

Project Protocol

Oral Nutritional Supplements: Efficacy, Indications, and Guidelines

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Duration: Q1 2026 to Q4 2026

Resources: 8 PM

Language: English (with German summary)

Background

Malnutrition describes deficiencies, excesses, or imbalances in a person's energy and nutrient intake and can be divided into two main disease groups. The first group includes malnutrition, which encompasses growth retardation, wasting, underweight, and micronutrient deficiencies. The second group includes overweight, obesity, and nutrition-related noncommunicable diseases such as heart disease, stroke, diabetes, and cancer. Undernutrition can be further subdivided into quantitative malnutrition (insufficient energy intake leading to weight loss and wasting) and qualitative malnutrition (micronutrient deficiencies affecting specific physiological functions) [1].

Within the scope of this project, malnutrition refers exclusively to undernutrition and nutrient deficiencies. These can be both a cause and consequence of poor health and lead to metabolic, functional, and physiological deficits with far-reaching consequences: weight loss, loss of body fat and muscle mass, increased mortality and morbidity, as well as higher consumption of healthcare resources [2, 3].

While malnutrition is often associated with famine and food insecurity, it is also a substantial health problem in high-income countries, particularly among elderly people and those with chronic diseases [4]. Disease-related malnutrition may arise from conditions that either increase nutritional requirements (such as cancer, infections, or burns) or impair nutritional intake through long-term illnesses (dementia, chronic obstructive pulmonary disease), mechanical problems (dysphagia, reduced gastric capacity), or behavioural issues (selective eating). Despite these wide-ranging aetiologies, the lack of awareness regarding vulnerable groups' nutritional requirements, combined with societal acceptance of weight loss as a normal part of ageing, results in delayed identification and treatment of this largely preventable condition [2-6].

To address malnutrition and its associated health risks, oral nutritional supplements (ONS) are widely used for prevention and treatment. ONS are commercially manufactured products available in liquid, powder, or solid form, containing carbohydrates, proteins, fats, fibre, vitamins, and minerals. Evidence supports their use across a range of clinical settings, with demonstrated benefits including improved clinical and functional outcomes and enhanced recovery and healing. In clinical practice, ONS are frequently prescribed to patients identified as malnourished or at risk of malnutrition. Their use is not without controversy, however: in some healthcare systems, rapidly rising costs and concerns about inappropriate prescribing have prompted scrutiny of current practice. While ONS may offer limited benefit in certain patient groups, they remain essential for others, underscoring the importance of identifying those most likely to benefit from their use [2, 4, 5].

The right to adequate nutrition is enshrined in the International Declaration on the Human Right to Nutritional Care (Vienna Declaration 2022) [7]. Denying ONS access to malnourished patients could violate fundamental human rights. However, ethical considerations must balance this right with concerns about overuse, inappropriate prescribing, and medicalisation when simpler interventions might suffice [8].

Beyond patient care ethics, ONS require sustainability evaluation. Their environmental impact (resource-intensive production, carbon emissions, and packaging waste) raises questions about healthcare's ecological responsibility. Inappropriate prescribing represents a misuse of resources, a potential violation of patient autonomy, and an avoidable environmental burden [5].

Project aims:

This project **aims to** conduct a comprehensive health technology assessment of oral nutritional supplements across different patient populations and clinical indications to support evidence-informed prescribing decisions within the Austrian healthcare system.

This project **does not aim to** evaluate individual clinical indications in detail or to compare the nutritional composition of different ONS products. The scope is limited to orally consumed nutritional supplements and does not include enteral tube feeding.

Research question:

RQ 1: What recommendations for ONS prescribing across different patient populations and clinical indications are documented in high-quality international and national guidelines?

RQ 2: What is the clinical effectiveness and safety of oral nutritional supplements across different patient populations and clinical indications?

RQ 3: What ethical principles and considerations should guide prescribing decisions for ONS in diverse patient populations?

RQ 4: What are the environmental sustainability implications of oral nutritional supplement prescribing?

Methods:

The following methods are used to answer the research questions:

RQ 1:

- Hand search for guidelines (databases: AWMF, GIN, TRIPS).
- Quality assessment using AGREE II [9] with regard to the domains of effectiveness and safety.
- Restriction to recent guidelines (past 5 years).
- Inclusion of only high-quality guidelines (e.g., evidence-based, no expert papers; recommendations must be clearly identifiable as such, etc.)
- Documentation of identified guidelines in a table.
- Extraction of predefined data from guidelines.
- Summary of results.

RQ 2:

- Systematic search for systematic reviews and meta-analyses (PubMed/MEDLINE, Embase, Epistemonikos, Cochrane Library) and HTA reports (INAHTA database).
- Quality assessment using ROBIS (systematic reviews) [10].
- Restriction to literature published during the past 10 years.
- In the case of a large amount of available literature, inclusion of only high-quality literature.
- Documentation of identified systematic reviews in a table.
- Extraction of predefined data from publications or systematic reviews.
- Summary of results.

Inclusion criteria (PICOs):

	Inclusion: population 1	Inclusion: population 2	Exclusion: both populations
Population	Adults with different indications (e.g. dementia, cancer etc.)	Children and adolescents with different indications (e.g. picky eating, chronic disease)	-
Intervention	All ONS-types, ready-made products and powders		Tube feeding
Comparison	Any comparator, e.g., placebo, dietary advice, normal diet/standard care		-
Outcomes	Including but not restricted to: ■ Measures of body composition ■ Nutritional intake (e.g. energy and protein intake) ■ Health-related outcomes (e.g. appetite)		-

	Inclusion: population 1	Inclusion: population 2	Exclusion: both populations
	- Clinical and other outcomes (e.g. infections/illnesses, disease progression, serum markers) - Mortality - Length of stay & hospital readmissions - Duration of ONS treatment - Adverse events and complications (total, infectious and pressure ulcers) - Negative/ undesired implications/ side effects - Physical function		
Publication type	Systematic reviews, meta-analyses, HTAs		Primary studies
Publication date	Since 2016		Studies published before 2016
Countries	Countries with healthcare infrastructure comparable to Austria's		Studies in which fewer than 50% of participants are recruited from countries with healthcare infrastructure comparable to Austria's, as disease patterns and indications for ONS may differ substantially in other settings.
Languages	English, German		All other languages

RQ 3 + RQ 4:

- Hand search for information on ethical and sustainability issues of ONS.
- Extraction of data from identified literature.
- Summary of results.

Timetable:

Period	Tasks
Q1 2026	Scoping and finalising the project protocol
Q1 2026 to Q2 2026	- Hand search for RQ 1 and systematic literature search for RQ 2 - Selection of literature for RQ 1 and RQ 2
Q2 2026	Data extraction and quality assessment for RQ 1 and RQ 2
Q2 2026	Start to write the report
Q3 to 2026	Hand search for RQ 3 + RQ 4
Q3 2026 to Q4 2026	Finalising the report
Q4 2026	Internal and external review
Q4 2026	Layout and publication

References:

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- [4] Vlaev I., King D., Dolan P. and Darzi A. The theory and practice of “nudging”: changing health behaviors. *Public Administration Review*. 2016;76(4):550-561.
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- [6] Hallett M. F., Kjaer T. and Bjørnskov Pedersen L. The Use of Nudge Strategies in Improving Physicians' Prescribing Behavior: A Systematic Review and Meta-analysis. *Medical Decision Making*. 2024;44(8):986-1011. DOI: <https://dx.doi.org/10.1177/0272989X241270001>.

