

International Conference

**ADVANCING HOLISTIC HEALTH
THROUGH OPTIMAL NUTRITIONAL CARE**

A NUTRITIONAL CARE POLICY SUMMIT

Athens 5 & 6 May 2025



International Conference Athens 5 & 6 May 2025



optimal
nutritional care
for all

Nutrition Education in Medical Schools: Latest state of play

Moderators

Cristina Cuerda & Michael Chourdakis

ESPEN NEMS coordinators

Cristina Cuerda & Maurizio Muscaritoli

Improve nutrition education



Improve health
(general population and patients)



ESPEN

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SOCIETY FOR
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NUTRITION AND
METABOLISM

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Key words

Why

Who

How

Why



Nutrition-related disorders are very prevalent in the general population and in the different healthcare settings



Nutrition education is underrepresented in the medical (and HCPs') curriculum



Improving nutrition education in HCPs is necessary to prevent, identify and correctly treat all the spectrum of nutrition-related disorders

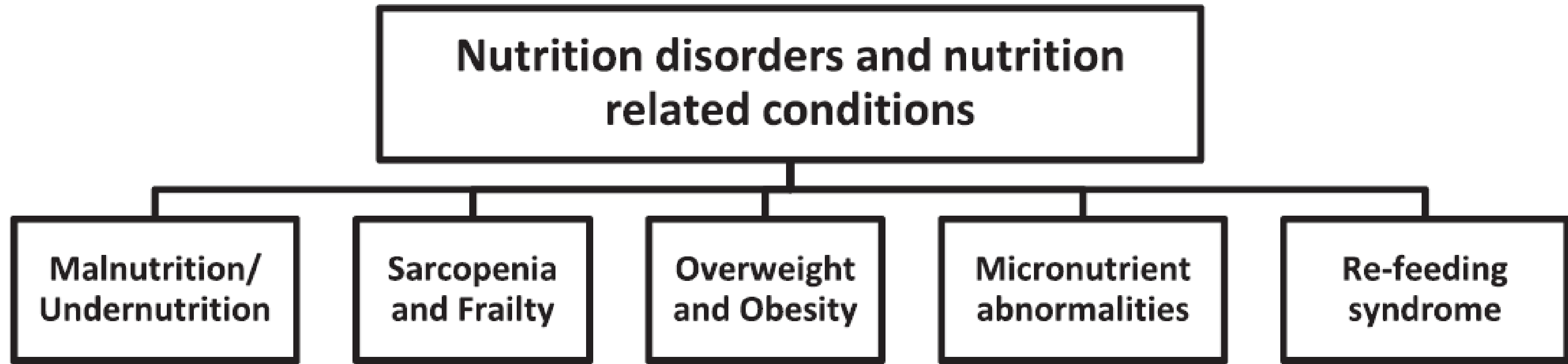


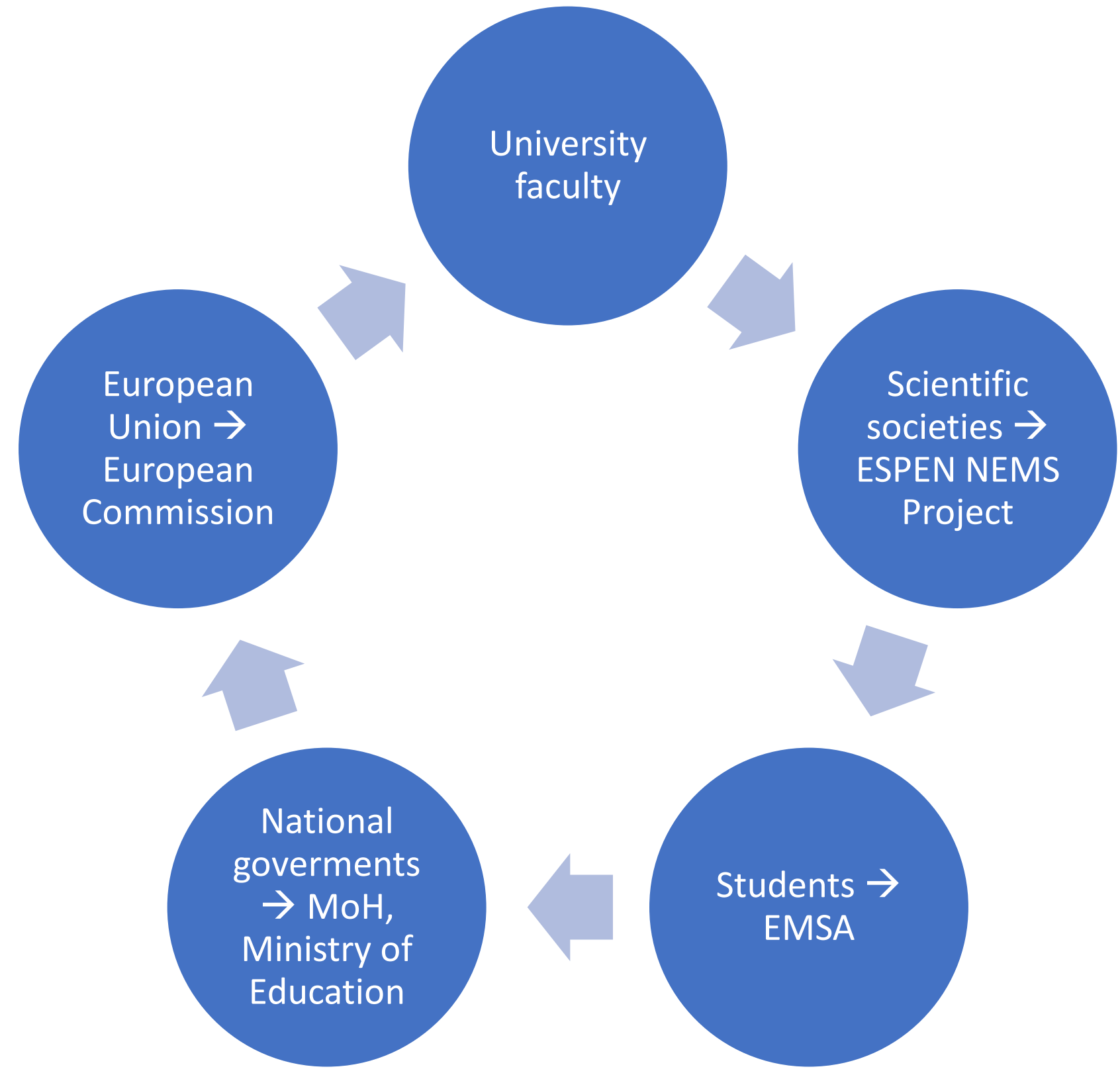
Fig. 1. Overview of nutrition disorders and nutrition-related conditions.

Cederholm T, et al. Clinical Nutrition 36 (2017) 49-64.



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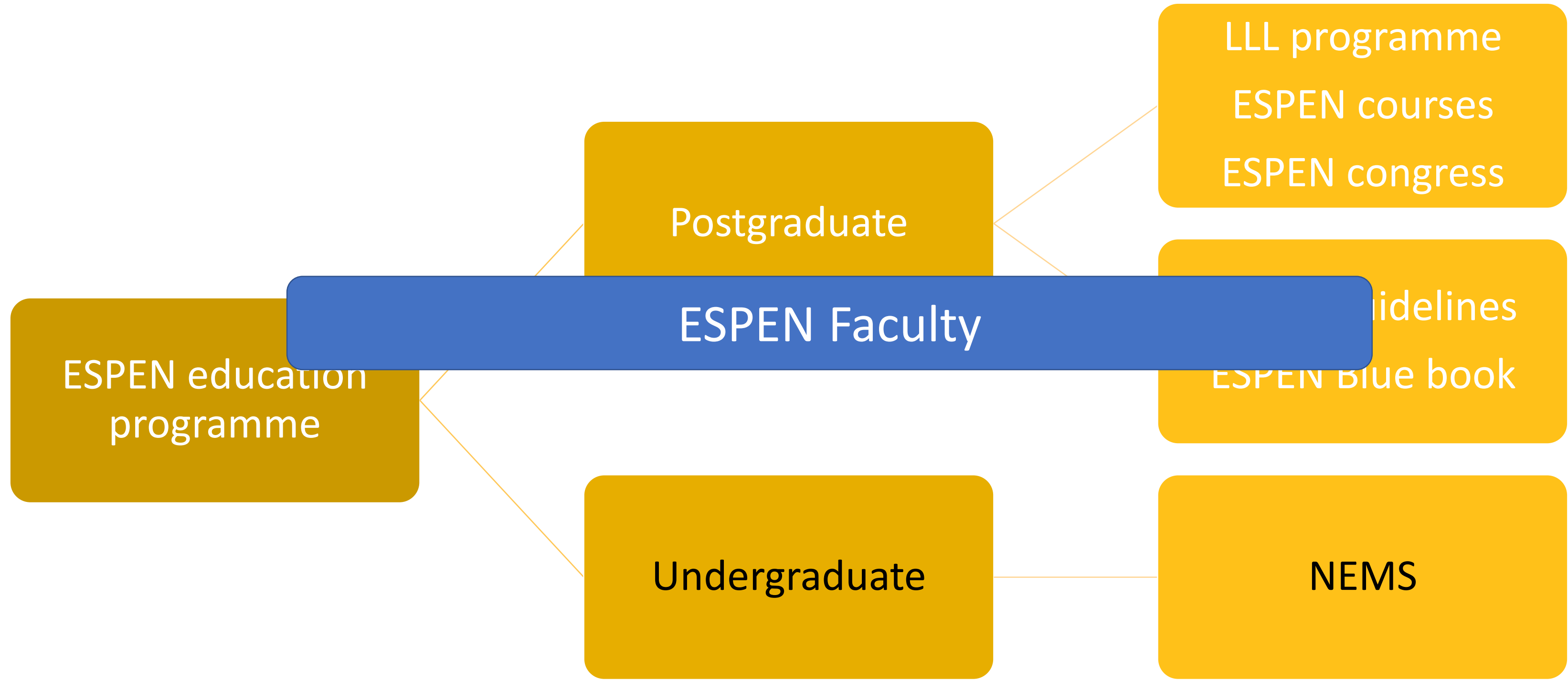
Who





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Aims



1

Create awareness of the importance of Nutrition Education in Medical Schools and for all the health-care professionals

2

Promote the implementation of obligatory training on Nutrition Education during the pregraduate period

3

Provide tools and materials for the implementation of Nutrition Education in Medical Schools

How



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ESPEN

Collaboration between ESPEN and European Medical Schools



Prepare educational materials for the universities covering the minimum curriculum in the field of human nutrition



Collaboration as experts in the field of nutrition in our respective medical schools



Networking with student's organizations, other scientific societies, international organizations



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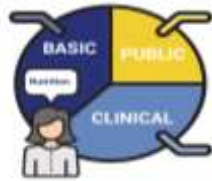
NEMS MANIFESTO



Nutrition education is necessary in the **training of healthcare professionals**, including medical students and it should be **MANDATORY in all Medical Schools**



Medical students need an **evidence - based nutrition education** to understand the importance of nutrition in health and disease



During the **medical training** at the University, students should receive **mandatory** information about **human nutrition** in its three different domains, including **basic nutrition, applied or public health nutrition and clinical nutrition**



The way to organize these themes in the curriculum will depend on each University, taking into consideration individual center characteristics (**models of teaching, availability of teachers, time and credits**)



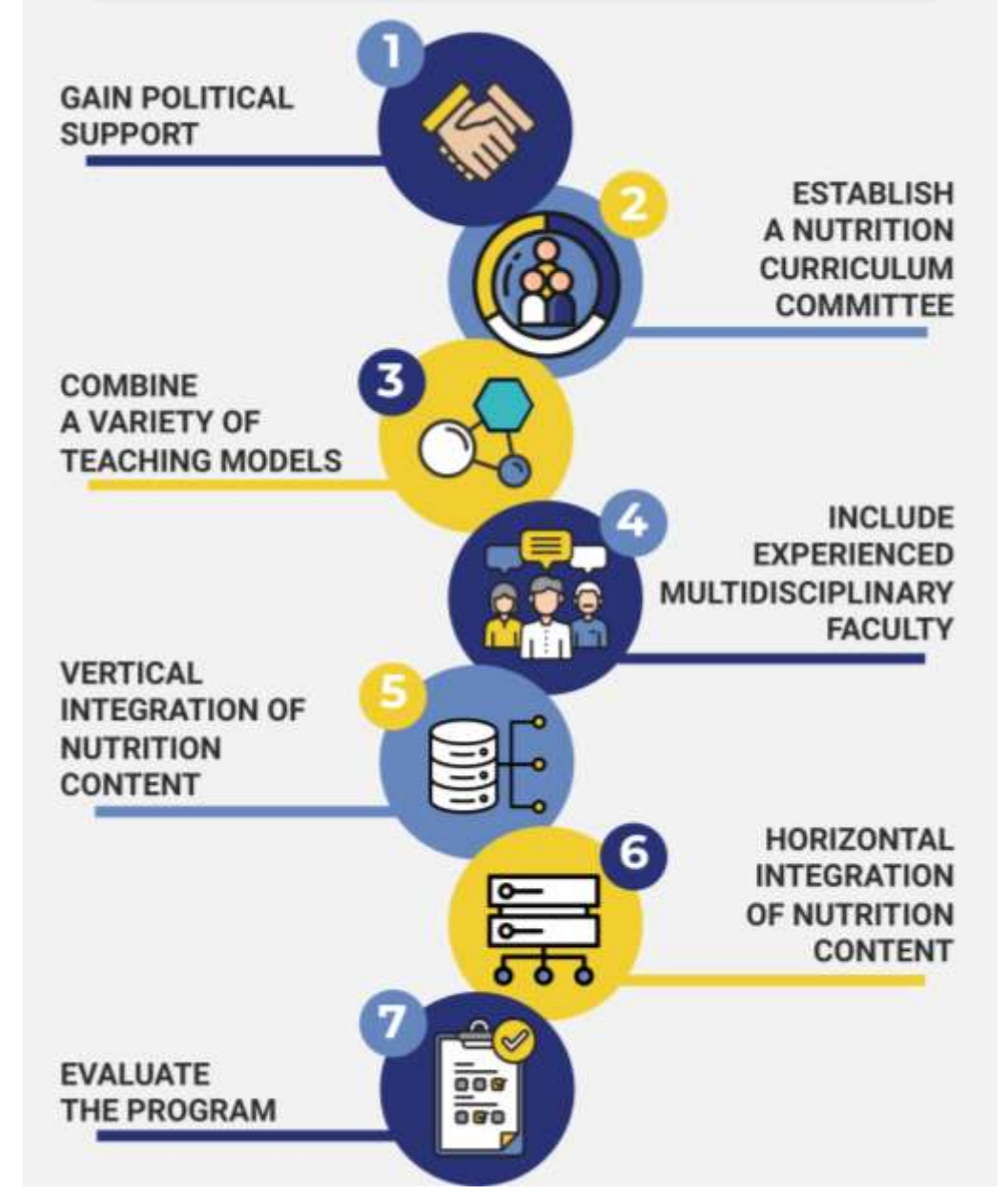
Combine **vertical or horizontal integration of traditional classes, seminars and/or clinical practice sessions** also including **novel teaching tools, internet resources and e-learning**



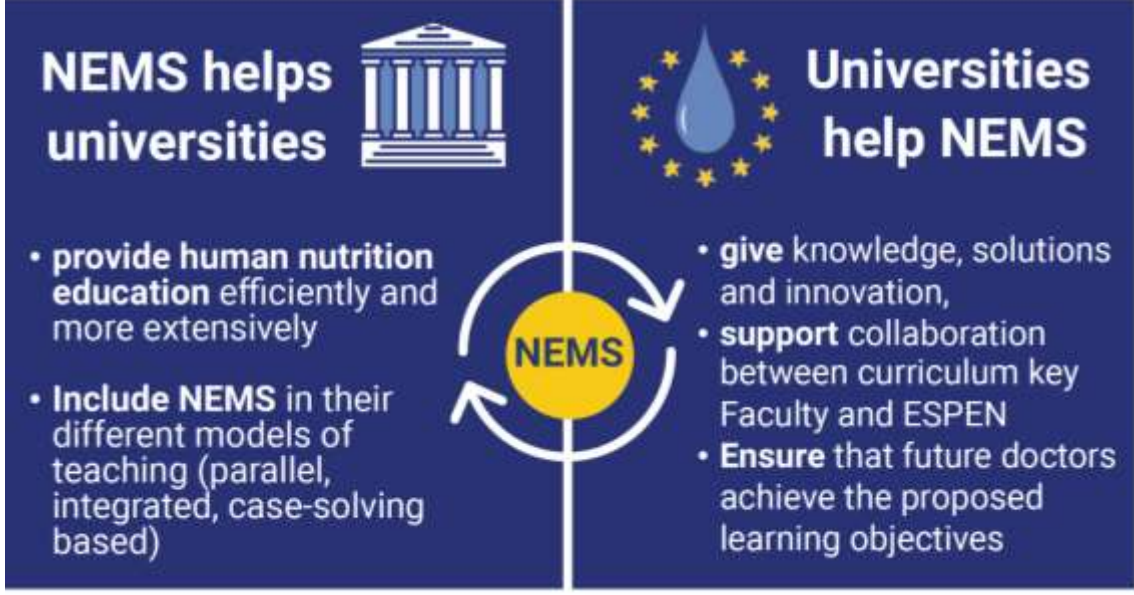


THE EUROPEAN SOCIETY FOR CLINICAL NUTRITION AND METABOLISM

KEY FACTORS FOR IMPLEMENTATION



INTEGRATION OF NEMS BETWEEN UNIVERSITIES AND ESPEN





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Brussels 2018

Meetings with presentatives of different European Medical Schools



Nice 2020



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Clinical Nutrition

journal homepage: <http://www.elsevier.com/locate/clnu>



Editorial

Clinical nutrition education in medical schools: Results of an ESPEN survey



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ESPEN Endorsed Recommendation

Nutrition education in medical schools (NEMS). An ESPEN position paper[☆]

Cristina Cuerda ^{a,*}, Maurizio Muscaritoli ^{b,1,2}, Lorenzo Maria Donini ^c, Patrick Baqué ^d, Rocco Barazzoni ^e, Eugenio Gaudio ^f, Davor Jezek ^g, Zeljko Krznaric ^h, Matthias Pirlich ⁱ, Marco Schetgen ^j, Stephane Schneider ^k, Juan A. Vargas ^l, André Van Gossum ^m

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Clinical Nutrition

journal homepage: <http://www.elsevier.com/locate/clnu>



Original article

Nutrition education in medical schools (NEMS) project: Joining ESPEN and university point of view



C. Cuerda ^{a,*}, M. Muscaritoli ^{b,1}, Z. Krznaric ^c, M. Pirlich ^d, A. Van Gossum ^e, S. Schneider ^f, L. Ellegard ^g, R. Fukushima ^h, M. Chourdakis ⁱ, C. Della Rocca ^j, D. Milovanovic ^k, M. Lember ^l, J. Arias-Diaz ^m, E. Stylianidis ⁿ, K. Anastasiadis ^o, V. Alunni ^p, T. Mars ^q, M.I. Hellerman ^r, M. Kujundžić-Tiljak ^s, O. Irtun ^t, O. Abbasoglu ^u, R. Barazzoni ^v, endorsed by the ESPEN Council

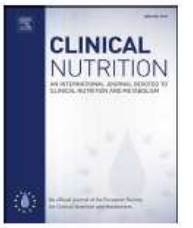
Clinical Nutrition 42 (2023) 54–59



Contents lists available at [ScienceDirect](#)

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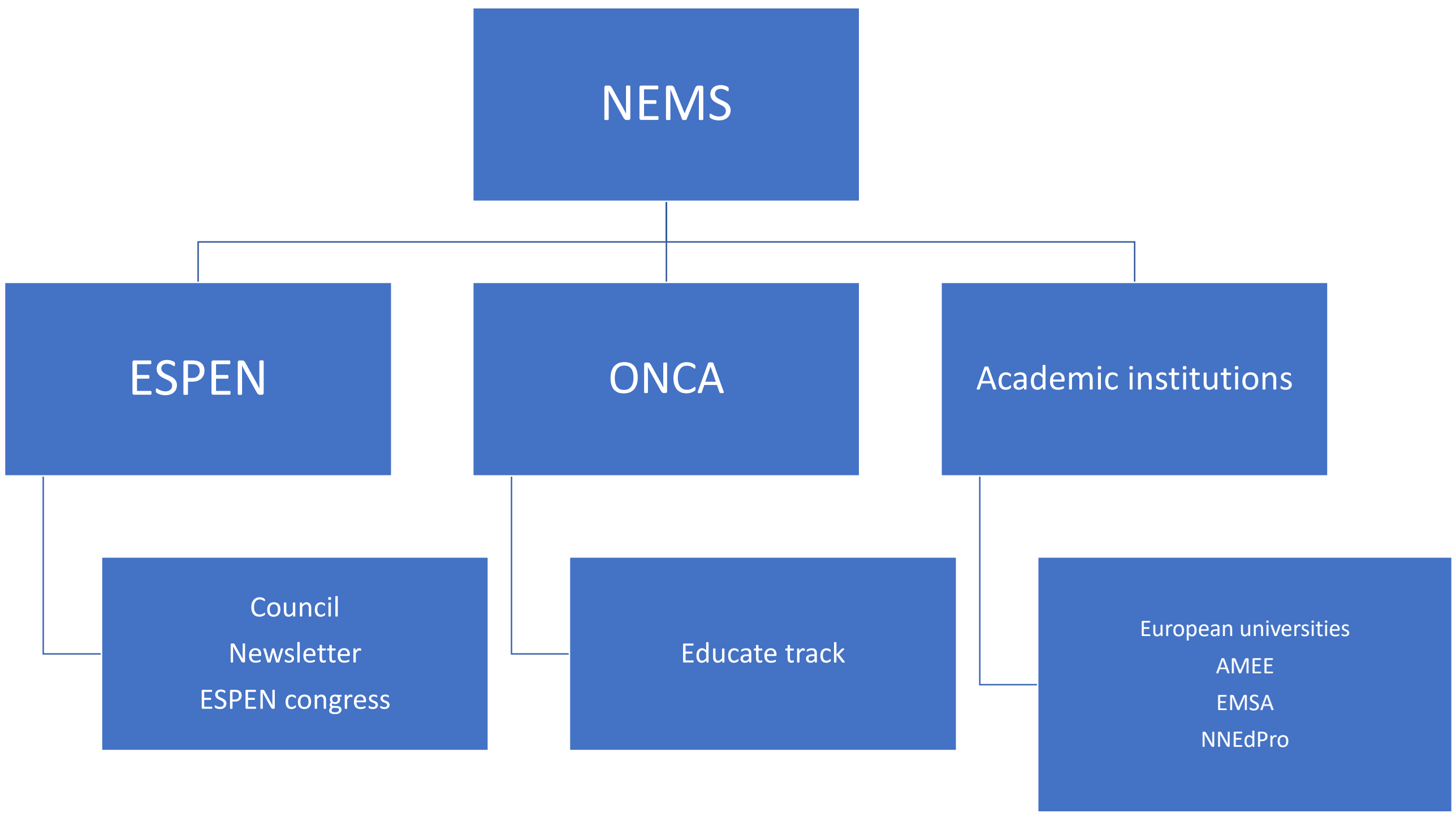
Editorial

Nutrition education in medical schools (NEMS) project: Promoting clinical nutrition in medical schools – Perspectives from different actors





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THE EUROPEAN SOCIETY FOR CLINICAL NUTRITION AND METABOLISM



ESPEN ACTION PLAN

ESPEN commitments in implementing nutritional care after Vienna Declaration



5 PRINCIPLES

ESPEN ACTIONS



Read the full document at www.espen.org





ESPEN NEMS

NEMS EDUCATIONAL SLIDE KIT

Maurizio Muscaritoli¹, MD

Cristina Cuerda², MD, PhD

¹Department of Translational and Precision Medicine, Sapienza – University of Rome, Italy

²Hospital Gregorio Maranon, Complutense University – Madrid, Spain

The project



NEMS slide kit task force

Cuerda	Cristina	cuerda.espen@gmail.com
Muscaritoli	Maurizio	maurizio.muscaritoli@uniroma1.it
Tarantino	Silvia	silvia.tarantino@meduniwien.ac.at
Andreini	Martina	martina.andreini@uniroma1.it
Correia	Maria isabel	isabeldavissoncorreia@gmail.com
Ravasco	Paula	pravasco@ucp.pt
Krznaric	Zeljko	zeljko.krznaric60@gmail.com
Abbasoglu	Osman	osmanabbasoglu@yahoo.com
Jayatissa	Renuka	renukajayatissa@ymail.com
Pisprasert	Veeradej	veeradej_p@hotmail.com
Preiser	Jean-Charles	jean-charles.preiser@hubruxelles.be
Schneider	Stéphane	stephane.schneider@univ-cotedazur.fr
Berk	Kirsten	k.berk@erasmusmc.nl
Nuotio	Maria	maria.nuotio@utu.fi
Arhip	Loredana	loredanarhip@gmail.com
Chourdakis	Michael	mhourd@gapps.auth.gr
Cardenas	Diana	dianacardenasbraz@gmail.com
Alvarez	Julia	julia.alvarez@movistar.es
Sasdelli	Anna Simona	annasimona.sasdelli@gmail.com
Mansi	Patil	drpatilmansi@gmail.com



A selected team made of Medical Doctors, Dietitians, Physicians and ESPEN members on a voluntary basis



Learning objectives identified by NEMS

According to the ESPEN proposal, at the end of the Medical School, the future doctors should be able to:

- Recognise the importance of nutrition for the **promotion of health**, and the **prevention and treatment of disease**
- Know the **basic scientific principles of human nutrition**
- Understand **nutrition-related problems** in individuals and the community
- Provide **general dietary advice** to general population and patients
- Identify patients at **risk of malnutrition or malnourished** and know how to treat them and when to refer to a specialist in clinical nutrition



Bearing in mind that **we don't aim to create Clinical Nutrition specialists!**



Domains of Human Nutrition as defined by NEMS

The domains of Nutrition Education are:

- 1) **Basic nutrition** constitutes the bricks on which the student will build his/her nutrition knowledge (can be taught in subjects such as biochemistry, physiology, etc.)
- 2) **Applied / Public Health Nutrition** refers to the nutrition recommendations to the general population and the promotion of health and prevention of the most prevalent diseases (can be taught in subjects as epidemiology, preventive medicine, etc).
- 3) **Clinical Nutrition** refers to the nutrition concepts that apply to patients with different diseases (can be included in different subjects as Endocrinology, Geriatrics, Internal Medicine, Gastroenterology, Oncology, Surgery, Nephrology, etc).



1) BN - Learning objectives for each topic

BN-1 Macronutrients, micronutrients and dietary fibre	<ul style="list-style-type: none">- To distinguish macronutrients, micronutrients and fibers, understand their nutritional value and metabolic function- To recognize the consequences deriving from the deficiency of one or more of them
BN-2 Physiology of water, minerals and acid-base balance	<ul style="list-style-type: none">- To understand the principles of acid-base balance, dehydration and malabsorption- To remember the physiology of water in the human body- To recognize the importance of minerals and their deficiency
BN-3 Intermediate metabolism (adaptation to starvation, post-prandial status and stress)	<ul style="list-style-type: none">- To understand the metabolic differences between simple starvation, disease-related and stress-related malnutrition- To understand how a disease state may impair the physiological adaptation to starvation- To understand how a disease state may affect nutrients utilization
BN-4 Physiology of food intake, digestion and absorption	<ul style="list-style-type: none">- To understand the principles of physiology of food intake and digestion and absorption of nutrients
BN-5 Principles of energy balance and methods of measurement of energy expenditure	<ul style="list-style-type: none">- To understand the concept of energy balance- To understand the factors which influence energy expenditure (REE, TEE).- To know the methods for estimating and measuring energy expenditure
BN-6 Body composition and methods of measurement	<ul style="list-style-type: none">- To understand the concept of body composition and body compartments- To understand the purpose of measuring body composition- To know the body composition measurements methods



2) APHN - Learning objectives for each topic

APHN-1 Nutritional recommendations and dietary guidelines	<ul style="list-style-type: none"> - To know and to understand the role of scientific societies and health care institutions in the production and promotion of nutritional guidelines
APHN-2 Nutrition applied to different stages in life	<ul style="list-style-type: none"> - To know the different nutritional needs in different periods of life
APHN-3 Healthy lifestyle	<ul style="list-style-type: none"> - To know the principles of healthy lifestyle and healthy eating - To understand the role of healthy lifestyle and healthy eating in disease prevention
APHN-4 Nutritional prevention of cardiovascular disease and cancer	<ul style="list-style-type: none"> - To understand the role of unhealthy diet in the risk of non-communicable diseases (NCDs) such as metabolic syndrome, CVD and cancer - The concept of ultra-processed foods
APHN-5 Prevention of malnutrition (undernutrition and obesity)	<ul style="list-style-type: none"> - To know the social factors associated with non-disease-related malnutrition - To know the social and medical factors associated with overweight and obesity - To know the principles of prevention of undernutrition and obesity
APHN-6 Food labelling	<ul style="list-style-type: none"> - To know how to interpret and present information about the food product - To understand how to identify ingredients, quality and nutritional value, additives, dyes and sweeteners



3) CN - Learning objectives for each topic

CN-1 Nutritional requirements	<ul style="list-style-type: none"> - To know the nutritional needs of healthy subjects in terms of calories, macro and micronutrients needed
CN-2 Nutritional screening and assessment	<ul style="list-style-type: none"> - To understand the differences of nutritional screening and assessment - To understand how to carry out nutritional screening and assessment - To know the main screening and assessment methods - To understand the purpose of nutritional assessment
CN-3 Diagnosis of malnutrition (types, severity)	<ul style="list-style-type: none"> - To know how to define malnutrition - To distinguish the causes of malnutrition - To introduce GLIM criteria and other diagnostic methods - To assess the severity of malnutrition
CN-4 Dietary advice: general recommendations in different diseases and the risks of exclusion diets	<ul style="list-style-type: none"> - To know the role of nutritional counseling and dietary prescription in different clinical conditions (e.g. hypertension, dyslipidemia, diabetes, CKD, etc.) - To know blood chemistry indicators of optimal nutritional interventions - To know the risks of exclusion diets (vegetarian, vegans, others...)
CN-5 Introduction to enteral nutrition	<ul style="list-style-type: none"> - To know composition, indications, contraindications and side effects of oral nutritional supplements (ONS) and enteral nutrition
CN-6 Introduction to parenteral nutrition	<ul style="list-style-type: none"> - To know composition, indications, contraindications and side effects of parenteral nutrition - To know the infectious complications of parenteral nutrition
CN-7 Ethics in medical nutritional treatment	<ul style="list-style-type: none"> - To know the ethical and legal aspects of medical nutrition treatment - To know the principles of self determination - To know the principles of medical nutrition treatment in terminal ill patients - To know the communication issues with patients and caregivers about risks and benefits of medical nutrition treatments at the end of life
CN-8 Drug-nutrient interactions	<ul style="list-style-type: none"> - To know and to understand how medications can decrease appetite or change nutrient absorption, metabolism or excretion and vice versa
CN-9 Food allergy and intolerances	<ul style="list-style-type: none"> - To know the differences between food allergy and intolerances - To know the mechanisms of food allergies - To recognize fake news in food allergies and intolerances



NEMS educational material



Educational slide set of around 196 slides covering the 21 topics included in human nutrition in the 3 domains (basic, applied, clinical nutrition)



List of learning objectives and competences, 5-10 slides per topic, accompanied explanatory text to facilitate the implementation



Flexibility to include this material in different lectures, subjects, according to the curriculum in each university




Possibility of translation to national languages

NEMS NUMBERS

3 Domains of Nutrition



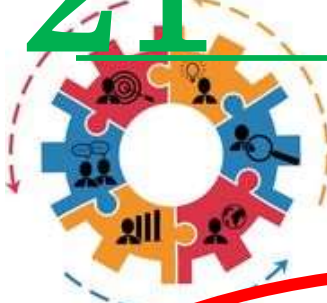
20 NEMS Task Force members




4 Online meetings



21 Topics addressed



2 Coordinators of the TF




+ 300 Emails




196 Slides prepared



1 Graphical optimizer



5 months
To complete the project



3 Reviewers of the slides



**How does the the «product»
look like?**





ESPEN NEMS

Macronutrients, Micronutrients
and Dietary Fibre

Veeradej Pisprasert

Carbohydrate (CHO)

Class of compounds with formula $C_n(H_2O)_n$

• Classification

- Simple CHO
 - Monosaccharides: glucose, galactose, fructose
 - Disaccharides: maltose, sucrose, lactose
- Complex CHO
 - Oligosaccharides
 - Polysaccharides e.g. starch, glycogen

• Main function: energy provision (4 kcal/g)

• Common dietary sources

- Grain: rice, wheat, oats, barley, rye, maize
- Starchy vegetables: yam, potato, corn, cassava
- Legumes: soybeans, dried peas, ..
- Fruits
- Sugar





ESPEN NEMS

Food Labelling

Renuka Jayatissa

Nutrition facts in the food label

The food label breaks down the amounts of **calories, carbs, fat, fiber, protein, and vitamins** per serving of the food, making it easier to compare the nutrition of similar products.

Food labelling provide information on **nutrition facts**:

1. **Serving size:** All nutrient information on this label are for a 2/3-cup serving.
2. This package has **8 servings**: If the whole thing is eaten, you consume 8 times the amounts of nutrients shown on the label.
3. **Total Carbohydrate:** shows types of carbs in the food, including sugar and fiber.
4. **Fiber, vitamins, and minerals:** shows amount and % daily value
5. It guides the **healthy eating and disease specific eating**: amount and % daily values of calories, saturated fat, sodium, added sugar and trans fat.



Health and nutrient claims need prior approval.

Nutrition Facts	
8 servings per container	← 2
Serving size 2/3 cup (55g)	
Amount per serving	
Calories 230	
% Daily Value*	
Total Fat 8g	10%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	13%
Dietary Fiber 4g	14%
Total Sugars 12g	
Includes 10g Added Sugars	20%
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.



ESPEN NEMS

Nutritional
Requirements

Osman Abbasoglu

How and why diseases modify nutritional requirements? The example of critically-ill patients

Response to injury
(Acute diseases, trauma, surgery, sepsis)



Increased release of:

- ACTH/cortisol
- Proinflammatory cytokines (IL-1, TNF α)



- Protein breakdown
- Increased endogenous energy production

- Hypocaloric nutrition (not exceeding 70% of estimated energy) in the early phase of acute illness
- 1.3 g/kg/day protein

NEMS slides are available at the ESPEN website

The image shows a screenshot of the ESPEN website. The top navigation bar includes links for ABOUT, GUIDELINES, EDUCATION, LLL, SOCIETIES, ACTIVITIES, JOURNALS, MEMBERS (circled in green), and FOR PATIENTS. Below this, there is a login form with fields for Username and Password, a 'Remember Me' checkbox, and a 'Log in' button. A 'Welcome ESPEN member' message is displayed, along with a 'Log out' button. A 'myESPEN' dropdown menu is open, listing options: ESPEN Journals, LLL Courses, Webinars, NEMS, Newsletter, and My Account. A green mouse cursor is pointing at the 'NEMS' option.

- **Go** to the website www.espen.org section Members
- **Login** as a member
- **Click** on NEMS, in myESPEN menu

NEMS STATISTICS*

	May 2024	Aug 2024	Jan 2025	May 2025
Nr. of downloads	297	553	760	1034
ESPEN Members	n.a.	56	85	111
Countries	19	30	36	42

* LAST UPDATE MAY 2, 2025. Courtesy of R. Fuchs

** AUSTRALIA, AUSTRIA, AZERBAIJAN, BELGIUM, BRAZIL, CANADA, CROATIA, DENMARK, EGYPT, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, INDIA, INDONESIA, IRAN, ITALY, JAPAN, LATVIA, LITHUANIA, MALAYSIA, MEXICO, MONGOLIA, NEPAL, NETHERLANDS, NEW ZEALAND, PHILIPPINES, POLAND, PORTUGAL, ROMANIA, SERBIA, SINGAPORE, SLOVENIA, SOUTH AFRICA, SPAIN, SWITZERLAND, SRI LANKA, VIETNAM, UNITED KINGDOM, USA

NEMS WORLDWIDE



Results of council survey on NEMS implementation

(launched in April 11-25th)

14 replies

Italy, Philippines, Belgium, Brazil, Portugal, Croatia, Japan, Turkey, Colombia, Paraguay, Iran, Latvia, Spain, Israel

NEMS materials have been translated by the national PEN societies in Brazil, Croatia and Iran

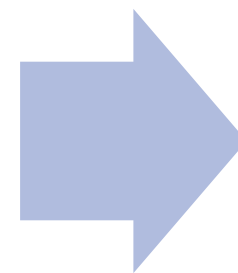
NEMS materials are being used in universities in Portugal, Croatia and Iran

NEMS slides are available in English, Portuguese, Croatian and Farsi

All the respondents are interested in translation to other languages

Next steps in the project

From NEMS

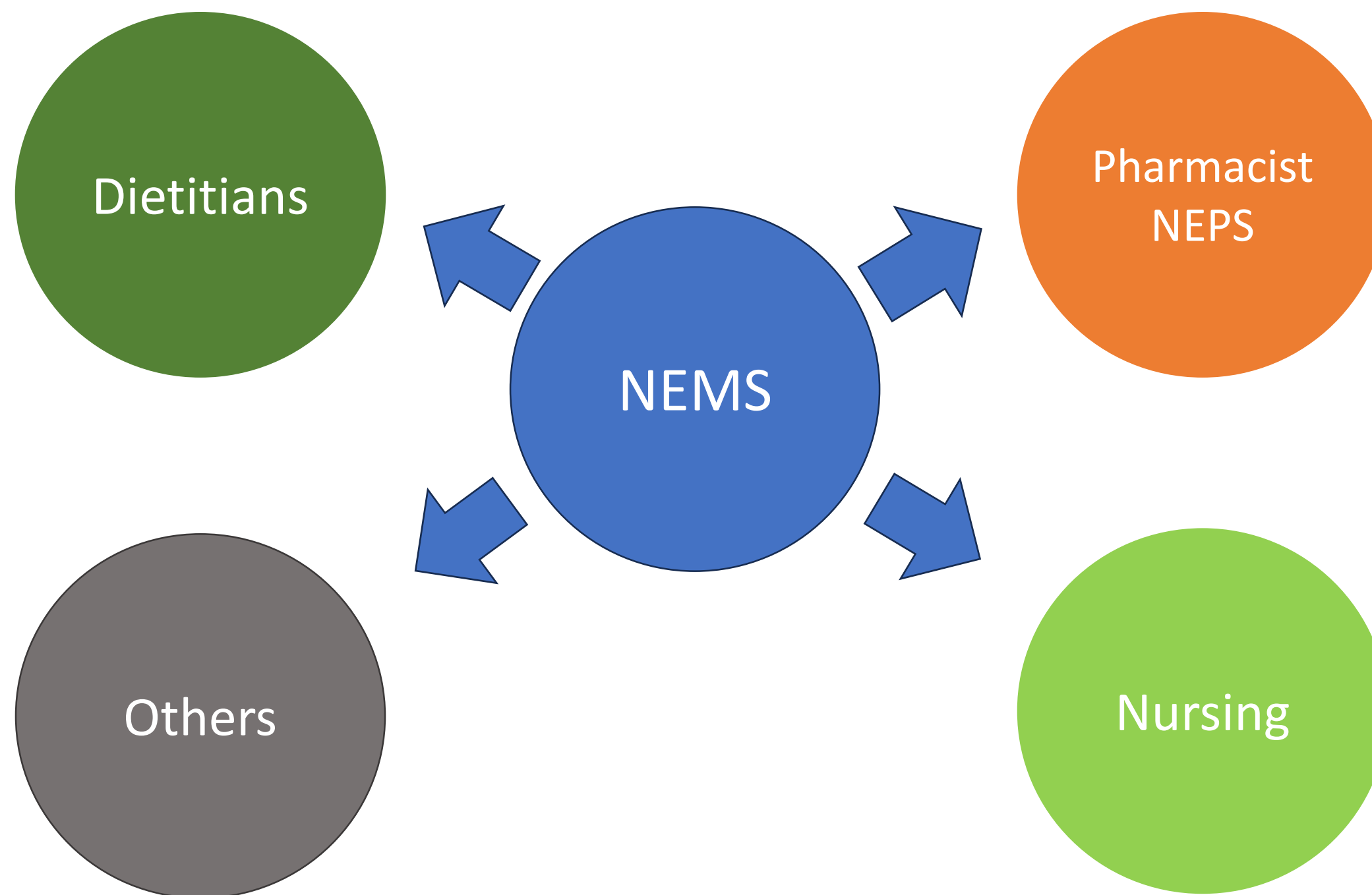


To NEUS

Nutrition Education in Medical Schools

Nutrition Education in Undergraduate Schools

Next steps in the project



NEPS Nutrition Education in Pharmacist Schools

Chair: Burcu Kelleci (Turkey)

Working group: 9 pharmacists, members of ESPEN from 7 countries (Turkey, Italy, Spain, UK, Switzerland, Croatia, Poland)

Adaptation of NEMS slide set to pharmacist

Development of 9 specific modules for pharmacists

Same framework methodology

Time frame: presentation in the ESPEN congress 2025

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*Thank
you!*

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