delightful recipe with photo was developed by Gentlefoods Singapore.

Ingredients

200g white Jasmine Rice
1800 ml water
Pandan leaves 2 stalks (optional)
1 slice ginger
3 cloves garlic
1 tsp salt
1 tsp sesame oil
Chicken stock soup (1 cup)

Serves 4

300g chicken thigh fillets
1 tsp sesame oil
2 slices ginger
4 cloves garlic

Method

1. Wash white grain rice three times until the water remains clear. Add the water (1800mls). (ratio of 1 portion of rice to 9 portions of water). Also add the pandan leaves, ginger, garlic and salt for flavour.
2. Bring the rice to the boil and reduce the flame on the stove to small. Keep stirring for another 30 minutes. When the rice is cooked, add the chicken stock soup and continue stirring and cooking until the rice is evenly cooked with a better taste and texture. It needs to reduce in volume and be appropriately thick to be blended for presentation as a shape. Blend the rice using a hand blender.
3. For the chicken, boil the chicken in 2 Litres of water with 2 slices of ginger and 4 cloves of garlic until it is cooked. The stock soup is used for cooking the rice as above for flavour.
4. Cut the chicken into cubes and blend in a blender with an appropriate quantity of the chicken stock soup and modified corn starch to give a smooth texture for level 4 purée.
5. Serve the portion as a fresh product or freeze in moulds.
6. (For moulding of the chicken): Add the appropriate amount of blended chicken into the food moulds and blast freeze until the shape is formed (approx. 24hrs)
7. Unmould the chicken and heat with the blended rice.



Hong Kong Soy Fish (Another tasty recipe from Gentlefoods Singapore.)

Ingredients

1kg fish fillet
32g modified corn starch
500ml milk

Sauce: 1 tsp sesame oil
1 slice ginger
4 cloves garlic
1 tsp potato starch

Serves 8

2 tbsp soy sauce
2 tsp sugar
2 tbsp oil

Method

1. Wash the fish fillet. Slice and dice removing any bones.
2. Steam the 1 kg of diced fish for 20 minutes or until fully cooked. Using a blender, purée the cooked fish for 10 minutes with constant stirring, slowly. Add the 500ml milk until very smooth and free of lumps.
3. To the puréed mixture, add the 32g of thickener slowly. Mix thoroughly until the texture and consistency required is achieved.
4. Transfer the mixture to the silicon moulds. Level off.
5. Cover and freeze for at least 24hrs.
6. Unmould the individual frozen puréed fish shapes and reheat the fish when required.

To make the sauce

1. Blend the ginger and garlic until a smooth paste is formed.
2. Heat the soy sauce and add the sugar to dissolve it. Fry the blended ginger and garlic in the extra oil until cooked. Add the sesame oil and soy sauce plus sugar. Mix in the potato starch to give an appropriate consistency for the sauce to serve with the fish.
3. Pour the hot sauce over the fish and serve while hot.



Desserts

Semolina Pudding

Ingredients

1200 ml full cream milk
1 tsp vanilla
2 eggs separated

Serves 8-10

½ cup fine semolina
4 tbsp sugar

Method

1. Heat the milk in a saucepan. When almost boiling sprinkle in the semolina. Stir continuously until boiling.
2. Reduce the heat, simmer uncovered 10-15 minutes until the semolina is soft and thick stirring continuously.
3. Remove from the heat, add vanilla and sugar mixing well to dissolve the sugar.
4. Cool a little and beat egg yolks into the semolina.
5. Whisk egg whites until stiff and fold into the mixture.
6. Pour into greased dish or dishes and bake in a moderate combi oven until the top is very slightly brown. (30-40 minutes, less for smaller dishes). Using a combination of steam/bake would be the preferred method.
7. Remove any thick skin that forms on the top. (This is less likely in a steam bake oven)
8. Check the consistency standard for the modified texture diets.

Variation

- Substitute ground rice to make rice pudding. (needs less cooking time than traditional rice).
- Sago or tapioca is another choice. It may need to be ground for a smooth purée.
- Well cooked barley or oats blended after cooking with a sweet purée fruit is another option.

Chocolate and Pear Self-Saucing Pudding

Ingredients

50g caster sugar
1 cup pears, stewed or tinned
375 ml whole milk
33g plain flour

Serves 6-8

2 eggs separated
15g butter
40g cocoa

Method

1. Place egg yolks, sugar, flour and butter into a blender and blend until smooth.
2. Add stewed pears, cocoa, and milk and blend again until smooth and well mixed. Pour into a bowl.
3. Whisk egg whites until they are stiff enough to hold peaks and whisk into the chocolate mix.
4. Pour gently into an approximately 1 litre greased oven proof dish and either place in hot water and cook in moderate oven for 35 minutes until the top is set or cook in steam/bake oven until top is set. (For photo see p. 38).

This pudding is perfect if made in the 1 litre dish. It may not set, if made in larger quantities. For larger numbers prepare in multiple 1 litre dishes.

Creamy fruit Mousse

Baked in hot water or a steam oven this mousse can be made with any puréed fruit and is a sweet delight.

Ingredients

1 can of sweetened condensed milk (395g)
750g apple purée
3 eggs separated

Serves 8-10

45ml lemon juice

Method

1. Peel and core apples to lightly simmer until soft to create a purée. Add lemon juice.
2. Mix the apple with the condensed milk in the blender and purée until smooth.
3. Blend in the egg yolks
4. Whisk the egg whites until firm and fold into the apple mix.
5. Pour into a greased baking pan (or separate dishes) and bake in hot water in the oven (or steam in oven), until set.
6. Cool until required using the standard tests for suitability for the diets.

Variation

Blend 350g Mango and 350g chilled thick coconut cream until a smooth even product is achieved, Serves 4-6.



Mango and Coconut Cream



Janet Martin, BSc, BND, is a retired dietitian with over 20 years experience of creating standards and recipes for texture modified diets for swallowing disorders. She has been a dysphagia management specialist with the Dietitians Association of Australia.

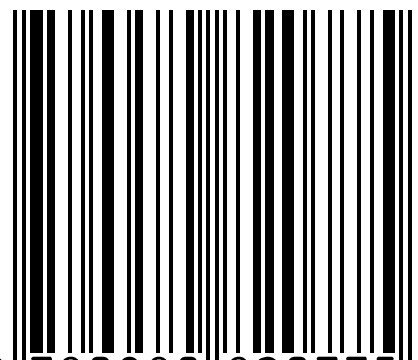
The recipe book “Good Looking, Easy Swallowing” (1993), co-developed and written with Jane Backhouse (speech pathologist), and funded by the Julia Farr Foundation, has become a core text for health professionals, chefs and families seeking to improve the presentation of puréed foods.

The program “Goop to Gourmet” was a quality improvement program run at the Julia Farr Centre in Adelaide, South Australia, to experiment with, and promote,

modified texture diets. Janet would like to thank the many chefs who contributed to the ideas and recipes presented in this kitchen manual.

More recently she has been in touch with new ideas on mould presentations and thickening products on the market. This third edition is based on the current **International Dysphagia Diet Standardisation Initiative** to improve safety for people with dysphagia. It provides an updated and practical guide to enable kitchens to use the guidelines. The overall objective is to improve both presentation and safety of texture modified meals in nursing homes and hospitals.

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