
EatSafe SG Food Preparation Resource Guide



Introduction

Preparation of texture-modified diet is both a science and an art, it is a dynamic process which needs to take into consideration factors such as raw ingredients available, desired dysphagia diet level(s) to achieve, access to equipment, dietary restrictions, institutional processes, etc.

You may wish to try some of the approaches below to kick start preparation of dysphagia diets which maps to IDDSI:

Modify raw ingredients

Use raw minced chicken (instead of bone-in chicken thighs) for Level 6 Soft & Bite-Sized

Modify from cooked diet

Chop a cooked chicken breast into 15x15x15mm pieces before serving for Level 6 diets

Selection of raw ingredients with an end dysphagia diet in mind

Choose broccoli over kangkong for Level 6 diets

Marinates, sauces and/or cooking methods

Preparing and pairing food with complements to achieve desired characteristics, braise

Research and Development (R&D)

3D food printing

It is important to audit the dysphagia diet at point of serve to ensure it adheres to IDDSI requirement.

We encourage you to keep exploring and share ideas which will make oral feeding a safe and pleasant experience for people with dysphagia.

MOH EatSafe SG Team



EatSafe SG Food Preparation Resource Guide

Tips and tricks for food
preparation from raw ingredient



Preparing IDDSI-compliant dysphagia diet textures

Cooking from scratch?

Tips and tricks for preparing from raw ingredients



Think: What diet texture level are you preparing for?

Selecting the right ingredients is the 1st step while preparing texture modified diet. This will reduce time needed to cook or modify later.

This guide includes tips on

- Selecting and preparing various raw ingredients
- Suggested steps to prepare texture modified diets
- Retaining nutritional value during food preparation and cooking process

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- EatSafe SG Master Trainers

Selecting and preparing different food types

Grains/Carbohydrates (E.g. Rice, Noodles, Pasta, Bread)

RICE



Type of rice grains

- Long-grain rice (e.g. basmati and jasmine rice) will have a dry and fluffy texture
- Medium-grain rice (e.g. risotto rice and Japanese rice) will have moist and tender texture
- Short-grain rice (e.g. sushi rice and glutinous rice) will have sticky and clumpy texture

Brown rice

Brown rice requires a longer cooking time. You may want to pre-soak the rice (~6-8hours) to reduce the cooking time.



Preparing soft rice

Choose long-grain and/or medium-grain rice. You want to add more water when boiling the rice grains in order to achieve a softer/fluffier texture.



Preparing porridge

Choose medium-grain rice and/or short-grain rice. When the grains are cooked to a satisfactory consistency, continue to boil it over a low heat until the porridge is thick and without excess water.

Rice for Level 6 Soft & Bite-Sized and Level 5 Minced & Moist

Rice served with Level 5 Minced & Moist Diet and Level 6 Soft & Bite-Sized should be soft and not be sticky or glutinous. You can serve the rice with small amounts of thickened gravy.



Different brands of rice grains may require different water-to-rice ratio during cooking

Selecting and preparing different food types

Grains/Carbohydrates (E.g. Rice, Noodles, Pasta, Bread)

NOODLES



Naturally softer noodles

Most rice based noodles (e.g., *mee sua*, *kway teow* and *bee hoon*) have a softer texture.

Different noodle types have different textures

Some noodle options such as Bee Tai Mak may be naturally chewy in texture. You may need to cook this for a longer period of time to ensure that the texture is sufficiently soft.

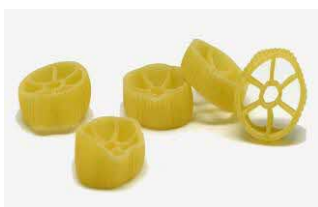
PASTA

- For the more modified dysphagia diet levels (e.g., Levels 6 to 4), you may want to use pasta types which are naturally smaller. This will help save your preparation time.

Pasta types for Level 6 Soft & Bite-Sized



Elbow Macaroni



Rotelli

Pasta types for Level 5 Minced & Moist



Orzo



Orecchiette



Ditalini



Always check the diet texture using the IDDSI testing methods before serving!

Selecting and preparing different food types

Grains/Carbohydrates (E.g. Rice, Noodles, Pasta, Bread)

BREAD

Per IDDSI, the *general rule is to classify bread as a Level 7 Regular diet* as it is a challenging food which requires both the abilities to bite and chew. The literature on choking has often identified bread as a cause of choking.

IDDSI (www.iddsi.org) has useful resources on diet modification, showing tips of preparing Level 5 Mince & Moist sandwich



OTHER GRAINS / CARBOHYDRATES



Oats

Oats (cooked and/or instant) are suitable for most dysphagia diets up to Level 4 Pureed. When the oats is just about cooked, you may want to add water/milk in small amounts to ensure that the end product is not overly sticky or with excess fluids.

Breakfast cereals

Commercial breakfast cereals (e.g., cornflakes, rice crispies), when served soft with milk, are suitable for Level 7 Easy to chew.

You may wish to take precaution to drain off excess fluids and check for particle sizes when serving for Level 6 Soft & Bite-sized or Level 5 Minced & moist.



If you are adding other ingredients into the oats or cereals, they must also meet the texture requirements for the diet texture level.

Selecting and preparing different food types

Proteins (e.g. Meat / Fish / Seafood)

MEAT

The different cuts of meat yield different textures

Cuts of meat that are more suitable for softer textures

- **Pork:** Shoulder, belly, blade, hock
- **Beef:** Boneless cuts, brisket, chuck steak, blade, round, shin
- **Lamb:** Shoulder, shank, belly
- **Chicken:** Thigh



Preparation tips for softer textures

Remove skin, visible fat, bones and gristles before cooking.

Consider using a tenderiser to soften the meat further before cooking.

Cooking with minced meat can help reduce the preparation time.

Stewing over lower heat for a longer period can help break down muscle fibres to achieve a softer texture.



Examples of tenderisers

- Add acid-based foods (e.g. lemon or lime juice, pineapple, papaya, kiwi, etc.) to your marinade. Keep marination time to 2 hours, the meat may turn mushy with prolonged marination time.
- Ginger contains natural enzymes that break down meat protein. Marinate using ginger for at least 2 hours.
- Sprinkle or rub baking soda over the meat surface and leave to stand for few hours. Rinse the meat before cooking to remove the taste of baking soda.



Selecting and preparing different food types

Proteins (e.g. Meat / Fish / Seafood)

FISH



- Remove the scales, skin and fish of the bone before cooking.
- Fish with thicker flesh can be drier in texture (e.g. Spanish Mackerel, also known colloquially as *Batang*)
- Covering the fish with a thick gravy can help to retain moisture during the cooking process
- All varieties of fish including canned fish are suitable

SEAFOOD



Prawn

Cut and lightly pound to loosen the meat fibres.

Dried prawns are not suitable for Level 6 Soft & Bite-sized and below. They may also not be suitable for Level 7 Easy to Chew depending on your cooking methods.



Clams / Shellfish

Cooked clams and shellfish (e.g. abalone, mussels) are not suitable for Level 6 Soft & Bite-Sized and below. Caution is advised for Level 7 Easy to Chew – please check using the IDDSI diet testing methods before serving.



Always check the diet texture using the IDDSI testing methods before serving!

Selecting and preparing different food types

Fruits



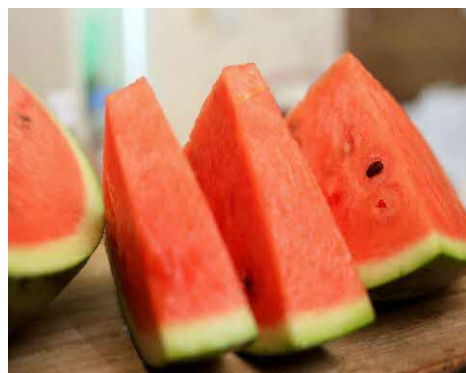
Ripeness Matters!

Select fruits that are riper as these tend to be softer, hence needing no or lesser modification before serving.

Mixed consistency fruits

Fruits with higher water content such as watermelon, oranges and grapefruit are mixed consistency in nature.

These fruits are not recommended for patients on thickened fluids, Level 6 Soft & Bite-Sized and Level 5 Minced & Moist.



Soften crunchy fruits by cooking

You can steam or boil crunchy fruits (apples, pear) to achieve a soft texture. Modify it further into smaller sizes as needed.



When modifying fruits, pay close attention the skin, pith and rind.

Selecting and preparing different food types

Vegetables

Vegetables that are naturally crunchy in texture and fibrous such as black fungus, legumes and lady fingers are not recommended for Level 7 Easy to Chew and below.

Vegetables suitable for more modified dysphagia diet levels (e.g., Levels 6 to 4)

Brinjal, Frozen spinach, Pumpkin

Root vegetable such as carrot, white radish, potatoes

Gourd vegetables such as bottle gourd, snake gourd, hairy gourd

Broccoli, cauliflower (head of broccoli and cauliflower would be easier to achieve a softer texture during cooking)



Leafy Vegetables

Leafy greens can be used to prepare Level 6 Soft & Bite-Sized and Level 7 Easy to Chew, select the tender parts of the vegetable and removed the steams.

Leafy greens may not suitable for Level 5 Minced & Moist as they tend to fold on itself during the chopping process. This makes the size more difficult to keep consistent.

Leafy greens may be less suitable for Level 4 Pureed. You may want to use a strainer to remove any fibre strands before serving.

Cooking methods for softer textures

Blanching, stewing or steaming the vegetables for a longer period of time would help to break down the fibres and achieve a softer texture after cooking.

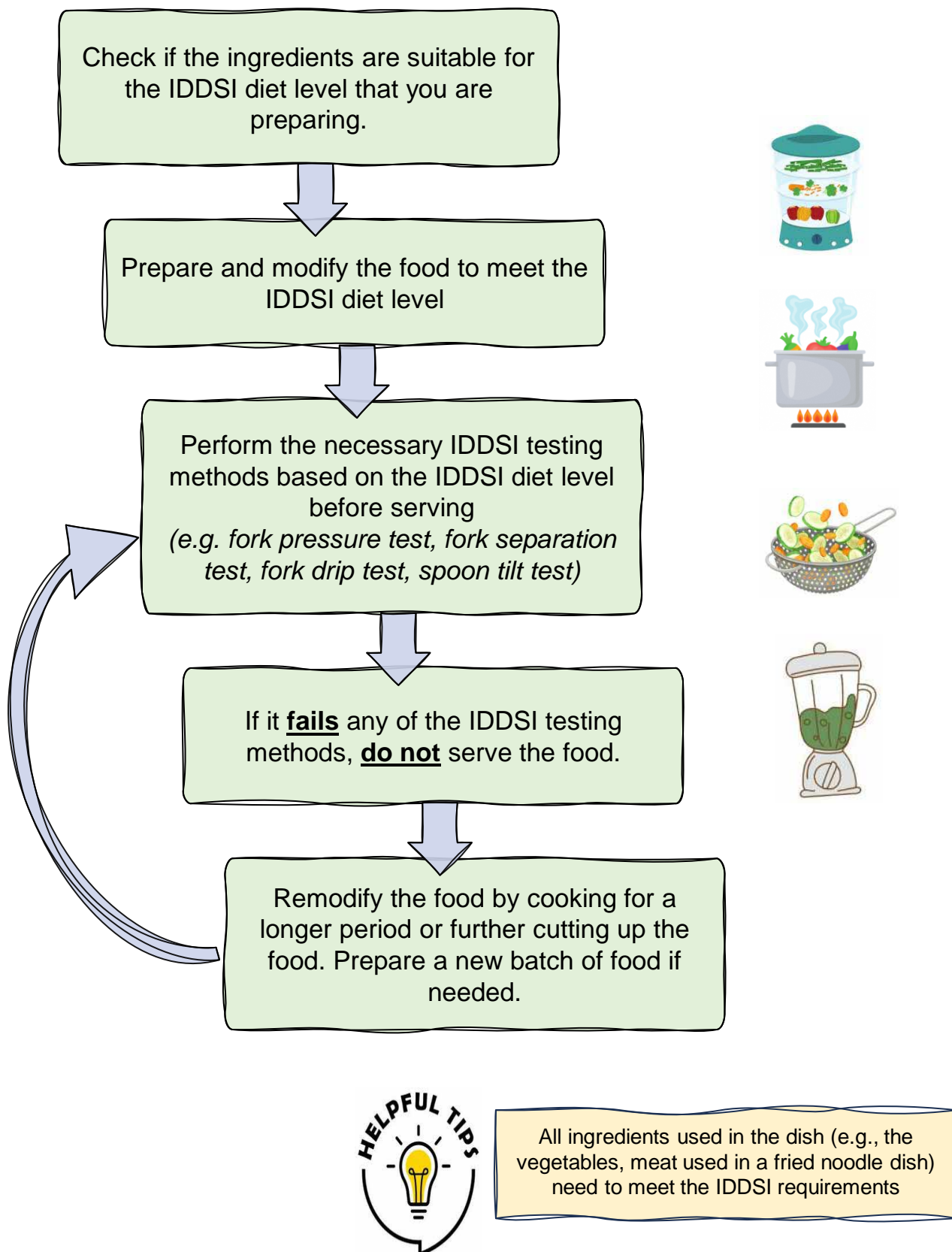


Stir-fried vegetables are often too firm. Consider simmering it with added water or broth to achieve a softer texture.



Water separation may occur after cooking. Drain off excess fluids and thicken up gravy if required.

How to prepare IDDSI-compliant texture modified diets



Food-based Thickening Agents

Apart from commercial food thickeners, you can also consider using thickening agents to thicken up gravy or pureed textures if it is too runny.

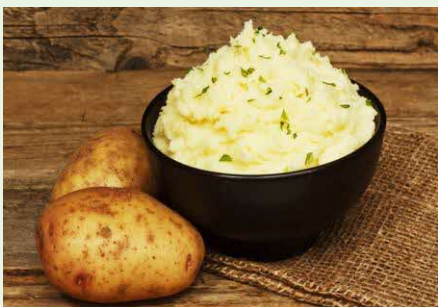
Examples include:



Soft rice or thick porridge



Oats



Mashed potato



Mashed potato powder



Potato starch / Corn starch



You will need to estimate the amount of food-thickening agents to add in. Food-based thickening agents may be less stable. For example, it may become more runny over time.

Always check using IDDSI testing methods before serving!

Retaining Nutritional Value

Here are some tips on how to retain and maximise nutritional value, especially of water-soluble vitamins and mineral, of texture-modified diet.

During the preparation process:



Avoid rinsing the rice excessively as this removes the nutrients.



Wash vegetables and fruits **before** cutting to optimise the nutritional content (e.g., cut vegetables/fruits will lose their water soluble vitamins when soaked)



Wash vegetables and fruits quickly and briskly. Minimise soaking time.



When appropriate, keep the water from soaking to make gravies, soup or sauces.



Do not cut the vegetable and fruit smaller than required. Cut them right before cooking or serving. The longer the time and surface area of vegetable exposed to air, the greater the amount of nutrients lost.

Retaining Nutritional Value

During the cooking process:



Boil vegetable with small amount of water, some nutrient will transfer to the water during boiling.



Boil root vegetables with their skin intact (e.g. potatoes). Peel off the skin only after boiling. This will help to retain the nutrient value of the root vegetable.



Keep the excess water from boiling to make gravies, soup or sauces.



Preheat the pan/oven to shorten cooking time. This will help to reduce vitamin and mineral loss.



Do not cook the food longer than required. Cooking time will affect the nutrition value.



Cooking methods such as steaming, poaching, stewing, using a pressure cooker or microwave will help to preserve nutrients.