



**Innovative tools for Diets oriented to
Education and hEalth improvement
in Dysphagia condition**

**Intellectual Output 1: Methodology and Tools Development for
Adult Educators**

Unit 3

DIET AND NUTRITIONAL TREATMENT APPROACH FOR DYSPHAGIA

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Lesson 3.1. Basics of nutrition on dysphagia condition

What will I learn in this lesson?

The aim of this lesson is to provide knowledge on nutrition in the dysphagia condition.

Learning outcomes

- Understanding the importance of nutrition in the dysphagia condition.
- Knowing the specific nutritional requirements in patients with dysphagia.
- Identifying malnutrition in patients with dysphagia.

3.1.1. Nutritional status and dysphagia

Optimal nutritional status means providing all the nutrients in the right proportions to meet the individual's requirements to achieve the best performance and the longest possible lifetime in good health.

Improving nutritional status is a powerful factor in preventing and treating diseases and maintaining a good quality of life.

In view of the regular consumption of modified and/or less nutrient-dense meals, combined with difficulties in tolerating large volumes of fluids, dysphagic patients are at particularly high risk of inadequate macro- and micronutrient intakes.

Consequently, adults can suffer a negative energy balance, resulting in sustained weight loss, and their risk of sarcopenia, inadequate fluid intake and micronutrient deficiencies is increased. Referring to children, this situation can cause permanent, widespread damage to their growth, development and well-being.

The psychological implications of dysphagia should also be observed. Patients find increased dependence on caregiver at mealtimes and new feeding patterns, as degrading and upsetting, which may further lead to loss of appetite, depression and anxiety or fear at mealtimes – contributing to weight loss and exacerbation of malnutrition.

In fact, it is well-documented that dehydration and malnutrition, mainly undernutrition, are linked to undiagnosed or untreated dysphagia.

Malnutrition leads to systemic muscle mass loss and atrophy of the muscles used to swallow, and this ultimately leads to worsening of dysphagia.

Effective nutritional management is crucial to to maintain good nutritional status or to reverse malnutrition. The first step to stablish appropriate nutrition care plans is the nutrition assessment.

Goals of Nutritional Management:

- Maintain and ensure adequate nutrition and hydration status;
- Implement the correct and safe texture modified diet upon speech and language therapist recommendations;
- Maximize nutritional intake while maintaining safe eating, i.e. to prevent aspiration and choking.
- Establish the need for dietary supplementation and/or fortification.

3.1.2. Nutritional requirements in patients with dysphagia

3.1.2.1. Correct energy balance



Figure 1. Components of the energy balance

Source: Modified image obtained from <https://www.activehealth.sg/eat-better/resources/energy-balance>

- Energy intake: The number of calories in a food refers to the amount of energy stored in that food.
- Energy expenditure: Your body uses calories:
 - Physical activity: walking, thinking, working, sports and so on.
 - Basal Metabolic Rate (BMR): vital physiological functions such as breathing, working of heart, etc.
 - Thermic Effect of Food (TEF): food digestion and absorption.
- Correct energy balance:
 - Adults: The average adult person needs about 2,000 calories every day to maintain their weight, but the amount will depend on their age, sex, and physical activity level.

Do you want to know energy intake recommendations for EU? Visit: <https://multimedia.efsa.europa.eu/drvs/index.htm>

- Children: The energy they need includes that used for their proper growth and development.
- Specific situations: Some diseases require higher energy intake for better recovery.

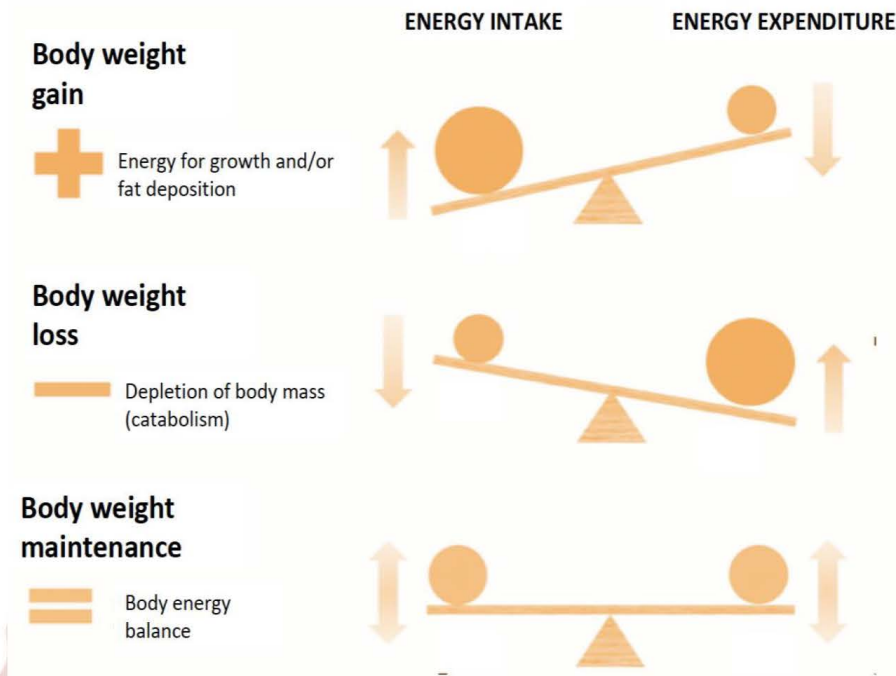


Figure 2. Different situations of energy balance

3.1.2.2. Adequate macronutrient intake.

- **Macronutrients:**
 - Macronutrients are:
 - Proteins
 - Glycaemic carbohydrates
 - Dietary fibre
 - Fats
 - Water
 - They predominate in the composition of foodstuffs and, therefore, are daily ingested in quantities of grams.
 - Their main functions within the organism of proteins, fats and glycaemic carbohydrates are energetic and structural. Dietary fibre and water are considered regulatory nutrients.
 - Visit <https://multimedia.efsa.europa.eu/drvs/index.htm> to consult the Dietary Reference Values for the EU.
- **Proteins:**

- Dietary proteins are the source of nitrogen and essential aminoacids which the body requires for tissue growth and maintenance.
- Main sources of protein could be plant and animal based.
- Animal protein is a complete protein, containing all essential amino acids, and is considered a high biological value protein (HBV).
- Plant proteins are incomplete proteins, providing only several essential amino acids to the diet, and are considered low biological value (LBV) proteins.



Source: obtained from Canva Pro

- Protein complementation is when LBV proteins are combined: By eating two LBV proteins you can make up for the lacking amino acids in each, therefore giving an intake with a HBV i.e. legumes with cereals. There could also be protein complementation by eating adequate amounts of HBV and LBV proteins i.e. milk with bread.

Do you want to know more about proteins? Visit:
<https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein/>

○ Glycaemic carbohydrates:

- They are the main source of energy, which they provide to body cells in the form of glucose.
- Simple carbohydrates – Sugars: They are rapidly digested and absorbed in the human small intestine. Food containing sugars is prone to have a higher glycemic index. The amounts of dietary sugars should be low, and should preferably be sourced from nutritionally dense foods – i.e. fruits and fruit smoothies.



Source: designed by Canva Pro

- Complex carbohydrates – Starch: They are slower digested and absorbed in the human small intestine and a better choice as source of energy, mainly when these foods also contain dietary fibre. Main sources of carbohydrates and fibres should be form grits, porridges, mashed root and legumes.

Do you want to know more about added sugars? Visit:
<https://www.hsph.harvard.edu/nutritionsource/carbohydrates/added-sugar-in-the-diet/>
<https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/sugar>

○ *Dietary fibre:*

- Carbohydrates which cannot be digested in the human small intestine and includes non-starch polysaccharides (cellulose, hemicellulose and pectins), resistant starch, resistant oligosaccharides, and lignin.
- Dietary fibre has an established role in bowel function (e.g. laxation). Some types of dietary fibre also reduce absorption of dietary fat and glycaemic carbohydrates.
- It is one of the most complicated nutrients, because naturally fibres present in nuts or grains can be difficult to consume by dysphagic patients. However, fruit and vegetables are also sources of dietary fibre.



Source: <https://pixabay.com/>

Do you want to know more about dietary fiber? Visit:
<https://www.hsph.harvard.edu/nutritionsource/carbohydrates/fiber/>

○ *Fat:*

- Fat is the most caloric-dense macronutrient.
- Saturated and *trans* fat are usually solid at room temperature. Naturally-occurring in foodstuffs of animal origin, they are also very popular in (ultra-) processed foods. Butter, tallow, lard, coconut and palm oil are rich sources of saturated fat. Their intake, as well as that of cholesterol, should be limited.



Source: <https://pixabay.com/>

Do you want to know more about "bad" fats? Visit:
<https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/fats-and-cholesterol/>

- Unsaturated fat, which are liquid at room temperature, are considered the "good" fats because they play a high number of beneficial roles, mainly at cardiovascular level.

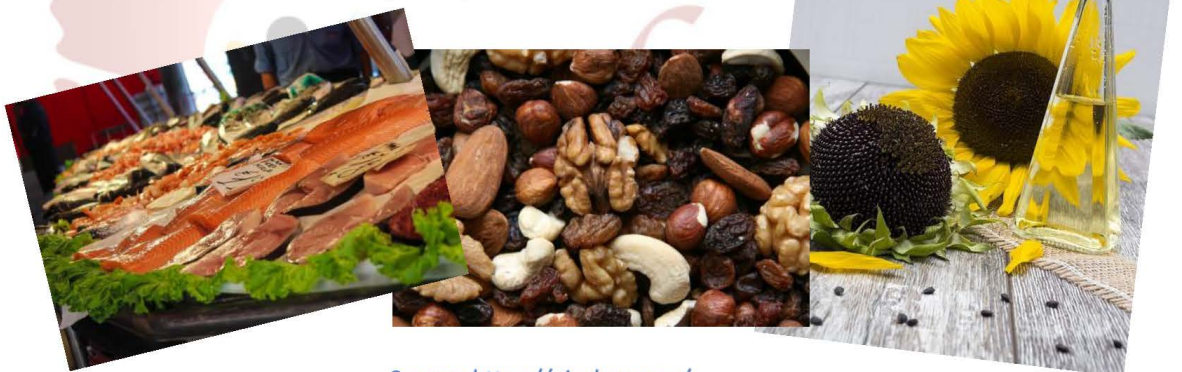
- Monounsaturated fat should be the main type of fat to be ingested. Nuts, avocado, olive oil are sources of oleic acid, the most abundant monounsaturated fatty acid in foods.



Source: <https://pixabay.com/>

- Polyunsaturated fat. The most important polyunsaturated fatty acids are nutritionally essential, so it is compulsory in the diet:
 - Omega 3 fatty acids: alpha-linolenic acid (ALA), eicosapentaenoic acid and docosahexaenoic acid (EPA and DHA)
 - Omega 6 fatty acids: linoleic acid (LA)

Besides sources of energy, polyunsaturated fatty acids are considered regulators due to their role as precursors of important immunomodulatory compounds.



Source: <https://pixabay.com/>

Do you want to know more about fats? Visit:
<https://www.heart.org/en/healthy-living/healthy-eating/eat-smart/fats>

Did you know ...?

In addition to those present as components of foodstuffs, fats can be served as sauces or consumed by adding in smashed food, not only to increase energy intake, but also improve the taste.



Source: <https://pixabay.com/>



Source: <https://www.pexels.com/>

Water:

- Almost every cell in human body contains water: body water makes up 79% of muscles, 73% of brain, and even 31% of bones. Overall body weight can be 45-65% water.
- Water is essential for practically all functions of the body. It helps to restore fluids lost through metabolism, breathing, sweating, and the removal of waste. Besides, it is particularly important for thermoregulation. Finally, it lubricates the joints and tissues, maintains healthy skin, and is necessary for proper digestion.
- A human can go without food for about three weeks but would typically only last three to four days without water.
- Keep in mind that about 20% of our total water intake comes not from beverages but from water-rich foods such as fruits and vegetables.



Source: designed by Canva Pro



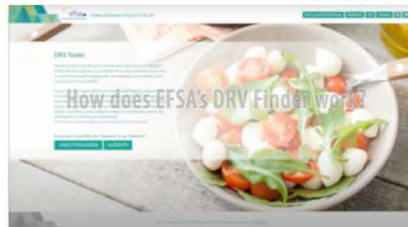
Source: <https://pixabay.com/>

Do you want to know which foods are the richest in water? Visit:
<https://www.medicalnewstoday.com/articles/325958>

ACTIVITY ABOUT MACRONUTRIENTS:

Try to use the *Dietary Reference Value Finder* and answer this question:

What are the adequate macronutrients intake for a woman of 20 years-old?



Follow the instructions of this video: <https://www.youtube.com/watch?v=-0ww-QI9G08>



3.1.2.3. Dietary Reference Intake for vitamins and minerals

○ *Micronutrients:*

● Micronutrients are:

○ Vitamins:

- Water-soluble vitamins
- Fat-soluble vitamins

○ Minerals

- Macrominerals
- Microminerals or trace elements

- Micronutrients are non-energetic nutrients but they are essential for healthy development, disease prevention, and wellbeing due to their functions as, mainly, regulatory compounds.
- The organism needs micronutrients in small quantities (milligrams or, even, micrograms), but it is essential to provide them in the diet because the human organism is not able to synthesise them (or only in insufficient quantities).
- There is no single food that contains all the essential vitamins and minerals for human beings.
- Visit <https://multimedia.efsa.europa.eu/drvs/index.htm> to consult the Dietary Reference Values for the EU.

○ *Vitamins:*

- 13 organic substances, with lots of different regulatory functions, are considered vitamins. Vitamins play a vital role in many biochemical functions in the human body and are essential components for maintaining optimal health.

- Water-soluble vitamins: They are characterised by their ability to dissolve in water. Therefore, in general, their absorption in the small intestine is easier, their storage in the body is very limited and unused amounts and/or their metabolites are eliminated in the urine.

BE CAREFUL

Although the body keeps a small reserve of water-soluble vitamins, they have to be taken regularly to prevent a shortage in the body.

There are 9 water-soluble vitamins: the B-complex vitamins, thiamine, riboflavin, niacin, pantothenic acid, biotin, vitamin B6, folate, and vitamin B12, and vitamin C.

Do you want to know more about water-soluble vitamins? Visit:
<https://www.ncbi.nlm.nih.gov/books/NBK538510/>
<https://ods.od.nih.gov/factsheets/list-VitaminsMinerals/>

- Fat-soluble vitamins: There are 4 fat-soluble vitamins: vitamins A - retinol, D - cholecalciferol, E - tocopherol, and K.

They dissolve in fat. Due to their low solubility in hydrophilic media, the body absorbs them into newly forming micelles in the small intestine. Besides, they need specific ways of transport in the body and tend to accumulate in the tissues.

BE CAREFUL

As they are stored in the tissues, they do not need to be taken regularly, but excessive intake carries a risk of toxicity.

Retinol is present in animal-based food, but carotenoids from plant-based food can be converted by the body into retinol.

Cholecalciferol can be synthesised in the skin by the action of ultraviolet rays.

Vitamin K synthesised by intestinal bacteria can be used by the organism.

Do you want to know more about fat-soluble vitamins? Visit:
<https://www.ncbi.nlm.nih.gov/books/NBK534869/>
<https://ods.od.nih.gov/factsheets/list-VitaminsMinerals/>

○ Minerals:

- They are inorganic substances that are responsible for structural functions involving the skeleton and soft tissues and for regulatory functions including neuromuscular transmission, blood clotting, oxygen transport, and enzymatic activity.

- Macrominerals: Calcium, magnesium, phosphorus and the electrolytes, sodium, potassium and chloride, are considered essential macrominerals
- Microminerals or trace elements: Iron, zinc, copper, iodine, selenium are considered essential the most important trace elements.

BE CAREFUL

All minerals are essential which means it is mandatory its intake with the diet in order to maintain adequate levels in the organism.

Do you want to know more about minerals? Visit:
<https://www.ncbi.nlm.nih.gov/books/NBK554545/>
<https://www.ncbi.nlm.nih.gov/books/NBK218735/>
<https://ods.od.nih.gov/factsheets/list-VitaminsMinerals/>

Did you know ...?

- Eating a wide variety of foods is the best way to get the necessary amounts of vitamins and minerals.
- Some micronutrients are present in a small number of foods i.e. foods from animals, but not plants, naturally have vitamin B12.



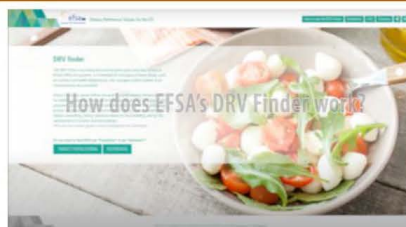
Source: <https://www.clinicabaviera.com/>

Do you want to know more about micronutrients sources? Visit: <https://ods.od.nih.gov/factsheets/list-VitaminsMinerals/>

ACTIVITY ABOUT MICRONUTRIENTS:

Try to use the Dietary Reference Value Finder and answer this question:

What are the adequate micronutrient intake for a man of 70 years-old?



Follow the instructions of this video: <https://www.youtube.com/watch?v=0ww-QI9G08>



3.1.2.4. Optimal supply of bioactive compounds – phytochemicals

- They are interesting naturally occurring compounds, mainly in plant-based food (that is why they are known as phytochemicals), that are not considered nutrients.

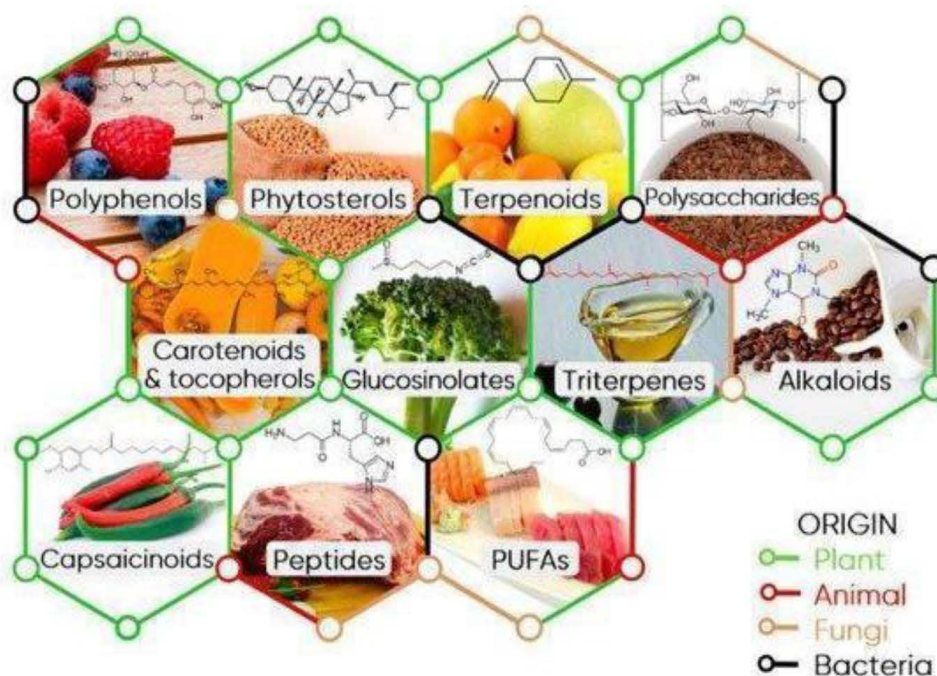


Figure 3. Major food bioactive compounds sources

Obtained from: Câmara JS, Albuquerque BR, Aguiar J, Corrêa RCG, Gonçalves JL, Granato D, et al. Food Bioactive Compounds and Emerging Techniques for Their Extraction: Polyphenols as a Case Study. Foods 2021, 10, 37. <https://doi.org/10.3390/foods10010037>

- Bioactive compounds are thought to be largely responsible for the protective health benefits of these plant-based foods and beverages, beyond those conferred by their nutritional value.
- These phytochemicals, which are part of a large and varied group of chemical compounds, also are responsible for the color, flavor, and odor of plant foods, such as blueberries' dark hue, broccoli's bitter taste, and garlic's pungent odor.
- Research strongly suggests that consuming foods rich in phytochemicals provides health benefits, but not enough information exists to make specific recommendations for phytochemical intake.



Time for discussion

Which recommendation do you think is the most difficult to comply with in a patient with dysphagia?

3.1.3. Relevance of the diagnosis of malnutrition in dysphagia

3.1.3.1. Malnutrition in patients with dysphagia

Malnutrition refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients:

- Undernutrition, which includes wasting (low weight-for-height), stunting (low height-for-age) and underweight (low weight-for-age);
- Micronutrient-related malnutrition, which includes micronutrient deficiencies (a lack of important vitamins and minerals) or micronutrient excess; and
- Overweight and obesity.

It is known that various pathological conditions may cause malnutrition, but many, even healthy, dysphagic people may fail to adequately consume food and experience any type of malnutrition.

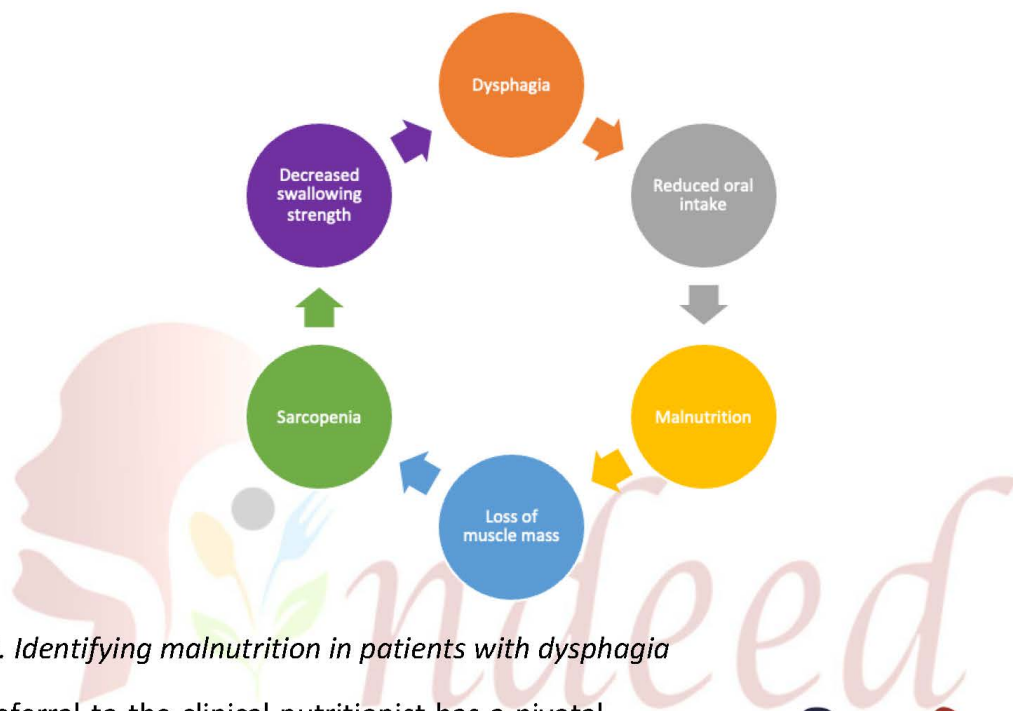
Dysphagia and malnutrition are apparently associated. Several studies have focused on dysphagia as a prevalent risk factor for malnutrition during recent years.

Untreated dysphagia patients who are malnourished sustain a longer hospital stay, higher risk of complications, and higher mortality rate than those who are properly nourished.

Did you know ...?

- The prevalence of concurrent malnutrition and dysphagia has been estimated between 3% and 29% in the elderly. Vitamin B12, C, D, folate, zinc and iron are the micronutrients to pay most attention to.
- The prevalence of oropharyngeal dysphagia in children with cerebral palsy is estimated to be between 19% and 99%. A recent review found a high rate of malnutrition in children with cerebral palsy and several nutrient deficiencies were detected such as hypocalcemia and reduced serum concentrations of zinc, copper, and vitamin D.

- The presence of dysphagia is a major risk factor for developing malnutrition in stroke patients.
- It is difficult to accurately ascertain the prevalence of malnutrition in dysphagic people due to discrepancies in the measurement methods used.
- Reduced oral intake due to dysphagia leads to weight loss and disrupted synthesis of skeletal muscles, which consequently result in further development of sarcopenia. Therefore, a vicious cycle between dysphagia, malnutrition, and sarcopenia eventually becomes inevitable.



3.1.3.2. Identifying malnutrition in patients with dysphagia

Early referral to the clinical nutritionist has a pivotal importance in halting the progressive nature of malnutrition and allowing close monitoring of patients' weight and oral intake and the tolerability of the prescribed diet.

Health professionals must do nutrition screening to detect patients at risk of malnutrition.



The clinical nutritionist carries out a full nutritional status assessment and the results determine the dietary counselling and/or treatment.

○ **Nutritional status screening:**

Nutritional status screening ...

- is a process to identify an individual who is malnourished or at risk of being malnourished.

Source: obtained from Canva Pro

- is used to determine whether a full nutrition assessment is indicated.
- is generally completed by someone other than the nutrition provider.

Malnutrition risk screening (MNRS) tools ...

- should be quick, simple, and easy to use
- a certain degree of validity, agreement, and inter-rater reliability in identifying malnutrition risk is necessary

A. MNRS for adults:

- MST – Malnutrition Screening Tool
- MUST – Malnutrition Universal Screening Tool



Source: <https://www.shutterstock.com/>

Malnutrition Screening Tool (MST)

STEP 1: Screen with the MST

1 Have you recently lost weight without trying?

No	0
Unsure	2

If yes, how much weight have you lost?

2-13 lb	1
14-23 lb	2
24-33 lb	3
34 lb or more	4
Unsure	2

Weight loss score:

2 Have you been eating poorly because of a decreased appetite?

No	0
Yes	1

Appetite score:

Add weight loss and appetite scores

MST SCORE:

STEP 2: Score to determine risk

**MST = 0 OR 1
NOT AT RISK**
Eating well with little or no weight loss

If length of stay exceeds 7 days, then rescreen, repeating weekly as needed

**MST = 2 OR MORE
AT RISK**
Eating poorly and/or recent weight loss

Rapidly implement nutrition interventions. Perform nutrition consult within 24-72 hrs, depending on risk.

STEP 3: Intervene with nutritional support for your patients at risk of malnutrition.

Notes: _____

Abbott Nutrition

Ferguson, W et al. Nutrition 1999 15:459-464
©2013 Abbott Laboratories
88055May 2013 LITHO IN USA
www.abbottnutrition.com/uk/ndp

Malnutrition Universal Screening Tool (MUST) ☆

Identifies patients who are malnourished or at risk of malnutrition.

INSTRUCTIONS
Use in patients ≥18 years old. May be applied in either a hospital or community setting.

BMI, kg/m²

>20	0
18.5-20	+1
<18.5	+2

Unplanned weight loss in past 3-6 months

<5%	0
5-10%	+1
>10%	+2

Patient is acutely ill and there has been or is likely to be no nutritional intake for >5 days

No	0
Yes	+2

MUST SCORE:
0 points
1 point
2 points

MALNUTRITION RISK:
Low risk
Medium risk
High risk

Do you want to know how to complete the MUST? Visit:
https://www.bapen.org.uk/pdfs/must/must_full.pdf
<https://www.youtube.com/watch?v=oOT7GHfieMQ>

B. MNRS for elderly:

- MNA – Mini Nutritional Assessment

Questionnaires available here: <https://www.mna-elderly.com/mna-forms>



Source: <https://pixabay.com/>

Mini Nutritional Assessment
MNA®

Nestlé
NutritionInstitute

Last name: _____ First name: _____
Sex: _____ Age: _____ Weight, kg: _____ Height, cm: _____ Date: _____

Complete the screen by filling in the boxes with the appropriate numbers.
Add the numbers for the screen. If score is 11 or less, continue with the assessment to gain a Malnutrition Indicator Score.

Screening

A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?
0 = severe decrease in food intake
1 = moderate decrease in food intake
2 = no decrease in food intake

B Weight loss during the last 3 months
0 = weight loss greater than 3kg (6.6 lbs)
1 = does not know
2 = weight loss between 1 and 3kg (2.2 and 6.6 lbs)
3 = no weight loss

C Mobility
0 = bed or chair bound
1 = able to get out of bed / chair but does not go out
2 = goes out

D Has suffered psychological stress or acute disease in the past 3 months?
0 = yes
2 = no

E Neuropsychological problems
0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems

F Body Mass Index (BMI) - weight in kg / (height in m)²
0 = BMI less than 16
1 = BMI 16 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater

Screening score (total of max. 14 points)
12-14 points: ☐ Normal nutritional status
9-11 points: ☐ At risk of malnutrition
0-7 points: ☐ Malnourished
For a more in-depth assessment, continue with questions G-R

Assessment

G Lives independently (not in nursing home or hospital)
1 = yes
0 = no

H Takes more than 3 prescription drugs per day
0 = yes
1 = no

I Pressure sores or skin ulcers
0 = yes
1 = no

J How many full meals does the patient eat daily?
0 = 1 meal
1 = 2 meals
2 = 3 meals

K Selected consumption markers for protein intake
Y At least one serving of dairy products (milk, cheese, yogurt) per day
Y Two or more servings of legumes or eggs per week
Y Meat, fish or poultry every day
0.0 = 0 or 1 yes
0.5 = 0.2 yes
1.0 = 0.2 yes

L Consumes two or more servings of fruit or vegetables per day?
0 = no
1 = yes

M How much fluid (water, juice, coffee, tea, milk...) is consumed per day?
0.0 = less than 3 cups
0.5 = 3 to 5 cups
1.0 = more than 5 cups

N Mode of feeding
0 = unable to eat without assistance
1 = self-fed with some difficulty
2 = self-fed without any problem

O Self view of nutritional status
0 = views self as being in good health
1 = is uncertain of nutritional state
2 = views self as having no nutritional problem

P In comparison with other people of the same age, how does the patient consider his / her health status?
0.0 = not as good
0.5 = about not know
1.0 = as good
2.0 = better

Q Mid arm circumference (MAC) in cm
0.0 = MAC less than 21
0.5 = MAC 21 to 22
1.0 = MAC greater than 22

R Calf circumference (CC) in cm
0 = CC less than 31
1 = CC 31 or greater

Assessment score (max. 16 points)
Screening score
Total Assessment (max. 30 points)

Malnutrition Indicator Score
24 to 30 points: ☐ Normal nutritional status
17 to 23.5 points: ☐ At risk of malnutrition
Less than 17 points: ☐ Malnourished

Score:

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Do you want to know how to complete the MNA? Visit:
<https://www.mna-elderly.com/sites/default/files/2021-10/mna-guide-english-sf.pdf>

C. Paediatric MNRS:

- STAMP – Screening Tool for Assessment of Malnutrition in Paediatrics.
- PNST – Paediatric Nutrition Screening Tool.



Source: <https://www.pngegg.com/>

Do you want to know more about STAMP? Visit:
<https://www.stampscreeningtool.org/what-is-stamp-training>

Paediatric Nutrition Screening Tool

Nutrition screening questions

1	Has the child unintentionally lost weight lately?	Yes	No
2	Has the child had poor weight gain over the last few months?	Yes	No
3	Has the child been eating/feeding less in the last few weeks?	Yes	No
4	Is the child obviously underweight?	Yes	No

If 'yes' to two or more of the above:

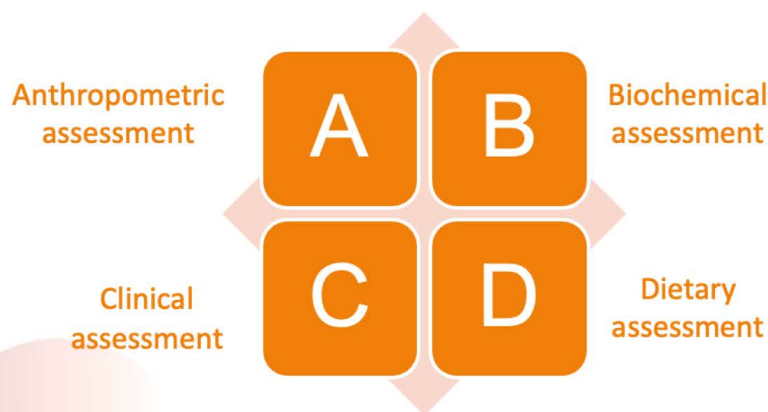
- refer the child for further nutrition assessment (see contact details)
- check if child is known to a dietitian
- measure weight and length/height
- commence food and fluid intake record.

○ Nutritional status assessment:

Nutritional status assessment ...

- is used to determine the nutritional status of individual or population groups as influenced by the intake and utilization of nutrients
- can be defined as the interpretation from dietary, laboratory, anthropometric, and clinical studies.

An easy way to remember the components of the nutritional status assessment is:



Do you want to know more about ABCD? Visit:
<https://www.fantaproject.org/sites/default/files/resources/NACS-Users-Guide-Module2-May2016.pdf>

A. ANTHROPOMETRIC ASSESSMENT:

Consists in the measurement of the size, weight and proportions of the body.

The most common measurements are weight, height, perimeters and skin folds.



Source: <https://medicaltrain.es/>

What is BMI calculated?
 Visit: https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmicalc.htm

B. BIOCHEMICAL ASSESSMENT:

Uses laboratory measurements of serum protein, serum micronutrient levels, serum lipids, and immunological parameters to assess general nutritional status and to identify specific nutritional deficiencies. Urine and stools samples may also be analysed.



Source: <https://pixabay.com/>

C. CLINICAL ASSESSMENT:

The estimation of nutritional status on the basis of recording a medical history and conducting a physical examination to detect signs (observations made by a qualified observer) and symptoms (manifestations reported by the patient) associated with malnutrition. Some sociodemographic and psychological factors related to nutritional status are also collected.



Source: <https://pixabay.com/>

D. DIETARY ASSESSMENT:

It provides information on dietary quantity and quality and the results are compared with recommended intake.

Several common methods to assess dietary intake exist: 24h-recall, food-frequency questionnaires and food weighted records



Source: <https://pixabay.com/>

Do you want to know more about the methods to assess dietary intake?
Visit: https://epi.grants.cancer.gov/dietary-assessment/Chapter%201_Coulston.pdf

3.1.3.3. Managing malnutrition in patients with dysphagia

In order to overcome the problem of malnutrition, a team approach including medical doctors, dentists, nurses, public health nurses, nutritionists, and therapists is mandatory.

Actions:

- Remove or substantially modify dietary restrictions;
- Encourage use of flavor enhancers and frequent small meals;
- Improve protein and energy intake by enrichment meals;
- Treat depression, and remove or replace medicines that can cause loss of appetite as a side-effect,
- Offer liquid nutritional supplements for use between (not with) meals;
- Evaluate swallowing as well as functional ability to manage eating;
- If the patient must be fed, allow adequate time for chewing, swallowing, and clearing throat before offering another bite.

Evaluation test

The correct answers are underlined

1. The goals of Nutritional Management are the following (please select the wrong answer):

- a. Maintain and ensure adequate nutrition and hydration status;
- b. Implement the correct and safe texture modified diet upon speech and language therapist recommendations;
- c. Minimize nutritional intake while maintaining safe eating, i.e. to prevent aspiration and choking.
- d. Establish the need for dietary supplementation and/or fortification.

2. Macronutrients are:

- a. Proteins, Carbohydrates, Dietary fiber, Fats and Water
- b. Proteins, Glycaemic carbohydrates, Dietary fiber, Fats
- c. Proteins, Glycaemic carbohydrates, Dietary fiber, Fats and Water
- d. Proteins, Glycaemic carbohydrates, Fats and Water.

3. Which sentence is true?

- a. Simple carbohydrates are slowly digested and absorbed in the human small intestine
- b. Food containing sugars is prone to have higher glycemic index.
- c. Main sources of carbohydrates and fibers are meat and animal products.
- d. The amounts of dietary sugars should be high

4. Which polyunsaturated fat are compulsory in diet:

- a. Omega 3
- b. Omega 6
- c. Omega 5
- d. Omega 3 y 6

5. Please select the wrong statement

- a. Micronutrients include only vitamins and minerals.
- b. Micronutrients are non-energetic nutrients but they are essential for healthy development, disease prevention, and wellbeing due to their functions as, mainly, regulatory compounds.

- c. The organism needs micronutrients in small quantities (milligrams or, even, micrograms), but it is essential to provide them in the diet because the human organism is not able to synthesise them (or only in insufficient quantities).
- d. Phytochemicals are micronutrients because they should be ingested in small quantities in the diet.

6. Indicate true or false

- a. Minerals are inorganic substances that are responsible for structural functions involving the skeleton and soft tissues and for regulatory functions including neuromuscular transmission, blood clotting, oxygen transport, and enzymatic activity. TRUE
- b. Calcium, magnesium, and iron and the electrolytes, sodium, potassium and chloride, are considered essential macrominerals. FALSE
- c. Chloride, zinc, copper, iodine, selenium are considered the most important essential trace elements. FALSE

7. Malnutrition refers to deficiencies, excesses, or imbalances in a person's intake of energy and/or nutrients and includes:

- a. Undernutrition, micronutrient-related malnutrition, overweight and obesity
- b. Undernutrition and micronutrient-related malnutrition
- c. Undernutrition, micronutrient-related malnutrition, and obesity
- d. Undernutrition, micronutrient-related malnutrition and overweight.

8. Nutritional status assessment is:

- a. A (anthropometric assessment), B (Biochemical assessment), C (Critical assessment) and D (dietary assessment)
- b. A (anthropometric assessment), B (Biochemical assessment), C (Clinical assessment) and D (dietary assessment)
- c. A (anthropometric assessment), B (Biodisponibility assessment), C (Critical assessment) and D (dietary assessment)
- d. A (anthropometric assessment), B (Biodisponibility assessment), C (Clinical assessment) and D (dietary assessment)

To Know More

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Lesson 3.2. Balanced diet

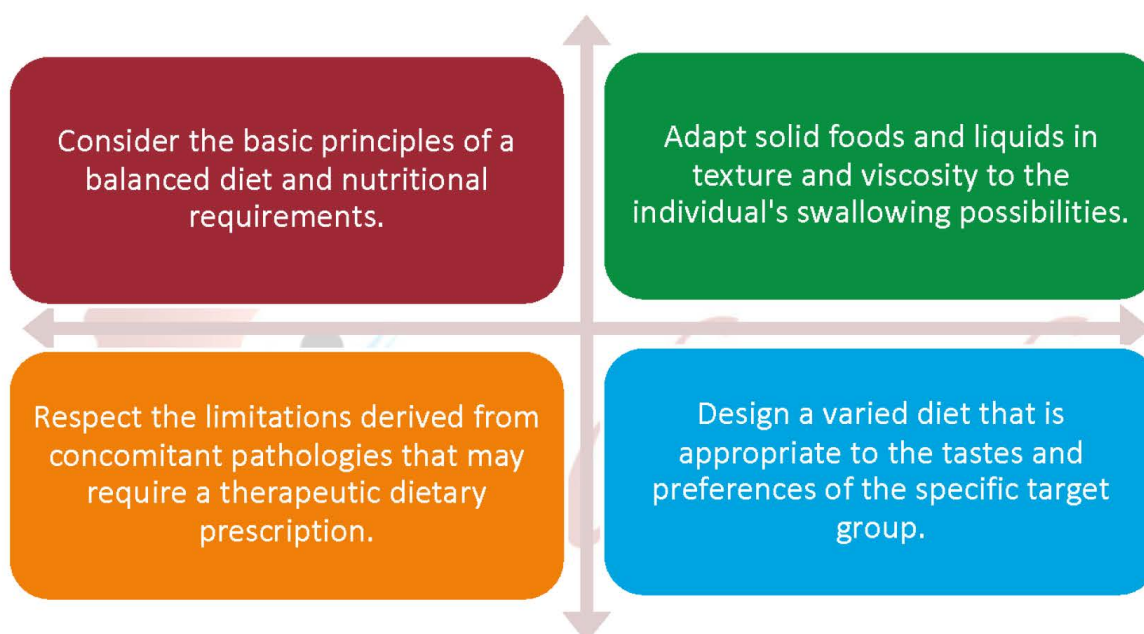
What will I learn in this lesson?

The aim of this lesson is to provide the necessary knowledge to develop a balanced diet to ensure an adequate nutritional status of people suffering from dysphagia.

Learning outcomes

- To develop understanding of distribution of foodstuffs on a balanced diet in order to ensure dietary adequacy;
- To recognize the benefits of nutrition fortification and using supplements;
- To apply knowledge and create a menu template.

3.2.1. Criteria of the dysphagia diet



Focus on ...

- To ensure an adequate supply of energy, macro and micronutrients, it is essential to take into account the characteristics of the dysphagic individual.
- Short-term or long-term dysphagia. If dysphagia is temporary – many patients will be able to progress to a wider variety of foods and more normal textures, as swallowing functions improves. If dysphagia is certain neurological and degenerative disease, deterioration is progressive and inevitable.
- Meal fortification. Liquid added to food should have some nutritional value. Higher caloric additions, such as full fat milk, cream, butter and sauces, provide extra energy and several nutrients. Given the importance of achieving protein requirements, it may be necessary to fortify meals with high quality protein-rich foods such as egg whites.
- Diet supplementation

3.2.2. Distribution of foodstuffs on a balanced diet

A balanced diet gives the body the nutrients it needs to function correctly. In order to get the nutrients needed, most of the daily caloric intake in should come from:

- fresh fruits & vegetables;
- whole grains;
- protein rich foods (legumes; meat; fish)
- dairy products;
- fats and oils

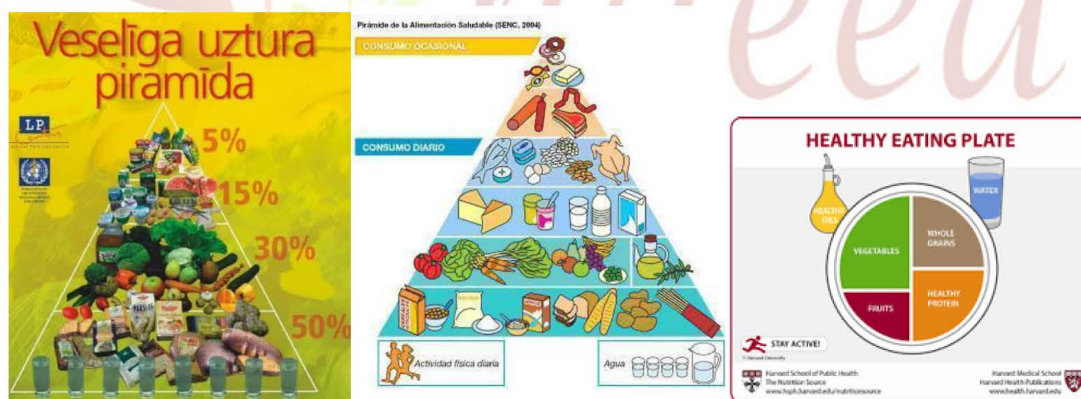
In practice, a balanced diet means that we should eat a variety of foods, in different proportions, and in general avoid leaving out entire food groups, as each food group provides fuel and nutrients required for optimal health.

Food-Based Dietary Guidelines (FBDG) are developed to help people build a balanced and varied diet by following the food groups and consuming them in the right proportions.

- **Food-Based Dietary Guidelines (FBDG) in Europe**

FBDG advice on foods, food groups and dietary patterns to provide the required nutrients to the general public to promote overall health and prevent chronic diseases

Some countries provide a graphic representation, such as a food pyramid or a plate, to illustrate and sum-up the advice.

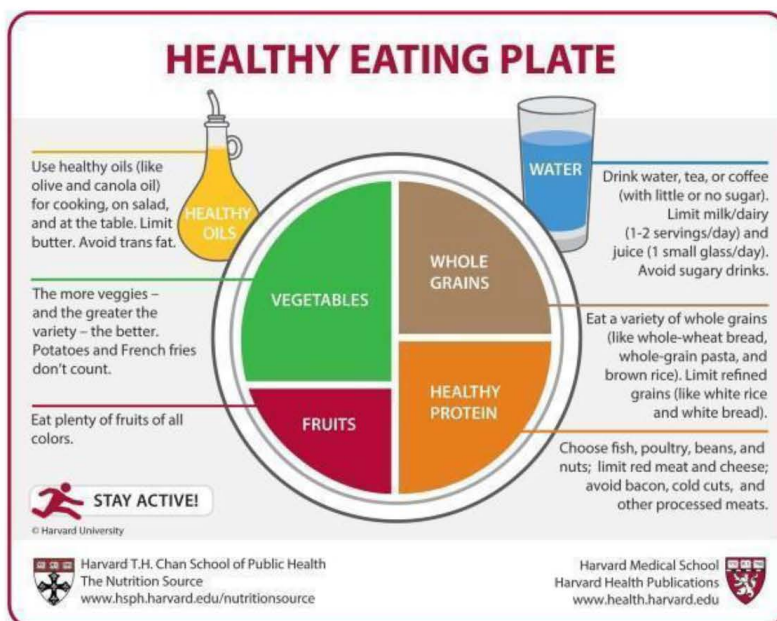


Watch this video to learn what are and how to use Dietary Guidelines:

<https://youtu.be/o9Vf5ZveXo>

Do you want to know more about FBDG in Europe?
Visit: <https://www.eufic.org/en/healthy-living/article/food-based-dietary-guidelines-in-europe>

The Harvard Eating Plate is more widely accepted nowadays than the Food Pyramid. Find out more here: <https://www.hsph.harvard.edu/nutritionsource/healthy-eating-plate/>



- **A balanced diet consists on:**

1. **Fruits & Vegetables** should make up the largest portion of our diet. They contain a wide variety of nutrients like several vitamins and minerals, carbohydrates and dietary fibre. They are also the main source of phytochemicals.



Source: designed by Canva Pro

2. It is recommended to **choose mostly whole grains** (such as brown rice, oats and barley), and whole meal/wholegrain/high cereal/fibre varieties of bread, pasta, crispbreads and cereal foods. They mainly provide starch and fiber, but they are sources of several important vitamins and minerals.



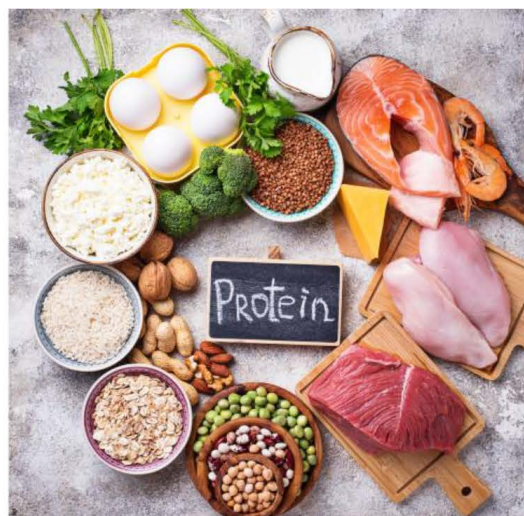
Source: designed by Canva Pro

3. Varied protein rich foods

Dairy products as milk, natural yoghurt or cheese, primarily provide us with calcium, protein and fats, plus other vitamins and minerals.

Red meat is high in saturated fat, vitamin B12, iron, niacin, and zinc. Meanwhile, fish is a great source of omega-3 fatty acids, vitamin D, thiamine, selenium, and iodine.

Vitamin A, B12, iron, and selenium are present in significant amounts in liver and other organ meats. These meats are also excellent sources of choline, an important nutrient for brain, muscle, and liver health.



Source: obtained from Canva Pro

Meat is a rich source of protein and several vitamins and minerals, including vitamin B12, niacin, and selenium.

4. Use healthy fats.

Olive oil, canola oil and seed oils are useful for cooking and are sources of heart-healthy monounsaturated and polyunsaturated fats. Tree nuts and fish are also sources of healthy polyunsaturated fats, including omega-3s.

Source: obtained from Canva Pro



- Choose **water** as your main drink, and avoid sugary options such as soft drinks, sports drinks and energy drinks.

Drink fluids, even you don't feel thirsty!



Source: designed by Canva Pro

- Seasoning.** Herbs and spices provide a wonderful range of flavours and aromas to our food. Limit added salt and sugar.

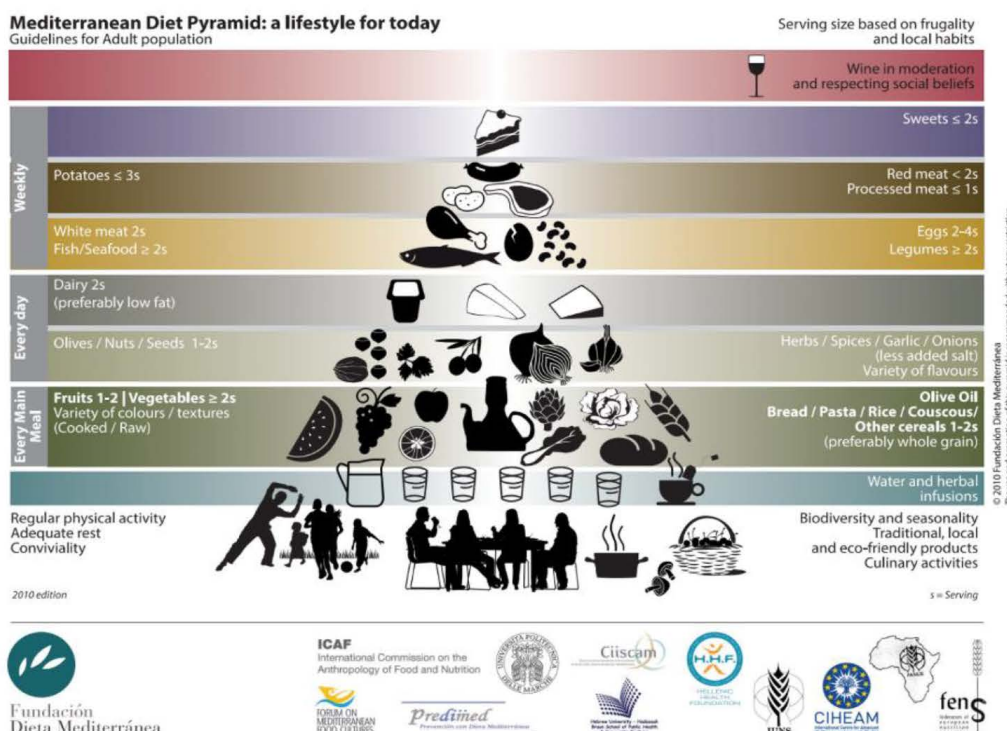


Source: obtained from Canva Pro



Source: designed by Canva Pro

- Mediterranean Diet: healthy and sustainable dietary pattern**



Find out more about Mediterranean Diet here: <https://dietamediterranea.com/>



Time for thinking

Do you follow the Mediterranean diet?
Check it out here: https://www.medilite.com/medilite_eng/story_html5.html!

3.2.3. Ensuring dietary adequacy

- Guides of portion sizes



There really is no 'One Size Fits All' diet

Visit this site for more information about portion sizes: <https://www.eufic.org/en/healthy-living/category/portion-information>



- **A modified consistency diet should be:**

- ❖ Nutritionally adequate;
- ❖ Of correct consistency;
- ❖ Appetising and palatable;
- ❖ Well presented – considering color coordination and garnishes



Source: <https://orpea.es/comida-texturizada-solucion-para-los-problemas-de-alimentacion-en-personas-mayores/>

The Dietary Guidelines are different in each European country. However, there is some basic knowledge about dysphagia diet that should be taken into consideration when acquiring knowledge about this condition:

1. Consulting with a speech-language pathologist, dietitian, or healthcare professional trained in treating swallowing disorders can be critical for finding foods that are safe and nutritious while also aesthetically pleasing and appetizing. They can help you design the most permissive yet safe modified dysphagia diet of soft, minced or moist, puréed, or liquefied food.
2. Providing patients with meals that look and taste natural can increase consumption and prevent malnutrition.
3. For those consuming regular easy-to-chew foods, instill a sense of independence by providing patients with adaptive eating tools like plates with large rims, cups with lids and wide bases, and non-slip placemats. If a patient has difficulty using cutlery, serve bite-sized finger foods that are easy to pick up, such as chicken nuggets, fish sticks, cheese sticks, orange segments, carrot sticks, or steamed broccoli.
4. Serve food when patients are most alert and attentive. Some might eat better if they are provided with smaller dishes throughout the day, which can be less daunting than three large meals.
5. Make mealtime more pleasurable by engaging all of a patient's senses during food preparation. Before cooking, bring ingredients, such as vegetables and fruits, to the patient so they can see and smell them, and use seasonal ingredients to make iconic dishes of summer, fall, winter, and spring.

3.2.4. Foods and ingredients for dysphagia diets

3.2.4.1. Recommended and inappropriate foods and ingredients

- **The following are some of the permitted foods:**

- Pureed breads (also called "pre-gelled" breads)
- Smooth puddings, custards, yogurts, and pureed desserts
- Pureed fruits and well-mashed bananas
- Pureed meats
- Souffles
- Well-moistened mashed potatoes
- Pureed soups
- Pureed vegetables without lumps, chunks, or seeds

- **It is important to avoid other foods, including:**

- Non-pureed breads
- Any cereal with lumps
- Cookies, cakes, or pastry
- Whole fruit
- Non-pureed meats, beans, or cheese
- Scrambled, fried, or hard-boiled eggs
- Non-pureed potatoes, pasta, or rice
- Non-pureed soups
- Non-pureed vegetables
- Seeds, nuts, or chewy candies

- **In each of the groups you should choose ...**

1. Vegetables and fruits:

- Soft diced cooked vegetables (carrots, squash), mashable cooked vegetables (peas, spinach)
- Minced cooked vegetables (broccoli, yellow or green beans)
- Very finely shredded or minced salads (coleslaw, leafy greens, lettuce) with extra dressing if needed.
- Mashed potatoes or other well-cooked potato side dishes such as scalloped potatoes.
- Canned cream corn.
- Soft ripe mashable fruit: canned, fresh, or frozen (bananas, canned crushed pineapple, canned mandarin oranges, canned sliced peaches, ripe pears), fresh fruit with skins and membranes removed (diced soft cantaloupe, seedless watermelon) fruit cocktail without pineapple pieces or grapes.
- Pureed, stewed pitted prunes.
- Fruit smoothies.

2. Grain foods:

- Cooked cereals (cream of rice, cream of wheat® oat bran, oatmeal).
- Cold cereals that soften in milk (bran flakes, corn flakes, rice crisps).
- Soft moist bread products (biscuits, buns, buttered toast, muffins) served with butter, soft margarine, or other allowed spreads.
- French toast, pancakes, or waffles, served with applesauce or syrup to moisten.
- Soft moist barley, couscous, quinoa, or rice in sauces, soups, or casseroles.
- Pasta served in sauce.
- Bread pudding, or soft and moist bread stuffing (without chocolate chips, coconut, dried fruit, nuts, seeds, or any other hard particles).
- Soft crackers, such as soda crackers.
- Soft cereal bars, such as nutri-grain® bars.
- Ground flax seed or wheat bran stirred into cereals.

3. Protein foods:

- Milk: plain or flavoured.
- Buttermilk, smooth milkshakes, or fortified soy beverages.
- Smooth yogurt or fruit yogurt with small soft pieces of fruit.
- Cottage cheese, all cheeses (hard or soft), diced, sliced, or grated.
- Soft tofu/soy protein.
- Soft cooked beans, lentils, peas, or soft dishes made with allowed ingredients (soft bean salad).
- Smooth nut butters mixed into allowed foods (peanut butter smoothie).
- All cooked eggs or egg substitutes including omelets and quiche, made with allowed foods.
- Soft moist tender meat or poultry, diced.
- Canned fish with bones removed (canned salmon with mashed bones is allowed).
- Tender boneless fish that flakes easily.
- Thinly shaved soft deli meats (roast beef, turkey, ham).
- Sandwiches with finely-minced salad-type fillings (egg, chicken, tuna salad, minced lettuce, or cheese) without whole lettuce or whole raw vegetables.
- Tender mashable meats, made with allowed ingredients (casseroles, lasagna, meatloaf, meatballs).
- Soft and mashable perogies, served with allowed condiments.
- Stir-fry made with allowed ingredients.
- Spaghetti sauces made with allowed ingredients.

- Broth or cream soups made with allowed ingredients.

4. Desserts and snacks:

- Ice cream, popsicles®, sherbet, soy frozen desserts, or frozen yogurt.
- Smooth custards, milk pudding, mousse, rice pudding, or tapioca pudding.
- Soft, moist, or easy-to-break cookies (digestive biscuits).
- Soft baked desserts (cream or pumpkin pies, moist cakes) made with allowed foods.
- Jellied desserts.

5. Condiments and sauces:

- Butter, soft margarine, mayonnaise, salad dressings, or sour cream.
- Condiments that are smooth, or have small pieces such as BBQ sauce, horseradish, ketchup, mustard, or relish.
- Finely ground herbs, seasonings, and spices, without hard seeds.
- Gravies or sauces that are smooth such as cheese sauce, hollandaise sauce, or white sauce.
- Soft, mashable jam and jelly, without seeds or hard pieces.
- Sugar, syrup, or sugar substitutes.

3.2.4.2. Dysphagia diet may be adapted to three levels



● Food products: Protein foods

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
---------------------------------------	--------------------------	--------------------------

<ul style="list-style-type: none"> • Moist ground or finely diced meats • Solid tender cuts of meat that can be cut with a fork • Meatloaf, hamburger or cheeseburger • Sausages, thin or sliced lunch meat • Chicken, egg, or tuna salad • Eggs prepared any way except fried 	<ul style="list-style-type: none"> • Ground meats such as hamburger or ground turkey with gravy • Meat loaf or meat balls • Soft fish, tuna fish • Chicken, tuna, egg salad (no large chunks) • Poached, scrambled, or soft-cooked eggs • Well-cooked slightly mashed beans • Hummus, bean dips 	<ul style="list-style-type: none"> • Strained or pureed meat, fish, poultry – can add gravy or broth • Smooth chicken, tuna and egg salad (no celery or onion)
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To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Dry, tough, chewy or crispy meats; • Meats with gristle; • Pizza • Dry fish or fish with bones; • Nuts, Seeds. 	<ul style="list-style-type: none"> • Dried meats, jerky, bacon, fried food, hot dogs, salami, bratwurst, pizza • Tough meat. • Beans, fried eggs, large cubes of meat in casseroles 	<ul style="list-style-type: none"> • Eggs unless scrambled or soft cooked which can be processed to puree consistency • Bacon, hot dogs, sausage links • Dried beans

• Food products: milk, yoghurt, cheese

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Milk, milk shakes, smoothies, yogurt with soft fruit. • Soft cheese such as ricotta. • Cheddar cheese if grated and melted • Shredded cheese, cheese slices 	<ul style="list-style-type: none"> • Yogurt with small pieces of fruit • Milkshakes, malts, ice cream – do not use if on thickened liquid diet as these become thinner as they melt • Pureed cottage cheese, think ricotta cheese, cheeses melted into a sauce • Soft cheeses (cream cheese, cottage cheese) 	<ul style="list-style-type: none"> • All liquids such as milk are dependent on the thickness of liquids allowed • Milkshakes, malts, ice cream – do not use if on thickened liquid diet as these become thinner as they melt • Liquid nutritional supplements such as • Ensure or Carnation Breakfast • Smooth yogurt – plain or without fruit pieces • Pureed cottage cheese, think ricotta cheese, cheeses melted into a sauce • Smoothies made with bananas, peaches or sorbets

To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> Yogurt with seeds, nuts, muesli or hard pieces of fruit, hard cheese such as cheddar. 	<ul style="list-style-type: none"> Avoid ice cream, milk shakes, frozen yogurt, sherbet if on a thickened liquid as this melts into a thin liquid. Stringy or crumbly cheese, dry/hard 	<ul style="list-style-type: none"> Solid cheeses, regular cottage cheese, farmer cheese and pot cheese Cubed or sliced cheese

● Food products: soups

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> All cream-based or broth-based soups (with thickness as recommended according to swallowing evaluation); Chili soup, not very spicy (beans must be soft); Chowder soup. 	<ul style="list-style-type: none"> Soups (blended and smooth to avoid large chunks) 	<ul style="list-style-type: none"> Soups with pureed or strained vegetables Strained and pureed creamed soups: pureed chicken noodle, chicken & rice soups Broth and bouillon (dependent on thickness of liquids allowed)

To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> Soups with tough meats; Corn or clam chowder unless strained; Soups with meat or vegetable pieces greater than one inch in size. 	<ul style="list-style-type: none"> Corn or clam chowder; Soups with lumps; 	<ul style="list-style-type: none"> Soups with chunks of food in it

● Food products: grains, cereals, breads, starches

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
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<ul style="list-style-type: none"> • All porridges, without lumps; • Well moistened breads, biscuits, muffins, pancakes, waffles (moisten with syrup, jelly or butter) • Macaroni and cheese, moist rice. • Tender fried potatoes. 	<ul style="list-style-type: none"> • Pancakes • French toast, waffles • All porridges, • Moist muffins, soft breads without crusts • Toast with butter and jelly – minced into ¼ inch pieces • Sticky rice or mix rice with soft beans and sauce • Well-cooked pasta with sauce • Potatoes without skin - soft & moist with butter, gravy, sauce, etc. 	<ul style="list-style-type: none"> • Cooked cereals, cream of wheat or rice – blend with milk and strain for any lumps • Smooth or blended oatmeal • Pureed pasta or rice • Whipped or smooth mashed potatoes • Baby cereal • Pancakes, • French toast – blend with syrup • Muffins without nuts or seeds – blend to a pureed consistency and serve with butter
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To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Bagels, dry bread, bread with seeds or grains, toast, crackers; • Coarse or dry cereal such as shredded wheat or All Bran; granola • Crispy, fried food, such as grilled cheese; • Popcorn, chips. • Tough, crisp-fried potatoes or potato skins. 	<ul style="list-style-type: none"> • Bagels • English Muffins, • French bread • Granola, • Cold, dry cereals with milk • Dry crumbly rice 	<ul style="list-style-type: none"> • Bread, bagels, dinner rolls • Crackers, chips, popcorn • Cold cereal, granola, or cereals that are not easily blended and strained • Rice, pizza

• Food products: fruits and vegetables

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
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<ul style="list-style-type: none"> • All canned and cooked fruit, ripe bananas; • Soft peeled fresh fruits such as peaches, nectarines, kiwi, mango, cantaloupe, honeydew and watermelon without seeds; • Soft berries with small seeds such as strawberries; • Soft cooked vegetables that are fork tender; • Shredded lettuce 	<ul style="list-style-type: none"> • Soft fruit like ripe bananas, mashed strawberries • Canned or cooked fruits (peaches, pears; not pineapple or fruit cocktail) • Well-cooked, soft vegetables such as carrots • Squash Stewed tomatoes 	<ul style="list-style-type: none"> • Vegetable juices or tomato • Fruit juices and nectars (liquids are dependent on thickness of liquids allowed) • Cooked vegetables that can be mashed or don't require a lot of chewing (must be processed into a puree) • Pureed fruits – either raw or cooked • Smooth applesauce • Baby food fruit or vegetables • Fruits such as mashed bananas or mashed canned fruits (blend smooth to a puree)
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To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Hard to chew fresh fruits such as apples and pears; • Grapes, raisins, coconut; • Pineapple, oranges or other stringy high pulp fruit; • Fruit leather, fruit roll-ups, fruit snacks; • Raw vegetables, salads; • Corn, broccoli, cabbage, brussels sprouts, asparagus, or other fibrous cooked vegetables; 	<ul style="list-style-type: none"> • Fruits that contain a lot of juice (melon, watermelon, grapes, oranges) as the liquid these contain can spill into the throat. • Fruits with skins unless they can be removed • Fruits with seeds • Corn, peas, string beans • Cole slaw, mixed salads, raw vegetables 	<ul style="list-style-type: none"> • Pineapple, oranges, or other stringy, high pulp fruit • Vegetables or fruits that have seeds • Salads, dried fruits

• Food products: condiments

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Margarine or butter • Sour cream, cream cheese • Ketchup, mustard, mayonnaise • Gravy, steak sauce, BBQ sauce • Herbs, spices 	<ul style="list-style-type: none"> • Butter, margarine, syrup • Sour cream, mayonnaise, • Cream cheese, whipped cream • Smooth jelly, (no seeds or chunks) 	<ul style="list-style-type: none"> • Salt, pepper, ketchup, mustard (without seeds), mayonnaise • Herbs and spices • Sauces such as BBQ

To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
---------------------------------------	--------------------------	--------------------------

<ul style="list-style-type: none"> • Olives, pickles • Peanut butter 	<ul style="list-style-type: none"> • Nuts, seeds • Peanut butter 	<ul style="list-style-type: none"> • Nuts, Coconut • Olives Pickles • Anything with seeds • Peanut butter
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● Food products: desserts

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Soft cookies, custard, fruit pies; • Jell-O, sherbet, sorbet Ice cream (unless on thickened liquids); • Moist cakes, pudding, yogurt • Sugar, honey, syrup, jelly . 	<ul style="list-style-type: none"> • Desserts: Pudding, custard, mousse • Cobbler bottom crust and soft topping • Moist, soft cake with icing • Soft cookies • Yogurt with small pieces of fruit • Fruit pies with soft crust (not too flaky) 	<ul style="list-style-type: none"> • Smooth custard and pudding • Sherbet, ice cream, frozen yogurt – not allowed if on thickened liquids • Flavored fruit ices, popsicles, fruit whips, and gelatins (dependent on ability to handle thin liquids). • Syrups including chocolate or maple syrup Mousse. • Clear jelly, honey, sugar

To avoid

1. Dysphagia Soft and Bite Sized Diet	2. Dysphagia Ground Diet	3. Dysphagia Pureed Diet
<ul style="list-style-type: none"> • Hard cookies, hard candy, chewing gum • Chewy candy or desserts • Anything with nuts, seeds, dry fruits, coconut, or pineapple 	<ul style="list-style-type: none"> • Desserts that are dry, hard, crumbly, contain nuts or are too chewy. • Avoid ice cream, milk shakes, frozen yogurt, sherbet if on a thickened liquid as this melts into a thin liquid. 	<ul style="list-style-type: none"> • Anything made with nuts, coconut, or whole fruits

● Food products: beverages

You can choose any smooth, homogenous beverages without lumps, chunks, or pulp. Beverages may need to be thickened to appropriate consistency

You must **avoid** any beverages with lumps, chunks, seeds, pulp, etc



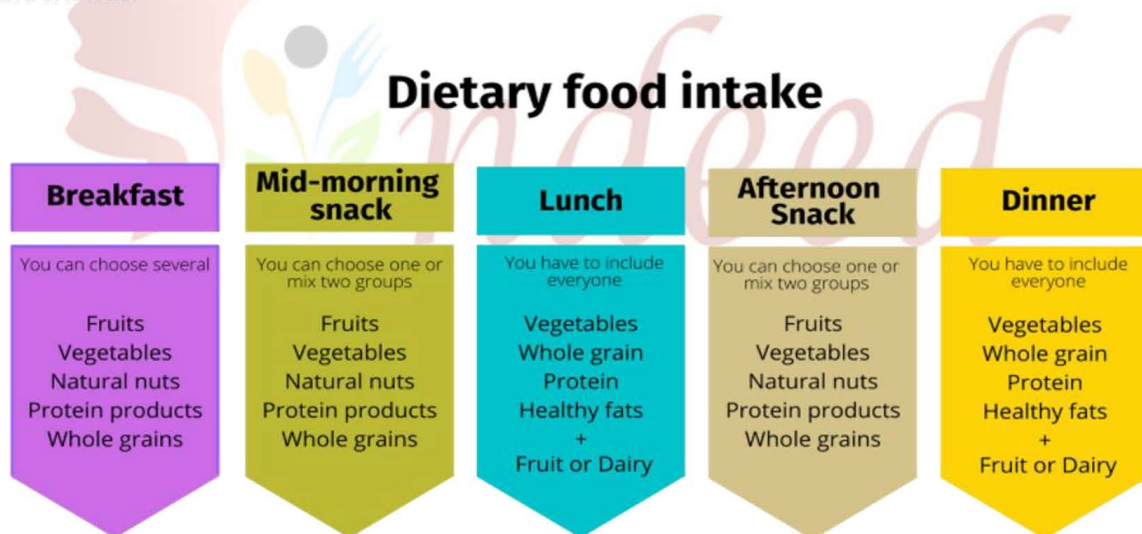
Time for discussion

What food you think is good for dysphagia patients?

3.2.5. Balanced menu templates

The number of meals will depend on social, cultural factors or factors related to personal daily routines, always adapting to the needs and capacities of each person according to their age, state of health, pathology and other qualities that may limit intake.

Next menus are examples of a balanced diet based on before healthy eating guidelines. The texture of the food and beverages on these menus should be adapted to the needs of the person with dysphagia destined. Allergies and intolerances should also be taken into account in the menus.



Menu 1							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast	Coffee with milk Toast of whole wheat bread with olive oil and turkey breast Orange	Unsweetened Oat flakes Banana	Oat milk Rye bread with tomato and cheese Pear	Coffee with soymilk Banana oats hotcake with dark chocolate	Oatmeal porridge with cinnamon and berries	Coffee with milk Whole wheat toast with avocado Apple	Fruit and milk smoothie Whole wheat toast with Hummus and tomato
Mid-Morning snack	Handful of nuts	Tahini cream toast with bananas	Yogurt	Strawberries	Smoothie	Yogurt	Handful of pistachio
Lunch	Lentils with vegetables Sausages Plum	Broccoli with ratatouille Squid with aioli and whole wheat bread Yogurt	Peas with egg and potatoes Eggplant stuffed with fish Banana	Green beans with potatoes Lamb with potatoes Pumpkin desert	Spaghetti carbonara Cod with bell pepper sauce Peach	White bean salad with pickles and vegetables Turkey with apple sauce Yogurt	Lettuce salad with corn and carrots Rice with fried tomato and egg chocolate mousse
Afternoon Snack	Yogurt with fruit pieces	Yogurt	Smoothie	Yogurt	Guacamole cream toast	Smoothie with nut flour	Yogurt with fruit pieces
Dinner	Cod with ratatouille Stuffed eggs Brownie with orange	Lettuce and tomato salad Meatballs with almond sauce Pear	House hors d'oeuvres Potato omelette with aioli and whole wheat bread Yogurt	Baked vegetables Chicken with vegetables and tomato Roast apple with cinnamon	Goat cheese salad on toast Beef blanquette with rice Strawberries	White asparagus Tenderloin with pepper sauce Orange	Sausage with rye bread Salmon with vegetables Yoghurt

Menu 2							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Breakfast	Oat milk Rye bread with avocado and olive oil Banana	Oatmeal porridge with cinnamon and Blueberries	Coffee with milk Toast of whole wheat bread with olive and tomato	Coffee with milk Whole wheat toast with cheese Apple	Coffee with soymilk Banana oats hotcake with dark chocolate	Fruit and milk smoothie Whole wheat toast with tuna and tomato	Unsweetened cocoa milk Oat flakes Mandarin
Mid-Morning snack	Yogurt	Smoothie with nut flour	Guacamole cream toast	Yogurt with fruit pieces	Handful of almond	Yogurt	Smoothie
Lunch	Rice with fried tomato and egg Tenderloin with pepper sauce Apple	Peas with egg and potatoes Chicken with vegetables Cheesecake	White bean salad with pickles and vegetables Squid with aioli and whole wheat bread Strawberries	Green beans with potatoes Sausage with rye bread Yogurt	Chickpeas with cod Egg with béchamel sauce Pear	Beet soup Red peppers stuffed with mince Yogurt	Goat cheese salad on toast Tunna small turnover Greek yogurt
Afternoon Snack	Peanut butter and banana toast	Yogurt with fruit pieces	Orange	Handful of almond	Olive oil and tomato toast	Pineapple	Hummus cream toast
Dinner	Tomato salad with hard-boiled egg and tuna fish Sausages with potato Mandarin	Cauliflower with garlic Steamed salmon Curd with peach jam	Mixed salad Falafel Yogurt	Baked vegetables Tunna omelet orange	Pumpkin puree Meatballs with tomato sauce Orange	Creamed spinach Moussaka Roast pear	Spaghetti Bolognese Hake in sauce Fruit salad

3.2.6. Preparing meals

- **Consistency or texture**

This can be:

- chopped - food particles $\frac{1}{2}$ inch (12 mm) or about the size of sugar cubes
- ground – food particles $\frac{1}{4}$ inch (6 mm) or about the size of grains of rice



Source: <https://www.freepik.es/>



Source: <https://cocinaycomparte.com/>

- minced - food particles $\frac{1}{8}$ inch (3 mm) or about the size of sesame seeds
- puréed - smooth mashed potato consistency for severely dysphagic patients



Source: <https://www.americastestkitchen.com/>



Source: <https://pixabay.com/>

- **Blending or pureeing**

If you need to blend a dry food, you will have to add a "lubricant" such as water, milk, olive oil, juice or sauce, but do not forget to check seasoning afterwards and re-thicken if necessary.

As blending food already starts off the digestion process by breaking it down, a patient can absorb much more nutrition while spending less energy on digestion.

- **Soups**

Blending a soup rather than leaving "bits" still in it (even if they are soft and manageable) is far more beneficial to a dysphagic patient as it is more "filling" and helps with portion size.



Source: <https://pixabay.com/>

- **Seasoning and taste**

Puréed or blended foods lose their taste. A dish you cook may be seasoned perfectly, but, after blending, it will taste different. The main point is to prevent food from being bland and boring. If you need to add water for the blending process, often more flavourful or spicy ingredients might be needed during cooking so that the food does not taste too diluted once blended.



Source: <https://pixabay.com/>

- **Colour and sauces**

If a patient prefers distinct colours on a plate then please ensure each different food on the plate has the same consistency and viscosity. You then have to decide as to which dollop you are going to add the tasty sauce or gravy prior to blending, but without altering the colour.



Source: <https://orpea.es/comida-texturizada-solucion-para-los-problemas-de-alimentacion-en-personas-mayores/>

3.2.7. Additional products to use

Some additional products to use to prepare meals are:

- ✓ Thickeners – powders and liquid;
- ✓ Ready-to-drink thickened drinks and drink mixes;
- ✓ Convenience pureed foods;
- ✓ Foods Mixes;
- ✓ Protein/calorie food enhancers;

- **Viscosity or "thickness"**

Thicker (more viscous) foods are generally easier and safer to swallow than thinner foods as the risk of fluids going down "the wrong way" into the lungs is reduced.

For many, enjoying a glass of wine with friends and relatives is an important part of life and an essential part of celebrations. Many with dysphagia feel the same. We've therefore used our know-how creating drinks for healthcare to make alike drinks safer to swallow.

Ingredients for these are: Xanthan Gum, Maltodextrin, Erythritol.



Source: designed by Canva Pro

- **Ready-to-eat/drink products**

"Baby food" for adults. They are a lot less stressful for you and the dysphagic patient who is often very embarrassed by not being able to swallow a meal you have painstakingly prepared. They are very useful to have as a supplement or standby food.



Source: <https://okdiario.com/recetas/potitos-2004131>

Ready-to-drink thickened drinks and drink mixes. They are convenient and provide proper hydration for people with swallowing disorders. For example, Thick-It® Clear Advantage® ready-to-drink beverages are thickened with xanthan gum so that they have the proper consistency in order to be safe and reliable for your patients.



Source: <https://thickit.com/blog/nutrition-product-category/beverages/>

- **Oral nutritional supplements**

A dysphagic patient often suffers weight loss and other nutritional problems, so it is almost essential to enrich the diet in some way. Almost anything you add to any food will effectively augment its nutritional value. Although enrichment items tend to be protein based, dysphagic patients' diet may also lack other nutrients.

Depending on nutritional requirements and meal replacement needs, doctors may recommend taking something more to help with the overall health and well being.

A supplement may be an individual nutrient, such as protein or fiber, or it may be a food or meal replacement, such as a fortified drink.

Oral nutritional supplements are products manufactured by the pharmaceutical industry. They are developed with the purpose of being administered to people with deficient nutritional needs. They are only prescribed by a health professional in those cases where there are nutrient deficiencies, either due to insufficient intake through diet, interaction with drugs or other causes.

In sum, the dysphagia diet may carry a large variety of supplements, but they should only be used when there are nutrient deficiencies. There are many commercial brands and different products available to people with dysphagia who require dietary supplementation. Some examples are shown in the figure below. They are not cheap, but sometimes it is a small price to pay to ensure the dysphagic patient does not become malnourished.



<https://www.nutricia.es/>

<https://www.nestlehealthscience.es/>



<https://tesia.com.ec/hyfiber/>



<https://globalhp.com/shop/liquacel-liquid->



<https://www.nutrimedical.cl/producto/banatrol/>

Evaluation test

The correct answers are underlined

1. FBDG are developed:

- a. to reduce daily calories intakes.
- b. to help people build a balanced and varied diet by following the food groups and consuming them in the right proportions.
- c. To integrate nutrition and healthy habits
- d. To reduce obesity

2. Say TRUE or FALSE

- a. The Dietary Guidelines are different in each European country. TRUE
- b. A modified consistency diet should have correct consistency and be nutritionally adequate TRUE
- c. There really is no 'One Size Fits All' diet TRUE

3. In Dysphagia diets it is important to avoid.

- a. Soufflés
- b. Whole fruit
- c. Yogurts
- d. Pureed meats

4. Select the wrong sentence:

- a. Proper planning of the daily diet ensures a balanced supply of all the nutrients necessary to maintain adequate health through diet.
- b. Eating two meals a day facilitates the consumption of the daily nutritional requirements and allows establishing a routine.
- c. The number of meals will depend on social, cultural factors or factors related to personal daily routines, always adapting to the needs and capacities of each person according to their age, state of health, pathology and other qualities that may limit intake.

5. A supplement for dysphagia diets:

- a. Has to be an individual nutrient (such as protein or fiber)
- b. may be an individual nutrient (such as protein or fiber) or it may be a food or meal replacement (such as a fortified drink).
- c. Has to be a food or meal replacement (such as a fortified drink).