# Dysphagia management in Europe: whether knowledge and skills are sufficient?

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#### **Abstract**

The article analyses the situation of dysphagia management in Europe: its prevalence, problems, management measures, and discusses the theoretical knowledge and practical skills of professionals dealing with dysphagia in different fields. The aim of the study was to assess the knowledge of professionals involved in the management of dysphagia (dieticians, nutritionists, nurses, speech therapists, food technologists, etc.) about dysphagia and to investigate the need for education of professionals on the management of dysphagia in the Europe. The study found that most of specialists had moderate knowledge in the field of dysphagia, however, a significant part rated their knowledge as poor. Less than half of the professionals use standardised information and methods to identify and determine the levels of modified texture foods and have no knowledge of how to feed patients with dysphagia. The study shows that there is a need to improve professionals' knowledge of dysphagia, and the best way to do this is to include it in the curricula of health sciences (medicine, nutrition and nursing). It is also necessary to develop a methodological tool that can be used by professionals in these fields in all European countries.

Key words: Swallowing Disorders, Dysphagia, Nutrition

#### Anotacija

Straipsnyje analizuojama situacija, susijusi su disfagijos valdymu Europoje: jos paplitimas, sukeliamos problemos bei valdymo priemonės, aptariama specialistų, susiduriančių su disfagija įvairiose srityse, teorinės žinios bei praktiniai įgūdžiai. Tyrimo tikslas – įvertinti specialistų, susijusių su disfagijos valdymu (dietologų, dietistų, slaugytojų, logoterapeutų, maisto ruošimo technologų ir kt.) žinias apie disfagiją ir ištirti specialistų švietimo poreikį minėtose šalyse. Tyrimo metu nustatyta, kad nemaža dalis respondentų savo žinias apie disfagiją vertina nepakankamai gerai, mažiau nei pusė specialistų naudoja standartizuotą informaciją bei metodus modifikuotos tekstūros maisto lygiams įvardinti bei nustatyti, neturi žinių kaip reikia maitinti pacientus, sergančius disfagija. Tyrimas parodė, kad būtina gilinti specialistų žinias apie disfagiją, o geriausias būdas tai padaryti – įtraukti šią tematiką į sveikatos mokslų (medicinos, mitybos ir slaugos krypčių) studijų programas. Taip pat būtina parengti metodinę priemonę, kuria galėtų naudotis minėtų sričių specialistai visose Europos šalyse.

Reikšminiai žodžiai: rijimo sutrikimai, disfagija, mityba.

## Introduction

Difficulty swallowing is known as dysphagia. Dysphagia is defined objectively as an abnormal delay in transit of a liquid or solid bolus during the oropharyngeal or oesophageal stages of swallowing (Abdel Jalil et al., 2015). It is usually a sign of a problem with throat or oesophagus – the muscular tube that moves food and liquids from the back of mouth to stomach. Although dysphagia can happen to anyone, it is most common in older adults, babies, and people who have problems of the brain or nervous system. The prevalence of dysphagia is estimated at around 8.3%. This condition is commonly experienced by patients who have suffered a stroke or other neurological disorders. Around 33% of all stroke patients and up to 50% of all patients with neurological conditions have indeed been reported to suffer dysphagia (Aslam and Vaezi, 2013; Clavé & Shaker, 2015). Dysphagia may also be caused by a consequence of treatment in patients with head and neck cancers (Rofes et al., 2011; Pedersen et al., 2016).

In addition, dysphagia is prevalent among elderly. Such a prevalence is reported to be around 13% among people who are 65 to 70 years of age, 16% among those who are 70 to 79 years old,



and 33% among those who are ≥80 years old. The symptom affects 23-47% of hospitalized elderly patients and more than 50% of elderly in nursing home (Malandraki et al., 2016; Wirth et al., 2016). Dysphagia can also occur in persons with cerebral palsy due to motor impairment, abnormal neurological maturation, sensory deficits, impaired oesophageal motility, and gastroesophageal reflux disease (Yi et al., 2019). Dysphagia in the elderly can lead to persistent gagging when drinking or eating. This can lead in turn to a variety of complications, including lung infection, which result in prolonged hospitalization, frailty, illness, anxiety, and even decreased rate of survival (Icht et al., 2018).

Dysphagic patients tend to suffer weight loss as well as malnutrition and dehydration. Therefore, it is critically important for these patients to consume foods that are easy to masticate and safe to swallow (Pedersen et al., 2016). Ingestion of texture-modified foods and thickened fluids is among alternative choices for persons with dysphagia (Cichero, 2015). Texture-modified food is a term that refer to food with soft texture; the softening may be due either to physical or chemical modification to reduce the risk associated with choking (Cichero, 2015; Aguilera & Park, 2016). Food texture recommended for dysphagia diets should be soft, moist, elastic, smooth, and easy to swallow (Yoshioka et al., 2016). Sticky and adhesive textures as well as thin liquids should be avoided since these textures can cause food residue to accumulate in the oropharynx and may lead to aspiration after swallowing (Park et al., 2017).

Treatment of dysphagia will depend on what is causing of dysphagia, it includes: exercises for swallowing muscles passage (Logemann et al., 2008), changing the foods – to eat certain foods and liquids to make swallowing easier; dilation – a device is placed down oesophagus to carefully expand any narrow areas of oesophagus, endoscopy, surgery, medicines. In rare cases, a person who has severe dysphagia may need a feeding tube because he or she is not able to get enough food and liquids. Dysphagic patients often have inadequate caloric intake and are at a higher risk of nutritional deficiency. One possible means to alleviate this inadequacy is through the consumption of texture-modified foods, which are easier to chew and swallow; such foods must also exhibit desirable nutritional value and are ready to eat in much the same way as regular food (Costa et al., 2019).

Besides, the inability to eat and drink properly can also promote worsen psycho-emotional state, resulting in frustration, diminished self-esteem, and social isolation. Every meal becomes a stressful situation and a challenge to overcome. Dysphagia is a global problem that affects the life quality of people with this disorder as well as their families and caregivers. These people and their families need professional help, which can be provided by multiprofessional dysphagia management team that includes phoniatricians, otorhinolaryngologists, speech-language pathologists, gastroenterologists, neurologists, intensive care physicians, nutritionalists, and food technologists (Smith-Tamaray et al., 2011; Denk-Linnert et al., 2022). The International Dysphagia Diet Standardisation Initiative (IDDSI) developed globally standardized terminology, definitions for texture-modified foods and liquids applicable to individuals with dysphagia of all age groups, and a dysphagia diet framework (Cichero et al., 2017), simple instrumental method for determining food texture levels are also provided (Pematilleke et al., 2022). The problem is that practitioners currently have little knowledge of these methodologies and rarely apply them in practice.

As the prevalence of dysphagia continues to rise both globally and in European countries, there is a need for professionals who know how to help people with this condition. Special knowledge and skills are required for the whole team involved in the management of dysphagia (nutritionists, dietitians, nurses, logo therapists, food technologists, etc.) and to the educators who train them. It is therefore relevant to assess the situation regarding the preparation of professionals for the management of dysphagia in European countries and, if necessary, to develop methodological material for the development of their knowledge and skills.

The aim of the article is to assess the current specialist's knowledge and skills on dysphagia and investigate the need of education. The study is a part of the international project KA204-67663274 "INDEED – "Innovative Tools for Diets Oriented to Education and Health Improvement in Dysphagia Condition", during which together with partners from Italy, Spain, Greece, and Turkey, we address problems of people with swallowing disorders to expand specialist competencies and develop a teaching / learning tool accessible to people with dysphagia.

### Research methodology

The study involved five countries participating in the project: Spain (ES), Lithuania (LT), Turkey (TR), Greece (GR) and Italy (IT). The research questionnaire was developed by a team made up of representatives from all the countries participating in the study and consisted of three parts. The first part about general information was designed to identify the profile of the respondents: age, gender, and professional field. The second part was created to determine the current level of knowledge in the field of dysphagia, working skills and experience of specialists working with patients. Only those participants who work with patients or take personal care of patients with dysphagia were asked to fill in questionnaire's part about working skills and practical experience. The third part of the questionnaire was designed to identify the need of education about dysphagia.

For selecting respondents' representative probability sampling was used: the participants must have been specialists involved in the activity of management dysphagia (adult educators, nutritionists, dietitians, nurses, logo therapists, food technologists). It was planned to interview 50 respondents from each country.

The survey questionnaire was translated into five languages and the survey was conducted in all project partner countries in March–April 2021. The survey was administered through Google forms. In total 292 respondents participated in the study. An Excel spreadsheet was used to systematize and visualize the results of the study.

### **Results and discussion**

Respondents profile, obtained from the personal data provided in questionnaire, was built from the most significant data such as gender, age, and profession. Looking at the transnational data, the main common socio-professional profile type corresponds mainly to women (about 92%) between 18 and 45 years old (about 75%) (Table 1.). Overall, 292 respondents participated in this research: 109 from Spain, 43 from Italy, 52 from Turkey, 38 from Greece, and 50 from Lithuania.

**Table 1.** Age of respondents (n = 292)

Age	Percentage
Under 18 years old	0
18-29 years	39
30-45 years	36
46-64 years	24
65-79 years	1
80 years or older	0

Generally, there is a broad representation of nursing specialists (about 21%), university or college students (about 21%), dietitian-nutritionists (about 15%), university or college lecturers (about 11%) and another specialist (from 3% to 9%) (Table 2).



**Table 2.** Professional field of respondents (n = 292)

Professional field of respondents	Frequency	Percentage
A specialist working with patients with dysphagia in institutions	21	7
Health care specialist	19	7
Cook/food industry specialist	9	3
Doctor, medic. nutritionist	25	9
Speech-language pathologist	20	7
Dietitian-nutritionists	44	15
Nursing specialist	62	21
University or college lecturer	32	11
University or college student	60	21

It is important to note, that in all countries the survey included respondents from all the fields of the professions, but in Spain and Turkey the largest part of respondents was nursing specialists, in Italy and Greece – university or college students, and in Lithuania – speech-language pathologists and dietitian-nutritionists.

Current level of knowledge on dysphagia. To find out the knowledge of the educators who participated in the study in the field of dysphagia (n = 287), we asked them to rate their knowledge on a scale from 1 to 10 (1 = no knowledge / 10 = high knowledge). Most respondents rated their knowledge as average (n = 66; 23%) and good (n = 61; 22%). The equal parts of the respondents rated their knowledge with 5 and 6 points (n = 41; 14%). 26 respondents (9%) rated their knowledge very well, 10 - excellent (3%), and the rest of the part (14%) indicated that their knowledge is very poor. Analysing the results by country it was found that specialists from Turkey and Greece rated their knowledge in the field of dysphagia the best, while respondents from Italy didn't rate their knowledge as high and only 2 respondents from Lithuania answered that they have high knowledge in the field of dysphagia (Fig. 1).

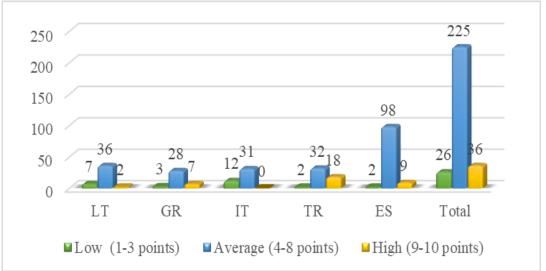


Fig. 1. The level of knowledge of the educators and specialists in the field of dysphagia country-wide and total (n = 287)

We wanted to know what the obstacles are to gain new knowledge in dysphagia. Respondents could choose several answers here. Most respondents (n = 121; 33%), identified the lack of information as the reason to gain new knowledge (see Table 3). The other obstacles were lack of time (n = 95; 26%), lack of standardized information (n = 89; 24%), and lack of motivation (n = 59; 16%).



**Table 3.** The obstacles to gain new knowledge in dysphagia (n = 364)

The obstacles to gain new knowledge	Percentage
Lack of time	95
Lack of motivation	59
Lack of standardized information	89
Lack of information	121

It was relevant for us to find out, from what sources did specialists and educators learn about this disorder. Respondents were able to choose one or more answer options provided (n = 398). Most of them indicated that they had acquired knowledge about dysphagia at school/studies (n = 161; 40%), the next choice was – in the work environment (n = 101; 25%). Some part of respondents became acquainted with dysphagia in courses / training (n = 63; 16%) or on their own initiative (n = 54; 15%). 14 respondents (4%) indicated other ways: 2 of them answered – at a conference of dietitians; 2 – at internship; people affected (relatives); from friends, personal experiences; while nursing relative; personal, and work environment.

**Data related to practical experience and dysphagia management.** To find out overall experience of working with patients or personal care with swallowing disorders, it was asked, how long respondents were working in the field. The analysis of the results by country is presented in Figure 2.

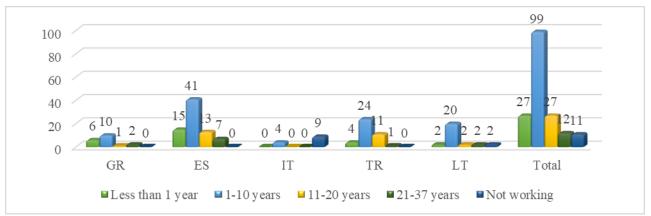


Fig. 2. Years of working with patients having swallowing disorders country-wide and total (n = 176)

It shows that respondents from Spain and Lithuania have the greatest experience in this field. 27 respondents had less than 1 year of experience. On average, majority of respondents had experience from 1 to 10 years. It is also important to note, that about 7% respondents have from 21 to 37 years of experience.

We asked to note different age groups, to assess with what kind of patients with swallowing disorders respondents are working. The major group of respondents is working with adults (n = 120), the second group (n = 47) – with mixed group, and last one – with children (n = 15). These results showed that knowledge and skills are mostly needed to care for adult patients with swallowing disorders. Adults' educators and specialists were asked, if they train staff or families to prepare thickened liquids or modified food. Less than half of respondents' (n = 80; 42%) train staff or families, and the other part (n = 106; 55%) does not do that.

Respondents were asked, if they use standardized terminology and guidelines for texture modified foods and liquid thickness. Results showed that less than half of the respondents (46%, n = 88) use standardized information to prepare food, however the greatest part of them do not use such information (n = 99; 52%), and the last part use other information (n = 3). So, these results only confirm, that methodological tools about standardized terminology and texture modified foods and liquid thickness is needed. The results varied between countries. As Italian educators indicated



they practically do not use standardized terminology and guidelines for texture modified foods and liquid thickness, and the majority of those who use this methodology are from Spain (Fig. 3).

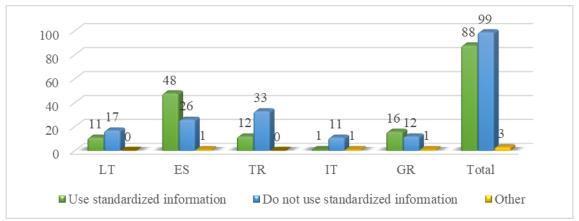


Fig. 3. Number of educators and specialists that use standardized terminology and guidelines for texture modified foods and liquid thickness modified by countries and total (n = 190)

These respondents, who were using methodology (n = 166), were asked from what sources they gained the terminology. Results showed that mostly they gain information from Hospital or work facility (n = 70), literature (n = 45), and national standards (n = 33), the remaining part of respondent's terms developed by themselves (n = 13), and several pointed other sources (n = 5).

However, preparing the meals for patients is not the only one important part. Respondents were asked if they are testing food consistency before serving. Results showed (Fig. 4.) that more than half of respondents (n = 98; 56%) are testing food before serving, and lesser amount do not (n = 76; 44%). These results showed the need of prepared food consistency testing methodology for adult educators. The results varied again slightly from country to country. The part of educators that test the consistency of foods or liquids before serving was highest in Spain and lowest in Italy (Fig. 4).

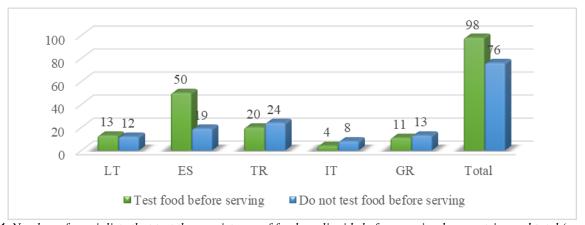
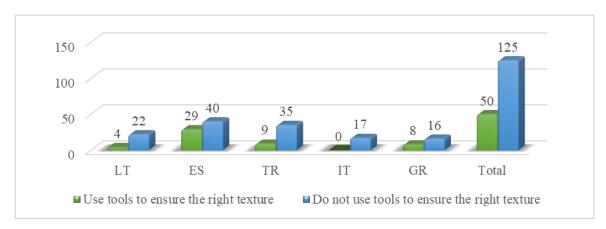


Fig. 4. Number of specialists that test the consistency of foods or liquids before serving by countries and total (n = 174)

Even though such great part of respondents said that they are testing food, comes out, that less than one third (29%, n = 50) is using tools to ensure the right texture/viscosity, and more than 2 parts were not using tools (19%, n = 125) (Fig. 5). The results varied again slightly by countries. Part of educators use any tools in order to ensure the right texture/viscosity was highest in Spain again and lowest in Italy.





*Fig.* 5. Part of specialists that use any tools for ensure the right texture/viscosity by countries and total (n = 175)

The fact that respondents say that they appreciate the consistency of food but do not indicate what tools they use for it, proves that they really lack professional knowledge. Gathered data shows, that right methods, with right tools are needed for specialists to ensure appropriate nutrition for people with dysphagia.

The need of education on dysphagia. The main aim of this study was to investigate the need for education in dysphagia, so we asked adult educators to rate this need on a scale from 1 to 10. The results are shown in Figure 6. As many as 61 (21%) respondents rated this need with the highest 10 points, 35 (12%) respondents rated 9 point, 49 respondents (17%) – 8 points. A total of 110 respondents (38%) rated this need as medium or low (5–7 points) and the remaining – 37 (12%) as very low. Analysing the results by country, it was shown that the need for these trainings is the highest in Lithuania and Spain, and the lowest – in Turkey and Italy.

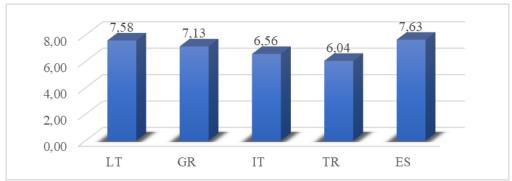


Fig 6. The need\* of education on dysphagia country wide (\*average of evaluation scores in a scale from 1 to 10)

As many as 263 respondents (90%) believe that this topic should be further analysed in health study programs, 23 respondents (8%) have no opinion on this matter, and only 6 respondents (2%) disagree. We asked survey participants to indicate which ways to improve the graduate program curriculum in the area of dysphagia would be most acceptable (see Table 4.)

**Table 4.** The ways to improve the graduate program curriculum with course of dysphagia (n = 357)

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Ways to improve the graduate program curriculum	Total	
I don't know	17	
Offered as an elective subject to students	46	
Integration of education on dysphagia into the curriculum of health-related disciplines such as	185	
pharmacy, nursing, physical therapy, and speech-language pathology		
Should be required additional didactic coursework related to the assessment, treatment and	109	
management of swallowing disorder		

Most respondents (n = 185) indicated as the best way integration of education on dysphagia into the curriculum of health-related disciplines such as pharmacy, nursing, physical therapy,



nutrition, and speech-language pathology. A significant part of respondents (n = 109), believe that additional didactic coursework related to the assessment, treatment and management of swallowing disorder should be required; and a small part (n = 46) think, that course of dysphagia could be offered as an elective subject to students.

Most of all respondents (n = 282; 97%) confirmed that prepared training / methodological material related to dysphagia is needed, and only 10 of respondents (3%) disagreed. It was very relevant to our study to find out what knowledge in areas related to dysphagia would be most needed by adult educators and specialists, so we identified possible areas and asked to choose one or more of them. Most respondents chose several topics. The relevance of the topics was arranged in the following order (Fig. 7): Diet ant nutritional treatment approach for dysphagia (n = 153; 52%); Food preparation (development of food and liquids with a modified structure, production of tasty and safe food for patients with dysphagia (n = 151; 52 %); Care and nutrition (nursing, feeding techniques and equipment, environment, medicine-taking of patients who cannot swallow medications, patient oral hygiene) (n = 137; 47%). The respondents identified the following topics as less relevant: Physiotherapy, occupational therapy, speech-language therapy (safe swallowing techniques, swallowing exercise) (n = 116; 40%); Treatment and pharmacy (prevalence, diagnosis, dysphagia screening tools, medical and surgical treatment) (n = 95; 33%).

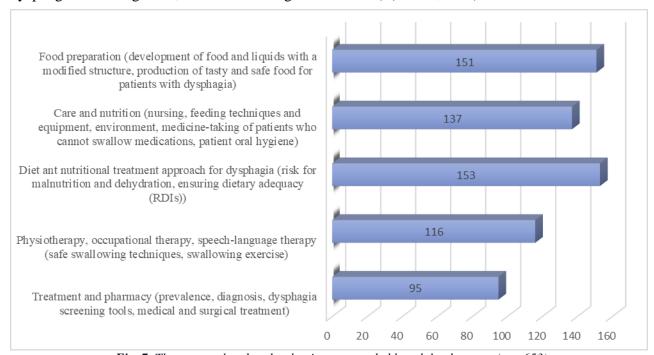


Fig. 7. The areas related to dysphagia most needed by adult educators (n = 653)

Thus, the results of the study show a strong need for education in the field of dysphagia. Similar results have been obtained in other studies. Rivelsrud et al. (2023) highlighted challenges in education and training of professionals responsible for the management of dysphagia in the Nordic countries (Norway, Denmark, Sweden). The study of Mustuloğlu et al. (2023) showed that clinicians exhibit moderate mean knowledge, attitudes, and behaviours scores in the field of dysphagia. Reddacliff et al. (2022) demonstrated a lack of knowledge about how to live with dysphagia among patients and their families. As European Society for Swallowing Disorders (2013) highlighted, health care practitioners involved in dysphagia should have specific training and have good knowledge and experience on how to use different techniques, some measures are needed to improve the situation.

### **Conclusions**

Based on the results of the study most of specialists had moderated knowledge in the field of dysphagia, however, a significant part rated their knowledge as poor. Professionals working with dysphagia patients lack a specific knowledge and practical skills in standardized information and methods to identify and determine the levels of modified texture foods, what tools use for it, how to feed patients with dysphagia, and special diet requirements for dysphagia. Most of respondents have experience of working with adult patients, so methodological tools are mostly needed about care of adult patients with swallowing disorders. The study shows that there is a need to improve professionals' knowledge of dysphagia, and the best way to do this is to include it in the curriculum of health sciences (medicine, nutrition, and nursing). It is also necessary to develop a methodological tool that can be used by professionals in these fields in all European countries.

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# Disfagijos valdymas Europoje: ar pakanka žinių ir įgūdžių?

(Gauta 2023 m. balandžio mėn.; atiduota spaudai 2023 m. balandžio mėn.; prieiga internete nuo 2023 m. gegužės 10 d.)

#### Santrauka

Disfagija – tai rijimo sutrikimas, kai žmogui būna sunku nuryti kietą arba skystą maistą, o kartais ir kietą, ir skystą. Disfagijos sutrikimą patiriančių žmonių skaičius nuolat didėja, todėl šiems žmonėms ir juos prižiūrintiems šeimos nariams reikalinga profesionali pagalba, kurią gali suteikti tik specialių žinių ir įgūdžių turintys specialistai (dietistai, mitybos specialistai, dietologai, slaugytojai, logoterapeutai, maisto technologai ir kt.). Specialių žinių ir įgūdžių, susijusių su disfagijos valdymu privalo turėti ir šiuos specialistus rengiantys pedagogai.

Disfagija sergantys pacientai linkę netekti svorio, jų mityba tampa nepilnaverte, tokiems pacientams gresia dehidratacija. Todėl šiems pacientams labai svarbu vartoti maistą, kurį būtų lengva kramtyti ir saugu nuryti. Modifikuotos tekstūros maistas – tai terminas, reiškiantis minkštos tekstūros maistą; suminkštėjimas gali atsirasti dėl fizinių arba cheminių modifikacijų, siekiant sumažinti su užspringimu susijusią riziką. Dietoms su disfagija rekomenduojama maisto tekstūra turi būti minkšta, drėgna, elastinga, lygi ir lengvai nuryjama. Reikėtų vengti tąsios ir lipnios tekstūros, nes dėl šių tekstūrų burnos ertmėje gali kauptis maisto likučiai, o po to gali atsirasti aspiracija.

Specialistams bei juos rengiantiems pedagogams trūksta praktinių įgūdžių ir specifinių žinių apie disfagijos valdymą: dauguma asmenų, dirbančių su pacientais, patiriančiais disfagijos sutrikimą, neturi pakankamai žinių apie modifikuotos tekstūros maisto paruošimą, nežino, kokias priemones/metodus reikia naudoti paruošto maisto konsistencijos įvertinimui, nežino, kaip tinkamai maitinti pacientus bei kokie reikalavimai keliami specialioms, disfagijos sutrikimą patiriančių asmenų, dietoms.

Tarptautinė disfagijos dietos standartizacijos iniciatyva (IDDSI) sukūrė pasauliniu mastu standartizuotą terminologiją, modifikuotos tekstūros maisto produktų ir skysčių apibrėžimus, disfagijos sutrikimą patiriantiems asmenims taikytiną dietos struktūrą bei pakankamai nesudėtingą instrumentą maisto tekstūros lygiui įvertinti. Problema ta, kad šiuo metu specialistai mažai išmano šias metodikas ir retai jas taiko praktikoje.

