FOOD- AND NUTRITION-RELATED QUESTIONS IN THE COMMUNITY PHARMACY:
AN OBSERVATIONAL STUDY IN FLANDERS

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First Master of Pharmaceutical Care

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May 14, 2016

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SUMMARY

Through the years, the role of the pharmacist has changed from preparation, supply and control of medication to providing pharmaceutical care. Hence, pharmacists are responsible for health education, including giving evidence-based advice concerning nutrition. Pharmacy education has to follow this evolution. After a screening by the review committee in 2010, a reformation of the pharmacy education followed, including food- and nutrition-related courses. The new curriculum comprises two food- and nutrition-related courses, called ‘Bromatology’ and ‘Special Nutrition’. In the context of the education innovation projects, an observational study was carried out to unravel food- and nutrition-related questions pharmacists are confronted with, in order to better align pharmacy education with the professional field.

Every month, between July 2014 and April 2015, 136 master students conducting their internship were asked to record the first two food- or nutrition-related questions they were confronted with. Afterwards, they completed a questionnaire concerning the motivation, subject, prior knowledge, conducted research, etc. These results were exported to an excel file and interpreted. Students also chose 1 out of their 8 recorded cases to write an essay about, comprising a scientifically-based advice in response to the patient’s question. A panel of four reviewers scored 20 randomly chosen essays based on the correctness, the scientific substantiation, the practical feasibility and the patient orientation of the advice.

The 1,004 recorded questions were divided into 18 categories based on their content. By combining the amount of questions in each category and the prior knowledge of the students, recommendations towards education were made. Education about interactions between food and drugs and about ingredients in food should remain as before, as students had enough prior knowledge about these topics. A basic knowledge about functional foods, novel foods, enteral and tube feeding, diet for phenylketonuria and E-numbers should suffice in daily practice. General diet recommendations for the geriatric and diabetic population should be addressed more in education. The topics pharmacy education should focus on the most, however, are food supplements, baby food, healthy food and nutritional recommendations, weight loss diets and products, high-protein foods, vegetarianism, food for athletes, food safety and allergies and food-intolerances. In
conclusion, despite the large subjectivity of the evaluation performed by the reviewers based on the assessment, most students scored well on all evaluation criteria.

In the future, a repetition of this study with students enrolled in the new education system would be advised to assess the suitability of the improvements made.
SAMENVATTING


Uit de beoordeling van de essays blijkt, ondanks de grote subjectiviteit, dat de meeste studenten relatief goed scoren op zowel correctheid, wetenschappelijke onderbouwing, praktische haalbaarheid als patiëntgerichtheid van het advies.

Een herhaling van deze studie in de toekomst, met studenten die zich reeds in het nieuwe onderwijssysteem bevinden, is aangeraden om de geschiktheid van de verbeteringen binnen het onderwijs te evalueren.
Allereerst wil ik Prof. Dr. Apr. S. De Saeger bedanken om mij de kans te geven deze masterproef te verwezenlijken en voor de algemene leiding en raad bij de uitvoering hiervan.

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Graag bedank ik ook Prof. Dr. Apr. S. De Saeger, Dr. Apr. L. De Bolle, Dr. Apr. A. Somers en Apr. A. Vanhie om mee te werken aan de praktische uitvoering van dit onderzoek.

Ik wil ook Prof. Dr. Apr. K. Boussery en de medewerkers van de Eenheid Farmaceutische Zorg bedanken voor het verzamelen van de gegevens voor deze masterproef en de raad bij de uitvoering hiervan.

Natuurlijk wil ik ook de andere studenten en medewerkers van het Laboratorium voor Bromatologie bedanken voor de fijne sfeer tijdens de voorbije periode.

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TABLE OF CONTENTS

1  INTRODUCTION...........................................................................................................1

1.1  DEFINITION OF FOOD SCIENCE...........................................................................1

1.2  PHARMACIST’S ROLE IN TERMS OF FOOD SCIENCE...........................................1

1.3  FOOD SCIENCE ON ACADEMIC LEVEL ..............................................................2

   1.3.1  Food science at Ghent University ....................................................................2

          1.3.1.1  Bachelor .................................................................................................2

          1.3.1.2  Master .......................................................................................................3

   1.3.2  Food science at other Belgian universities ......................................................3

   1.3.3  Food science at universities in neighbouring countries ....................................4

1.4  EDUCATIONAL INNOVATION PROJECT ...............................................................6

   1.4.1  General goals ..................................................................................................6

   1.4.2  Specific goals ..................................................................................................6

2  OBJECTIVES ..................................................................................................................7

3  MATERIALS AND METHODS ......................................................................................9

3.1  GENERATION OF THE QUESTIONNAIRE .............................................................9

3.2  EXECUTION OF THE QUESTIONNAIRE .................................................................9

3.3  ANALYSIS OF THE QUESTIONNAIRE ...................................................................10

   3.3.1  Cases’ framework ..........................................................................................10

   3.3.2  Pharmacists’ framework ................................................................................11

   3.3.3  Classification of Cases ....................................................................................11

          3.3.3.1  Interactions between food, food supplements and drugs .........................12

          3.3.3.2  Ingredients in food ..................................................................................12

          3.3.3.3  E-numbers ..............................................................................................12

          3.3.3.4  Healthy food and nutritional recommendations ........................................12

          3.3.3.5  Vegetarianism and veganism ....................................................................13

          3.3.3.6  Functional foods / Nutraceuticals .............................................................13

          3.3.3.7  Food supplements ....................................................................................14

          3.3.3.8  Novel foods – Hype surrounding superfoods ............................................14

          3.3.3.9  Weight loss diets and related products ....................................................14
3.3.3.10 Food allergies and intolerances ................................................................. 15
3.3.3.11 High-protein foods / drinks ...................................................................... 16
3.3.3.12 Diet for phenylketonuria ......................................................................... 16
3.3.3.13 Diabetes and diet ...................................................................................... 16
3.3.3.14 Enteral and tube feeding ........................................................................... 17
3.3.3.15 Baby food .................................................................................................. 17
3.3.3.16 Food for the geriatric population .............................................................. 19
3.3.3.17 Food for athletes ...................................................................................... 19
3.3.3.18 Food safety ............................................................................................... 20
3.4 EXTENSIVE INVESTIGATION OF ONE CASE ...................................................... 21

4 RESULTS AND DISCUSSION .................................................................................. 22

4.1 ANALYSIS OF THE QUESTIONNAIRE ................................................................. 22

4.1.1 Cases’ framework .......................................................................................... 22

4.1.2 Pharmacists’ framework ............................................................................... 23

4.1.3 Classification of Cases .................................................................................. 27

   4.1.3.1 Interactions between food, food supplements and drugs ......................... 29
   4.1.3.2 Ingredients in food .................................................................................... 30
   4.1.3.3 E-numbers ............................................................................................... 30
   4.1.3.4 Healthy food and nutritional recommendations ......................................... 31
   4.1.3.5 Vegetarianism and veganism ................................................................... 32
   4.1.3.6 Functional foods / Nutraceuticals ............................................................ 32
   4.1.3.7 Food supplements .................................................................................... 33
   4.1.3.8 Novel foods – Hype surrounding superfoods ............................................ 34
   4.1.3.9 Weight loss diets and products .................................................................. 34
   4.1.3.10 Food allergies and intolerances ............................................................. 35
   4.1.3.11 High-protein foods / drinks ................................................................... 36
   4.1.3.12 Diet for phenylketonuria ....................................................................... 37
   4.1.3.13 Diabetes and diet .................................................................................... 37
   4.1.3.14 Enteral and tube feeding ........................................................................ 38
   4.1.3.15 Baby food ............................................................................................... 38
   4.1.3.16 Food for the geriatric population ............................................................ 39
4.1.3.17 Food for athletes .................................................................39
4.1.3.18 Food safety ........................................................................40
4.2 EXTENSIVE INVESTIGATION OF ONE CASE ..................................41
  4.2.1 Mean reviewers’ scores and range ........................................41
  4.2.2 Outliers and motivation ..........................................................42
5 CONCLUSIONS AND FUTURE PERSPECTIVES ........................................45
6 REFERENCES ..................................................................................48

ANNEX 1: QUESTIONNAIRE ABOUT FOOD ANALYSIS IN THE PHARMACY .................................I
ANNEX 2: CONSULTING LIST ABOUT FOOD SCIENCE IN THE PHARMACY (ENGLISH TRANSLATION) ..........III
ANNEX 3: CONSULTING LIST – FOOD SCIENCE IN THE PHARMACY (ORIGINAL LIST IN DUTCH) ......................VII
ANNEX 4: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – INTERACTIONS BETWEEN FOOD, FOOD SUPPLEMENTS AND DRUGS (N=44) .................................................................XI
ANNEX 5: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – INGREDIENTS IN FOOD (N=8) ...............XV
ANNEX 6: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – E-NUMBERS (N=1) ..............................XVI
ANNEX 7: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – HEALTHY FOOD AND NUTRITIONAL RECOMMENDATIONS (N=103) ..................................................................................XVII
ANNEX 8: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – VEGETARIANISM AND VEGANISM (N=16) ..................................................................................................................XXV
ANNEX 9: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FUNCTIONAL FOODS / NUTRACEUTICALS (N=5)..............................................................................................................XXVII
ANNEX 10: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD SUPPLEMENTS (N=387) ....XXVIII
ANNEX 11: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – NOVEL FOODS - HYPE SURROUNDING SUPERFOODS (N=1) ..............................................................LV
ANNEX 12: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – WEIGHT LOSS DIETS AND RELATED PRODUCTS (N=78) .......................................................... LVI
ANNEX 13: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD ALLERGIES AND INTOLERANCES (N=33) .......................................................... LXIII
ANNEX 14: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – HIGH-PROTEIN FOOD / DRINKS (N=58) ............................................................................................................. LXVI
ANNEX 15: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – DIET FOR PHENYLKETONURIA (N=3) LXXI
ANNEX 16: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – DIABETES AND DIET (N=11) ..........LXXII
ANNEX 17: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – ENTERAL AND TUBE FEEDING (N=1) ..................................................................................................................LXXIII
ANNEX 18: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – BABY FOOD (N=187) ...................LXXIV
ANNEX 19: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD FOR THE GERIATRIC POPULATION (N=9) ..........................................................................................XC
ANNEX 20: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD FOR ATHLETES (N=48) .......... XCI
ANNEX 21: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD SAFETY (N=11) ................. XCV
ANNEX 22: ASSESSMENT FORM FOR REVIEWING CASES ..................................................................... XCVI
ANNEX 23: INTERNATIONALISATION @ HOME .................................................................................. XCVII
LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCFI</td>
<td>Belgisch Centrum voor Farmacotherapeutische Informatie (Belgian Centre for Pharmacotherapeutic Information)</td>
</tr>
<tr>
<td>BMJ</td>
<td>British Medical Journal</td>
</tr>
<tr>
<td>NICE</td>
<td>Nutrition Information Centre</td>
</tr>
<tr>
<td>NSAID</td>
<td>Non-Steroidal Anti-Inflammatory Drugs</td>
</tr>
<tr>
<td>OTC</td>
<td>Over-The-Counter</td>
</tr>
<tr>
<td>PCBs</td>
<td>Polychlorinated Biphenyl</td>
</tr>
<tr>
<td>PEG</td>
<td>Percutaneous Endoscopic Gastrostomy</td>
</tr>
<tr>
<td>PEJ</td>
<td>Percutaneous Endoscopic Jejunostomy</td>
</tr>
<tr>
<td>PG</td>
<td>Percutaneous Gastrostomy</td>
</tr>
<tr>
<td>PJ</td>
<td>Percutaneous Jejunostomy</td>
</tr>
<tr>
<td>SGLT1</td>
<td>Sodium-Glucose Linked Transporter 1</td>
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</table>
1 INTRODUCTION

1.1 DEFINITION OF FOOD SCIENCE

Food science is the science that deals with many aspects of foodstuffs. An important part of this science is food chemistry, in which food composition and characteristics are being analysed through specific analytical techniques (1). Another important part of food science is food safety. This has traditionally been one of the most import goals of food science and still remains crucial (2). Food safety is the analysis of food, related to the presence of allergens, pesticides, additives, contaminants, ... . Food safety is often bounded by specific government regulations and guidelines. A third part of food science is related to the nutrient content of food and the implications on health (1, 2). There has been a growing interest in the latter, among others by the media, with focus on health benefits and even prevention of future diseases by different diets, functional foods, superfood, etc. It goes as far as recommending food products for certain groups of population based on their genomes, an area of research called foodomics. These advances ask for multidisciplinarity and more advanced analytical methods (2). In some countries, like Belgium, France and Italy among others, the term bromatology is used to refer to food science in a pharmaceutical context.

1.2 PHARMACIST’S ROLE IN TERMS OF FOOD SCIENCE

In the last few decades the pharmacist’s role has changed from the preparation, supply and control of drugs to functioning as a ‘drug-therapy manager’ (3, 4). The pharmacist needs to assure that drug therapy is appropriate, effective, safe and convenient for the patient, thus improving medication outcome as well as quality of life. This patient-centred approach is called ‘pharmaceutical care’ (4-6). An important aspect of pharmaceutical care is health education (7, 8). The pharmacist, often being a first-point-of-contact, needs to be capable of delivering evidence-based health advice as well as answer patients’ questions, including food- and nutrition-related questions. Historically, pharmacists have always played an important role in food analysis. In the 19th century, pharmacists were the only professionals who were allowed to check food quality and to detect adulterated food, due to their analytical and toxicological education. In 1886, optional courses concerning adulterated food were introduced in pharmacy education in Belgium in 4 different universities. In 1890
these courses even became mandatory (9). To this day there are still many pharmacists who work in the field of food analysis. From this perspective, it is implicative that community pharmacists, in their role of advisors, take responsibility for having evidence-based answers and recommendations concerning food- and nutrition-related questions in the pharmacy.

1.3 FOOD SCIENCE ON ACADEMIC LEVEL

1.3.1 Food science at Ghent University

The pharmacy education went through a reformation following a screening by the review committee in 2010. The renewed programme was implemented for students starting their first bachelor year in 2012. The questionnaire, reviewed below, was carried out by master students in the academic year 2014-2015, which means they were still part of the old education system. That is why both the old and renewed pharmacy programme will be discussed below.

1.3.1.1 Bachelor

The renewed programme has 2 courses related to food analysis in the third bachelor year. The first course is called ‘Bromatology’. It consists of 3 sections: food chemistry, basic nutritional aspects and basic food safety aspects. In the section ‘food chemistry’ the different food components are discussed, as well as the different analytical techniques and food technology. In the section ‘basic nutritional aspects’ nutrients and nutritional value are being discussed, as well as health effects of food, energy requirement and recommendations for a healthy lifestyle. The part ‘food safety aspects’ looks at different contaminants and food toxicology (10).

A second course is called ‘Bioanalytical practical’. This course is aimed at teaching students the practical skills necessary for bioanalysis. It is an overarching practical not just related to bromatology, but to toxicology and medical biochemistry as well. For bromatology, the first practical part consists of determining fat content, mycotoxins, lactose, saccharose and D-isocitric acid in biological matrices such as human urine, milk and orange juice. A second part consists of group and individual assignments concerning different
bioanalytical areas and the connection between the different fields of study, as well as an excursion to a food production company (11).

1.3.1.2  Master

In the renewed system, a course called ‘Special Nutrition’ has been implemented in the first master year of pharmaceutical care. This course deals with food designed for specific aims and for specific groups of people, as well as the legislation related to these foods. Topics that are being discussed are among others special diet food, baby food, sports nutrition, dietary supplements and special nutrition. This should give the future pharmacists enough knowledge to give evidence-based advice to the consumer/patient (12).

In the old system, all food- and nutrition-related topics were addressed in the master years. In the first master year, a mandatory course called ‘Bromatology’ was taught. This course consisted of the same subjects as the new bromatology course in third bachelor, except for the part about food safety aspects (13). Food safety aspects were discussed in an elective course called ‘Food Safety’.

‘Food safety’ was an elective course that could be attended in the first or second master year. The different aspects that were discussed, were food contaminants, food additives and the toxicological aspects of foodstuffs. These aspects are now integrated in the new mandatory bromatology course in the third bachelor (14).

A second elective course in the first or second master year concerning food was ‘Dietary products’. This course largely corresponded with the current mandatory ‘Special Nutrition’ course in the first master year (15).

1.3.2  Food science at other Belgian universities

At Catholic Leuven University, only one (mandatory) course concerning food is being taught, in the second master pharmaceutical science. This course is called ‘Medical Aspects of Food’. Different nutritional recommendations throughout life are being discussed, as well as overnutrition versus malnutrition, food related to health and disease and the importance of new developments, like functional foods, food supplements, ... (16)
At Antwerp University, a mandatory course called ‘Food and Nutrition theory’ is being taught in the second bachelor year. In this course different aspects of nutrients are discussed, as well as the recommended dietary allowances of each. On top of that, aspects like additives and contaminants in food are discussed as well (17). Master students of pharmaceutical care (second year) can take an elective course to follow that first course. This course is called ‘Food and Dietetics II’ and discusses dietary products, products for specific populations and products related to specific pathologic conditions (18).

The Free Brussels University teaches a course called ‘Nutrition and Nutraceuticals’ to master students in pharmaceutical care (first year). The course consists of three parts: discussion by nutrient class, nutritional needs and epidemiology and specific food products. There are also a few seminars with subjects varying from one year to the next. On top of that, a visit to a company can be foreseen (19).

At Liège University master students have to follow a course called ‘Nutrition’ in their last bachelor year. This course consists of a part discussing dietary elements and a second part on nutrition and pathologies (20).

1.3.3 Food science at universities in neighbouring countries

In the Netherlands, the two universities that teach pharmacy are Utrecht University and Groningen University. At Utrecht University, students can follow an elective course called ‘Pharma and Nutrition’ in their last bachelor year. This course focusses on specialised nutrition. The changes in nutritional requirements or deficiencies associated with several illnesses are discussed, as well as the specific nutrition therapies for several disease categories. On top of that, different skills needed to critically interpret literature concerning nutritional sciences are enhanced through project work (21, 22). At Groningen University no courses concerning food analysis or nutrition are being taught at the Faculty of Pharmaceutical Sciences. These type of courses are restricted to studies in Biomedical Sciences or Biology. Pharmacy students can occasionally choose one of these courses as an elective, but this is not an integral part of the pharmacy studies (23).

The two universities of Germany that have the highest number of pharmacy students are Bonn University and Marburg University (24). Bonn University has one course
related to nutrition for second bachelor year pharmacy students. This course is called ‘Dietetics for pharmacists’ and basic elements of food science are addressed. The different chapters that are discussed are: anatomy and physiology of the digestive tract, energy balance, carbohydrates, lipids, vitamins, proteins and minerals (25). Marburg University has one course on food science for second bachelor students as well, called ‘Dietetics’. The topics discussed in this course are: components of the diet (nutrients and energy), determination of demands and supply of nutrients, body composition and body weight, nutrients (proteins, carbohydrates, lipids, vitamins, minerals, phytochemicals and dietary fibres), biological basis of nutrients (functions, effects, metabolism and significance) and nutritional fundamentals (demand, consumption and food choices) (26).

In France, the two pharmacy faculties with the highest number of students based on the numerus clausus are Montpellier University and Lille University (27). At Montpellier University, students can follow an elective course in their fourth year called ‘Food Risks’. In this course chemical, bacteriological, parasitical and fungal contamination of food and water is being discussed, specifically to make students aware of the possible risk associated with consumption of these products. The possible risks associated with genetically modified organisms is discussed in this course as well. In their fourth year, students also have to follow a mandatory course called ‘Nutrition’. This course consists of two main parts: basic and clinical nutrition elements and food supplements. In basic and clinical nutrition elements students learn about nutritional requirements depending on physical activity, life cycle, physiological status, etc. Several nutritional pathologies and different approaches to assessing nutritional status are discussed as well. In the part about food supplements, the regulatory basis, risks, health claims and several illustrations are considered (28). Lille University teaches pharmacy students (6th year) a course on nutrition, ranging from pregnancy to infancy. The subjects discussed in this course are nutrition for pregnant or breastfeeding women, infant nutrition (breastmilk or formula), small digestive problems in infants (regurgitation, vomiting, diarrhoea, constipation, food allergies and intolerances) and special dietary products (29).

In the United Kingdom, the two universities with the highest number of students are Greenwich University and University College London. Greenwich University has no courses related to food science or dietetics (30), nor has University College London (31).
1.4 EDUCATIONAL INNOVATION PROJECT

1.4.1 General goals

Ghent University has implemented educational innovation projects to ensure initiatives maintaining the education up-to-date and to ensure quality in education. Since 2008, each faculty gets resources for these innovation projects. These projects can vary from the implementation of certain educational principles, like active learning, skills-based learning, cooperative learning, to the implementation of a new technology and even the update of the curriculum content (32).

1.4.2 Specific goals

In daily practice, the pharmacist is often the first point of contact for the patient. In his role as a caregiver, the pharmacist has to be able to answer patients’ questions concerning healthy lifestyle, foodstuffs, product labelling, baby food, dietetics, food safety and questions concerning food for specific populations in laymen’s terms. The best approach to do this, is by aligning the professional field and the pharmacy education. The innovation project for food analysis is aimed at discovering the food- and nutrition-related questions and problems pharmacists are confronted with in day-to-day work and to adjust the content of the bromatology and special nutrition courses to those needs.
OBJECTIVES

After a screening by the review committee in 2010, it was advised to make a more elaborate distinction between the *patient-oriented* master in pharmaceutical care and the *drug-oriented* master in drug development (33). Therefore, the pharmacy education programme has been reformed to obtain a better distinction between both. Because of this reformation, the courses concerning food analysis have been given a new interpretation. The bromatology course was transferred to the third bachelor, and was reduced from 37.5 hours to 30 hours, with incorporation of the previous elective course in food safety. This makes a focus on off-campus relevant topics even more crucial. In the first master year of pharmaceutical care, a new mandatory course in special nutrition has been implemented, opposed to the previous elective course in dietary products.

As part of the education innovation project, the content of these new courses in bromatology and special nutrition are being reviewed. The main objective of this study is to gain insight into the most important food- and nutrition-related questions pharmacists are confronted with while performing their profession. These questions provide a funded basis for the evaluation of the course content in pharmacy education. By adapting the aforementioned course units to pharmacy practice, students will be more capable of responding to patients’ needs, and of adequately solving arising food-and nutrition-related problems or questions (34).

Another objective of this study is to evaluate whether participating students had enough knowledge to advise patients. The main goal here is to analyse which questions pharmacy interns thought of as difficult to answer, because of lack of knowledge (34). Related to that, it is important to analyse whether students had the right reflexes to do research when they were faced with a situation for which their knowledge was insufficient. Continuous learning is an important part of the pharmacists’ profession, and being able to find the right sources to look up reliable information is an important skill for future pharmacists.

To achieve these objectives, final year pharmacy students of the academic year 2014-2015 were asked to complete a questionnaire during their internship in the community pharmacy. Every month, each student was asked to record the first two food- and nutrition-
related questions they were confronted with. Afterwards, they completed the rest of the questionnaire. This way, both the issues they were confronted with and the way they handled it were registered. The answers from these questionnaires were analysed and the results should be used to adjust the content of food- and nutrition-related courses in pharmacy education.
3 MATERIALS AND METHODS

3.1 GENERATION OF THE QUESTIONNAIRE

The study is a collaboration between two research groups at Ghent University, more specifically the Pharmaceutical Care Unit and the Laboratory of Food Analysis. The questionnaire (ANNEX 1) has been developed in association between both groups.

The questionnaire consists of seven main questions, shown in Table 3.1. Next to those questions, students were asked to register the date of the case and the postal code of the pharmacy the student was performing his or her internship at.

<table>
<thead>
<tr>
<th>Number</th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>What was the question?</td>
</tr>
<tr>
<td>2.</td>
<td>What was the situation of the question?</td>
</tr>
<tr>
<td>3.</td>
<td>Whom was the question related to?</td>
</tr>
<tr>
<td>4.</td>
<td>Did you have enough knowledge to answer the question straight away?</td>
</tr>
<tr>
<td>5.</td>
<td>Did you gather additional information (possibly afterwards)?</td>
</tr>
<tr>
<td>6.</td>
<td>Where did you look up additional information?</td>
</tr>
<tr>
<td>7.</td>
<td>Did you, after your research, dispose of enough knowledge to answer the question?</td>
</tr>
</tbody>
</table>

3.2 EXECUTION OF THE QUESTIONNAIRE

The study took place between July 2014 and April 2015. One hundred and thirty-six final-year pharmacy students participated during their internship. The pharmacy internship takes place in a community pharmacy for 26 weeks. Students can choose individually when they plan their internship weeks, but this has to be between a first period running from the end of June to mid-September, and a second period running from mid-December to June. Seeing not all students start their internship at the same time, analyses should be made, based on the internship time covered and not based on the date of the recorded cases.

During their internship, students always have different assignments to fulfil. One assignment is related to integrated pharmaceutical knowledge, one to pharmaceutical care
and a third one to medication preparations. This study was part of the students’ pharmaceutical care assignment.

Every month, each student was asked to record the first two food- and nutrition-related questions they were confronted with. To avoid bias, they were not allowed to select any cases, so the first cases had to be recorded sequentially. The study only started after five weeks of internship, to give the students a chance to get acquainted with their pharmacy work. The students were asked to record eight cases in total. This led up to a total of 1,084 recorded cases, because one student withdrew after recording four cases.

There were no further inclusion criteria, other than the question having to be food related. Since no personal patient data were collected, the use of an informed consent was not required. The students were instructed to treat the cases like they would in a normal situation. They were not supposed to ask any additional information, nor to gather more information than they usually would.

The completed questionnaire was submitted electronically by an online questionnaire that had a parallel content as the questionnaire students received. This was achieved through Curios (Minerva), an online learning platform used by Ghent University. The gathered data were exported to Excel (Microsoft Excel 2010).

3.3 ANALYSIS OF THE QUESTIONNAIRE

3.3.1 Cases’ framework

An important factor in the cases’ framework is the motivation of the recorded question. This motivation is divided into three categories. The first category involves questions related to the purchase of a product on prescription. Questions associated with the purchase of an over-the-counter product form a second category. The last category comprises questions that were not associated with the purchase of a product, but merely concerned advice.

Besides analysing the motivation of the question, the subject of the question is analysed as well. A general distinction, is the gender of the subjects. Within the subjects, a
further differentiation is made for certain categories, such as pregnant women, breastfeeding women and other special categories.

### 3.3.2 Pharmacists’ framework

An important goal in this study is to analyse whether students have sufficient prior knowledge to adequately answer patients’ questions. This gives a good insight into the degree to which pharmacy education and everyday practice are aligned. Students participating in this study, followed the old education system. This means some students followed the elective course in dietary products and others did not. Therefore, a separate analysis is made to evaluate whether students following this course are better equipped to answer patients’ questions than students who did not. A chi square test is performed to measure the significance of the difference between both groups.

When prior knowledge is insufficient, students can gather additional information. The extent to which they do this, as well as the sources used, are being analysed. The sources that are available for students to use and that are included in this study are textbooks, manuals, websites, pharmacy software, farma compendium, help from the mentor and online or telephonic helpdesk. Ultimately, the sufficiency of knowledge after research is being analysed.

### 3.3.3 Classification of Cases

The cases are classified into 18 main categories based on the topic the questions relate to. The different categories are based on a consulting list (ANNEX 2 and ANNEX 3) that was also given to the students as a guidance for recognising the food- and nutrition-related questions. This list consists of 23 different categories, but no questions were recorded in five of these: ‘exercise as part of a healthy lifestyle’, ‘organic products’, ‘contaminants in food’, ‘food authenticity’ and ‘organisations with a remit covering food, nutrition and food safety’. The subdivision within these main categories has been adjusted to simplify the categorisation of the individual questions. Cases that were not clear or that were not food- and nutrition-related were excluded from the analysis. In the following, the classification is discussed.
3.3.3.1 Interactions between food, food supplements and drugs

This category (ANNEX 4) contains all questions about combinations between food, drugs or food supplements. A further subdivision is made into interactions with antibiotics, interactions with food supplements and other. The category ‘other’ contains interactions with various drugs, like antipsychotics, NSAIDs, beta blockers, as well as general questions about interactions between food and drugs that are not related to a specific product.

3.3.3.2 Ingredients in food

The category ‘ingredients in food’ (ANNEX 5) comprises all questions related to the content of specific food products. Based on the questions, this category is further subdivided into the categories ‘carbohydrates’, ‘proteins’, ‘lipids’, ‘salt’ and ‘antioxidants’.

3.3.3.3 E-numbers

E-numbers (e.g. E120 = carmine) are code numbers used in the European Union for identifying substances that are permitted to be used as food additives. E-numbers are used for several food additives, like colours, preservatives, antioxidants, sweeteners, emulsifiers, stabilisers, thickeners and gelling agents (35). There is only one question that has been registered in this category (ANNEX 6).

3.3.3.4 Healthy food and nutritional recommendations

Questions that were assigned to this category (ANNEX 7) concern the effect of food on general health issues as well as recommendations to improve health by dietary changes. A first category covers questions about how to gain weight in a healthy way. A broader category comprises questions about the optimal distribution and intake of nutrients or balanced meals. Because of the broadness of this category, a further distinction was made between questions related to carbohydrates, lipids, dietary fibres, salt, vitamins and minerals, cholesterol and water. A last category, called ‘other’, pools questions that are not related to a specific nutrient. It also comprises questions about the effect of nutrition on different conditions, like gout, heartburn, acne and others.
3.3.3.5 Vegetarianism and veganism

Vegetarianism is a diet that excludes the consumption of meat or meat-based products. Veganism is a more strict form, in which no animal products (like eggs, milk, ..) are consumed. A vegetarian or vegan diet is usually rich in fruits and vegetables and hence fibres, complex carbohydrates and antioxidants. Therefore different positive health effects have been associated with vegetarian diets, including reduced risk of diabetes type 2, obesity, hypertension and some types of cancer (36). Still, both groups tend to be at risk for several deficiencies, such as vitamin B12, protein, zinc or calcium deficiencies (37-39).

A large part of the questions in this study (ANNEX 8) are related to vitamin or mineral deficiencies that may be caused by a vegetarian or vegan diet. A second category pools the questions about the diet itself and the more general effects on health.

3.3.3.6 Functional foods / Nutraceuticals

The terms functional foods and nutraceuticals are often being used interchangeably, although no legal framework concerning either has yet been established in Europe. The term nutraceutical was first used by Dr Stephen DeFelice in 1989 as a combination of the terms "Nutrition" and "Pharmaceutical". He defined the term as: “a food (or part of a food) that provides medical or health benefits, including the prevention and/or treatment of a disease”(40). Because of the growing interest in this matter, a ‘Concerted Action on Functional Food Science in Europe (FuFoSE)’ has been created by the European Commission. Because there is no universally accepted definition of functional foods, they defined a working definition for this term: “a food product can only be considered functional if together with the basic nutritional impact it has beneficial effects on one or more functions of the human organism thus either improving the general and physical conditions or/and decreasing the risk of the evolution of diseases. The amount of intake and form of the functional food should be as it is normally expected for dietary purposes. Therefore, it could not be in the form of pill or capsule just as normal food form”(41, 42).

In this study, the cases filed under the category ‘functional foods / nutraceuticals’ (ANNEX 9) have been chosen based on the former definitions.
3.3.3.7 Food supplements

Food supplements are foodstuffs in a pre-dosed form, like capsules, pastilles, ..., that offer a nutritional or physiological effect. They are meant as a supplement on the normal diet, not as a replacement. Food supplements (ANNEX 10) can be divided into three categories based on their composition. The first category comprises food supplements containing nutrients. Nutrients are components in food that are essential but cannot be synthesised by the body itself. They need to be ingested in sufficient amount to provide good health. Therefore all questions related to food supplements containing vitamins, minerals, fatty acids and/or amino acids are being placed in this first category (43).

A second type of food supplements are the ones based on plants or plant preparations. A third type are the food supplements consisting of other substances that are not nutrients or plants. Examples of this type of substances are food fibres, probiotics, creatine, Q10, etc. (43).

3.3.3.8 Novel foods – Hype surrounding superfoods

Novel foods are foodstuffs that have not been consumed regularly before 1997 or that have been produced by new methods (e.g. chia seeds, rapeseed protein, ...) (44). A current hype are the so called ‘superfoods’, containing some of these novel foods. ‘Superfood’ is not a legal, but a marketing term that relates to food products that are especially rich in nutrients or antioxidants and other potentially protective compounds. Despite the broad media attention surrounding these type of foods, only one question within this category (ANNEX 11) has been registered.

3.3.3.9 Weight loss diets and related products

The weight loss diets and products (ANNEX 12) can be divided into five categories. A first category are questions about light products or sugar substitutes. In this case, it refers to sweeteners with a low caloric value, like aspartame, steviol glycosides, saccharin and others.
A second category deals with all kinds of weight loss pills and supplements. These are often displayed in different commercials, and therefore many consumers have questions about their effectiveness and safety. There is a big assortment of pills with different mechanisms of action, ranging from fat binders to fat burners, lipase inhibitors and appetite suppressants.

A third category comprises questions related to meal replacement. These are products with a low caloric value, but vitamin and mineral fortified to replace a healthy meal. Some studies have shown the positive effect of meal replacements within a healthy weight loss diet opposed to a conventional reduced calorie diet (45). The questions recorded vary from general meal replacement questions to questions about specific products (powders, shakes, bars, ...).

A fourth category addresses questions about specific diets. The media reports about new diets on a daily bases, thus making it difficult for consumers to have a clear view on which diets are healthy and effective and which are not. In this study, most patient’s questions were about high-protein diets to lose weight.

The last category amalgamates questions about weight loss that do not belong in any of the other categories. These are mostly general questions about weight loss products or diet.

3.3.3.10 Food allergies and intolerances

The term ‘food allergy’ is used when an immunological mechanism is causing the reaction. These reactions are mostly IgE mediated. The term ‘food intolerance’ is used when the reaction is non-immunological. Intolerances are usually caused by an enzymatic defect in the digestive system (e.g. lactase deficiency), but it can also be caused by vasoactive pharmacological substances present in food (e.g. histamine). Prevention by avoiding the culprit food is of crucial importance (46).

The categories (ANNEX 13) discussed in this study are ‘lactose intolerance’, ‘gluten intolerance’, ‘intolerance to drug excipients’ (lactose or gluten), ‘cow’s milk protein allergy’ and ‘others’. Allergies and intolerances in babies are discussed in the category ‘baby food’
and are therefore not mentioned here. The category ‘other’ contains questions about intolerances or allergies that are not mentioned in the first four categories.

3.3.3.11 High-protein foods / drinks

The questions in this category (ANNEX 14) relate to high-protein foods and drinks that are not used for weight loss, because these are discussed in the category ‘weight loss diets and related products’. The majority of the products discussed in the category ‘high-protein foods and drinks’ are dietary foods for special medical purposes. They are protein- and calorie-enriched diet foods used in pathologies linked to undernutrition (47).

3.3.3.12 Diet for phenylketonuria

Phenylketonuria is a disease induced by a genetic defect in the phenylalanine hydroxylase system. This causes blood concentrations of phenylalanine to accumulate, with severe mental retardation, seizures, autistic-like behaviour, ... as a result. Treatment includes a diet restricted in phenylalanine and aspartame, but supplying tyrosine and other indispensable amino acids. The goal is to supplement sufficient phenylalanine to ensure growth and nutritional needs, but in an amount that does not induce toxic effects. To do so, frequent monitoring of blood phenylalanine concentrations is necessary. Because this condition is fairly rare (approximately 1 in 10 000 births in children of Northern European descent), it is striking that three related questions (ANNEX 15) have been recorded in this study (48).

3.3.3.13 Diabetes and diet

There are two types of diabetes. Less than 10% of patients suffers from type 1 diabetes. This type usually occurs before the age of 20 and is caused by an auto-immune destruction of insulin-producing pancreatic beta cells, leading to an absolute insulin deficiency. Therefore these patients are treated with insulin injections. Over 90% of patients, however, are diagnosed with type 2 diabetes. This type is associated with obesity, and is caused by an insufficient amount of insulin production or insulin resistance (49, 50).

Adjustment of diet is an important factor in diabetes treatment. Rather than a strict diet, the implementation of a healthy and varied diet is advised. It is important not to
focus solely on carbohydrate intake, but on restriction of (saturated) fat intake and cholesterol as well. An individualised diet, in consultation with a dietician is key (49, 50). In this study, most registered questions (ANNEX 16) are about dietary patterns in diabetes. Some more specific questions about the use of certain foodstuffs, like alcohol, bread, shellfish and others, in diabetes are registered as well.

3.3.3.14 Enteral and tube feeding

Enteral feeding refers to methods of feeding that use the gastrointestinal tract to deliver nutrition. This can be orally with home-made or ready-made liquid foods or through tube feeding. Different routes for enteral feeding tubes can be used. A nasogastric tube is inserted through the nose and exits in the stomach. A nasoduodenal tube is inserted through the nose as well, but ends in the duodenum. A similar type of tube that starts in the nose and exits in the jejunum is called a nasojejunal tube. These type of tubes are only used for short- to medium-term feeding, because they can cause irritation in nose and throat. When long-term feeding is needed, a better option is a percutaneous gastrostomy (PG) or percutaneous jejunostomy (PJ). These tubes are inserted through the abdominal wall, usually via endoscopy (percutaneous endoscopic gastrostomy (PEG) and percutaneous endoscopic jejunostomy (PEJ) respectively) (51).

There are three categories of tube feeds that are generally used: elemental, semi-elemental and polymeric formulas. Elemental formula is a completely predigested formula. It consists of small building blocks like amino acids, simple sugars and essential fatty acids. Semi-elemental formula consists of peptides, glucose polymers and medium chain triglycerides. Finally, polymeric formula contains elements that are not predigested yet. It consists of non-hydrolysed proteins, complex carbohydrates and long-chain triglycerides (52). In this study only one question (ANNEX 17) has been recorded in this category, concerning tube feeding in a patient with Crohn’s disease.

3.3.3.15 Baby food

This category (ANNEX 18) comprises questions about all different types of baby food, ranging from breastmilk, infant formula (until 4-6 months), follow-on formula (until 12-
18 months) and growing-up milk to vegetable and fruit purees and cereal-based baby foods. Breastmilk is always preferred, because the composition of the breastmilk changes to comply with the different stages of the child’s development (53). Formulas are adjusted to resemble breastmilk as much as possible.

Most formulas are cow’s milk based. Regular infant formula is usually whey-dominant to facilitate digestion, whereas follow-on formula is mostly casein-dominated. Outside these regular cow’s milk based formulas, a lot of modified infant formulas have been developed to support infants with minor digestive problems, like colic, reflux, etc. They can contain partially hydrolysed proteins (whey proteins), prebiotics, thickeners and modified fats (54, 55).

Some formulas are soy based, to avoid the use of animal proteins (e.g. with vegan parents) or to use in babies with cow’s milk protein allergy or lactose intolerance. Babies with a cow’s milk protein allergy, however, may have a gluten intolerance or soy allergy as well. For babies with a cow’s milk allergy, hypoallergenic formulas are necessary. These contain extensively hydrolysed proteins (casein proteins), that are not recognised as an allergen by the body. For severe malabsorption or food allergy an elemental formula can be used. This type of formula is produced from synthetic amino acids (54, 55).

The questions related to baby food in this study have been divided into five categories. The first category is called ‘switching types of nutrition’. The questions in this category are about the transition from breastmilk to infant formula, from infant formula to follow-on formula, from formula to solids, etc. Many parents have questions about when and how to make this transition. Another problem that many parents have, is what to do when the baby is not satiated, despite the regular feeding. These questions have been bundled in a second category, called ‘insufficient satiety’. A third category, called ‘constipation/diarrhoea/reflux/colic’, comprises all questions related to minor digestive problems. Questions about foodstuffs for babies with more extensive problems, like cow’s milk protein allergy, lactose intolerance and gluten intolerance, are being pooled in the category ‘allergies and intolerances’. Finally, the last category is called ‘other’ and comprises all questions that cannot be allocated to one of the previous mentioned categories.
3.3.3.16 Food for the geriatric population

Undernutrition is a common problem in the geriatric population. This is confirmed by the questions registered in this study (ANNEX 19). Almost all questions in this category are about the loss of appetite and loss of strength in elderly. Considering that by 2050 it is expected that one in every six people worldwide will be 65 years or older, nutrition in the geriatric population will become increasingly important (56).

Undernutrition in the geriatric population can be caused by many factors, both physical and psychological. An important term in this context is ‘anorexia of aging’. This refers to psychologic loss of appetite and food intake associated with increasing age, leading to a reduced nutrient intake and hence weight loss and undernutrition. It is important to exclude secondary factors like chewing problems, adverse effects of drug therapy, depression, etc. before outlining dietary adjustments. An important focus in these dietary adjustments should be to ensure sufficient caloric and nutrient intake as well as sufficient protein intake. A strategy that has been suggested, is to add flavour enhancers (sauce, glutamate, etc.) to compensate for the loss in sense of taste and smell. If the nutritional requirements for the elderly are not met, the use of nutritional supplements with a high protein content might be necessary (56).

3.3.3.17 Food for athletes

The type of physical activity influences the energy intake that is needed for athletes. The nutrition needed for endurance sports is different from that of strength sports. Also, the requirements for food before, during and after exercise vary. The most important food components for exercising are carbohydrates and water. Carbohydrates before exercise are necessary to increase carbohydrate reserves in the body. The day before extensive sports performances, foods high in lipids and proteins should be avoided because these are digested more slowly and can cause gastro-intestinal problems. In the hour before exercise, fast-absorbed carbohydrates cannot be used in order to avoid rebound hypoglycaemia and premature glycogen depletion during exercise (57).
During sports performances that last longer than one hour or repetitive short bouts of strenuous exercise, the use of 60 grams of liquid or solid carbohydrates an hour is beneficial. Iso- or hypotonic sports drinks are ideal, because they are taken up by the body more quickly (57). If a combination of glucose and maltodextrin with sugars is used that are absorbed by a different transporter than the sodium-dependent transporter (sodium-glucose linked transporter (SGLT1)), like fructose, a higher amount of carbohydrates can be absorbed (58).

After exercise, it is important to replenish the glycogen reserves. During the initial post-exercise period, the uptake of carbohydrates is the highest. Therefore it is recommended to consume 1 to 1.5 grams of carbohydrates per kilogram of bodyweight after exercise and in intervals of 2 hours until the next meal. The glycogen reserves are restored within 24 hours (59). The addition of proteins does not improve the rate of glycogen synthesis (60).

Many products have been developed to meet the demands of athletes. All sorts of energy bars, shakes, powders, etc. are on the market to aid in the needs of athletes before, during or after exercise. The questions about food for athletes that have been recorded in this study (ANNEX 20) are therefore divided into four categories: ‘energy bars and gels’, ‘supplements for athletes’, ‘sports shakes and drinks’ and ‘other’.

3.3.3.18 Food safety

Food safety is a main pillar of food science. Foodborne illnesses and intoxications have important implications on public health, ranging from severe diarrhoea or debilitating infections to cancer, long-lasting disability and death. There are many hazards that compromise food safety and that have to be kept under control. These hazards can be of microbiological origin, like bacteria, viruses, parasites or prions. They can also be of chemical origin. An import example of those are the naturally occurring toxins, including mycotoxins, marine biotoxins, cyanogenic glycosides and toxins occurring in poisonous mushrooms. Another type of chemical contaminants are the persistent organic pollutants, of which dioxins and polychlorinated biphenyls (PCBs) are an important example. Through pollution of water, air and soil, heavy metals can contaminate food as well. Contamination of food can
also originate from food packaging migration or the intentional use of some chemicals, among others pesticides, animal drugs or other agrochemicals (61-63).

In this study, merely eleven questions have been recorded concerning food safety (ANNEX 21). This might indicate that people are more likely to do research about this subject through others sources, like the world wide web or media, rather than asking their pharmacist. The questions that have been recorded are about specific contaminants people read about in the media or general questions about certain products on health.

3.4 EXTENSIVE INVESTIGATION OF ONE CASE

Next to the questionnaire, students were asked to write a short essay about one of their recorded cases. The essay had to give a scientifically-based answer to the patient’s question. Students were asked to refer to all of their scientific sources used to provide this answer. The 137 cases were grouped according to the class to which they belong. Out of every class, one case was randomly chosen. Out of the classes that had the largest amount of essays, two cases were chosen. These classes are ‘baby food’, ‘healthy food’, ‘interactions between food, food supplements and drugs’ and ‘food supplements’. The students did not write any essays about questions in the categories ‘novel foods’ and ‘enteral and tube feeding’. This means a total of 20 cases were chosen out of 16 different categories (case 16, 20, 24, 166, 167, 176, 195, 249, 334, 341, 485, 503, 506, 663, 674, 745, 869, 953, 954 and 1014).

To evaluate these cases, a panel of four eminent reviewers was chosen. Three of these reviewers are professors that are familiar with the work field of food science, pharmacy and pharmaceutical care and the fourth reviewer is active in the work field as a pharmacist. They were asked to review the 20 cases and review them based on the correctness, the scientific substantiation, the practical feasibility and the patient orientation of the advice. They were given an assessment form to do so (ANNEX 22). The first three categories were scored on a scale between one to five, the fourth question was answered with a yes or no. The mean score in each category was calculated and the scores between reviewers was compared. Scores between reviewers that differed more than two points were analysed according to the motivation given.
4 RESULTS AND DISCUSSION

4.1 ANALYSIS OF THE QUESTIONNAIRE

A total of 1,084 cases has been recorded by 136 students in different pharmacies across Flanders. These cases have been translated to English for the purpose of this study and classified according to their content. After classification, a total of 80 cases have been excluded from the study. In 78 of these cases no food- or nutrition-related question was present and in two cases the information about the pharmacists’ framework was incomplete. The remaining 1,004 cases were used in the following analyses.

4.1.1 Cases’ framework

Most questions in this study were related to the purchase of an OTC-product, more specifically 468 of the 1,004 cases (47%). In 419 cases (42%) the patient was merely looking for some advice, without the purchase of any products. The remaining 117 cases (12%) were related to purchase of a product on prescription.

The gender of the subjects was distributed as shown in Figure 4.1. When it comes to the subject of the question, the gender of the person to whom the case was related to was unknown in 10% of the cases. The high amount of missing data is due to a misconception many students had. A large part of them noted the gender of the person coming to the pharmacy, rather than the subject of the case. In 55% of the cases, the gender of the subject was female and in 35% male.

![Figure 4.1: Gender distribution of the subjects and indication of special categories](image-url)
A further distinction was made between several specific populations, more precisely pregnant or breastfeeding women, women with a pregnancy wish, babies, students, animals and other subjects that did not belong to any of the previous categories. Of the total population, 4% was pregnant, 1% was breastfeeding and 1% had a clear pregnancy wish. Many questions were related to babies, making up 18% of the total population, of which 5% was female, 5% male and 8% unknown. A smaller part of the questions, namely 3%, were specifically related to students. With 2% and 1% being female and male respectively, the gender in this group was almost equally divided. The gender of the remaining 0.2% was unknown. A last category, comprising merely 0.2% of the total population, were animals. The gender of both animals was unknown.

4.1.2 Pharmacists’ framework

To evaluate the extent to which pharmacy education and everyday practice are aligned, the number of cases in which students did not have enough prior knowledge to give an adequate answer may be a good parameter. As shown in Figure 4.2, this is evaluated for the total of all cases, as well as for the cases during each month of internship. The subdivision is not made based on the date, because not all students started their internship at the same time. This might have given a distorted view, as some students may be just starting their internship, while others have already started a month earlier.

![Figure 4.2: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients' questions. This is shown for the total as well as the separate months of internship. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image-url)
When looking at the total, over half of the students were not able to answer the questions adequately without gathering additional information. In the first month, this percentage was the highest, but no clear downward trend was observed during the time of the internship. This might indicate that the questions students were confronted with are too diverse to have a distinct learning effect over the short period of time.

A further distinction is made between students who followed the elective course in dietary products and those who did not. Table 4.1 shows that 52% of the students who followed the elective course were not able to answer the patients’ questions versus 57% of the students who did not. After performing a chi square test (Microsoft Excel, 2010), this difference does not prove to be significant ($P=0.195$). This might indicate that the topics in this course did not provide the students the necessary knowledge to address the questions asked in a community pharmacy. Many of the questions asked were specific and addressing all of these topics in pharmacy education seems impossible. Yet, by making a further analysis of the different categories separately, a better alignment between theory and practice can be pursued.

Table 4.1: Distribution of students who did or did not follow the elective course in dietary product and their ability to answer patients’ questions without gathering additional information.

<table>
<thead>
<tr>
<th>Did not follow elective course Dietetics (% within no Dietetics)</th>
<th>Sufficient knowledge before research</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (43%)</td>
<td>728 (100%)</td>
</tr>
<tr>
<td></td>
<td>No (57%)</td>
<td></td>
</tr>
<tr>
<td>Followed elective course Dietetics (% within Dietetics)</td>
<td>132 (48%)</td>
<td>276 (100%)</td>
</tr>
<tr>
<td></td>
<td>Yes (45%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No (55%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>447 (45%)</td>
<td>1004 (100%)</td>
</tr>
</tbody>
</table>

When the motivations of the recorded questions were interpreted, students had most difficulties with helping patients that were merely seeking advice. This can not be explained by the amount of questions within this category, because most questions asked were about OTC-products. In comparison, 62% of the advice-questions could not be answered against 51% of the questions about OTC-products. Students had least problems with answering questions about products on prescription. In this category, 50% of the questions could not be answered. A possible explanation for this difference is that questions related to OTC-products or products on prescription have more chance of being discussed.
during pharmacy education, whilst advice-questions can be much broader and have less chance of being discussed previously.

The amount of questions that could not be answered after research is only 5%. Again, no clear downward trend could be observed over the four months. A similar trend as before research is present: the advice-questions were the hardest to answer. Noteworthy, only one question about a product on prescription could not be answered after research. This could indicate that research surrounding these products is more available, but several other factors could influence this result, like motivation of the students for finding information, broadness of the questions, etc.

As before, a distinction is made between students who followed the elective course in dietary products and those who did not. As shown in Table 4.2, 2% of the students who followed this course were not able to find an adequate answer to the patient’s question after research versus 5% of the students who did not follow this course. A chi square test is performed (Microsoft Excel 2010) and the difference between both groups is significant (P=0.025). Thus, students who took the class on dietary products are more capable of finding the information they need. This may indicate that a basic knowledge of the topics addressed, helps students to know exactly what they are looking for and to search for information in the right place.

Table 4.2: Distribution of students who did or did not follow the elective course in dietary product and their ability to answer patients’ questions after gathering additional information.

<table>
<thead>
<tr>
<th>Sufficient knowledge after research</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
<td>Total</td>
</tr>
<tr>
<td>Did not follow elective course Dietetics (% within no Dietetics)</td>
<td>688 (95%)</td>
<td>40 (5%)</td>
<td>728 (100%)</td>
</tr>
<tr>
<td>Followed elective course Dietetics (% within Dietetics)</td>
<td>270 (98%)</td>
<td>6 (2%)</td>
<td>276 (100%)</td>
</tr>
<tr>
<td>Total</td>
<td>958 (95,4%)</td>
<td>46 (4,6%)</td>
<td>1004 (100%)</td>
</tr>
</tbody>
</table>

In a total of 780 cases (78%) students gathered additional information following the patient’s question. This means that 99% of the students who did not have enough prior knowledge to answer the question did additional research. Noteworthy, 51% of the students that were able to answer the question, still gathered additional information. This is a positive
result, since continuous education is an important part of the pharmacist’s job. These results are similarly divided across the four months of internship.

When gathering additional information, 46% used solely one source to find an answer to their question, 39% used two sources, 12% used three sources and 3% used four sources. No students combined more than four sources. Since they were instructed to treat the cases like they would in a normal situation, this is not a surprising result. Consulting more than four sources would not be practical in an everyday situation. Figure 4.3 shows the 10 combinations of sources that were used the most, as well as the percentage of other combinations combined. The different sources that were used, were textbooks, manuals, websites, pharmacy software, farma compendium, supervisor’s help and online or telephonic helpdesk.

The help from the supervisor and information from websites were manifestly the most used sources, since 56% of the students used both sources separately or combined to undertake research. Websites may not always provide the most reliable information, depending on the source the information is coming from. Some students used websites like ‘BMJ best practice’, ‘UptoDate’, ‘Cochrane library’ or ‘BCFI’, which are reliable scientific sources. Many students, however, used commercial websites or blogs. This information may not be reliable, nor objective. The information provided by the supervisor is influenced by his or her opinions and prior knowledge as well. The source that is most used next to these two is a textbook, which is also a source that describes matters at a certain moment in time.

Figure 4.3: Sources used by students when gathering additional information to answer the patient’s question.
and might not be up-to-date. This shows that most students do not have the right reflexes to search for objective, up-to-date scientific information. The use of review articles in respected peer-reviewed scientific journals are preferred over the use of previous sources. Pharmacy software is updated regularly, and is therefore a reliable source for information, as is the farma compendium.

These results show the importance of teaching students how to gather reliable scientific information in practice. Most students are not able to objectively determine scientific sources. More effort should be put in teaching students these skills during their education. This will help them in adequately answering patient’s questions, as well as in lifelong learning.

4.1.3 Classification of Cases

The cases have been classified into 18 categories. Each of these categories are discussed below. Figure 4.4 shows the distribution of the cases across the different categories.

![Figure 4.4: Distribution of the cases across 18 categories](image)
The five categories with the largest amount of questions are ‘food supplements’ (39%), ‘baby food’ (19%), ‘healthy food and nutritional recommendations’ (10%), ‘weight loss diets and products’ (8%) and ‘high-protein foods and drinks’ (6%). There are three categories that comprise merely one question (0.1%), i.e. ‘E-numbers’, ‘novel foods’ and ‘enteral and tube feeding’.

Figure 4.5 shows an overview of the percentage of cases in which students were not able to answer the patient’s question. This is done for the 18 categories in respect to the total amount of cases within that category.

Overall, it is clear that questions in the categories ‘enteral and tube feeding’, ‘diet for phenylketonuria’, ‘novel foods’ and ‘E-numbers’ were the hardest to answer. After research however, all of the students had enough knowledge to help the patients. The questions about ‘interactions between drugs and food’ and ‘functional foods’ were the easiest to answer, since over half of the students had enough prior knowledge in these cases. In the following, the results by category are discussed.
4.1.3.1 Interactions between food, food supplements and drugs

In this category 44 questions have been recorded: 19 about antibiotics, 6 about food supplements and 19 about other products. As shown before in Figure 4.5, 20 out of 44 questions (46%) could not be answered based on students’ prior knowledge. Figure 4.6 shows the percentage of cases in which students did not have enough knowledge to answer a patient’s question relative to the total amount of cases within that category. Students had most prior knowledge about interactions with antibiotics. Only 4 out of 19 cases were not answered immediately; after research all questions could be answered. All of the questions in this category were about the interactions between milk products or alcohol with antibiotics.

![Figure 4.6: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients’ questions about interactions between food and drugs. This percentage is shown for the 3 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image)

Half of the questions (3 out of 6) about interactions with food supplements could not be answered. All of these students gathered additional information, one of them (17%) was not able to find an answer to the patient’s question. The patients’ questions were about combinations of vitamins or minerals with milk products, alcohol or other medication. The single question that could not be answered (case 451) was about the interaction between Saint John’s wort and medication.

The category ‘other’ comprises questions about OTC-products, products on prescription as well as merely advice. Students had similar trouble answering all three types of questions. There was least prior knowledge about the subjects in this category, since 13 out of 19 questions could not be answered. After research, only one question about a product on prescription (case 114: interaction between high-fat foods and lipase inhibitor)
and one demand for advice (case 587: effect of poor digestion on drug effectiveness) could not be answered. The content of the questions in this category is quite diverse, but the two main subjects are the combination of alcohol or grape juice with medication. After use of mostly pharmacy programmes or the help of the supervisor, students were able to answer all of the questions about these subjects.

When evaluating the pharmacy education, there seems to be enough focus on interactions between food and drugs. The percentage of questions that could not be answered immediately is one of the lowest of all categories. Especially the interactions with antibiotics seem to be well-known. Interactions with food supplements seem to be more difficult to assess, as well as the effects of alcohol on other medication. During courses concerning aforementioned topics, more attention should be called to possible interactions.

4.1.3.2 Ingredients in food

Questions concerning specific ingredients in food were sparse. Five out of eight questions could not be answered immediately. After research, only one question could not be answered (case 968: foodstuffs that help raise blood pressure). These questions were about lipids, salt, proteins, antioxidants and carbohydrates in a specific product.

This topic is hard to address in pharmacy education, because the questions are all about a specific product. Discussing all separate products on the market would not be possible. It is however useful to learn how to interpret labelling and nutritional facts on food products. Students seem to be able to do this quite well according to the prior results.

4.1.3.3 E-numbers

Not many patients had questions about E-numbers. Only one question was recorded. Before research this question could not be answered, but after consulting a textbook and website the answer could be given. The fact that only few questions have been recorded within this category may indicate that people are not worried about the presence of additives or that they simply do not come to a community pharmacy with these specific questions.
Given the rareness of this subject, a basic knowledge of E-numbers through education might be sufficient.

4.1.3.4 Healthy food and nutritional recommendations

Figure 4.5 shows that the questions in this category have been answered fairly well relative to other categories, with 56 out of 113 students (54%) not having enough prior knowledge to answer the questions. The two questions about products to gain weight could not be answered without further research. The questions about optimal distribution and intake of nutrients were better answered, with 46% of students not having enough prior knowledge. Most of these questions comprised merely advice. Within this category, a subdivision was made into questions about carbohydrates, lipids, dietary fibres, salt, vitamins and minerals, cholesterol and water. The questions about lipids and salt were the hardest to answer, with respectively 100% and 67% unanswered. Questions about water or carbohydrates however were answered the easiest, with an immediate answer in respectively 100% and 75% of the cases.

![Figure 4.5: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients’ questions about healthy food and nutritional recommendations. This percentage is shown for the 3 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image)

The category ‘other / general’ contains questions about varying subjects. The topics that are covered the most are which nutrition to use in case of diarrhoea, gout, heartburn or pregnancy. These questions arise frequently, yet students did not have enough prior knowledge about these subjects in 64% of the cases.

When taking the amount of questions and percentage of insufficient knowledge into account, students often fail in giving appropriate advice about nutrition in case of specific conditions. This implicates that education should focus more on what nutrition to
advice patient’s in case of diarrhoea, heartburn, pregnancy, gout, etc. On top of that, students seem to lack some knowledge about which nutrients can be found in which foodstuff. Discussing contents of all food products is impossible, but perhaps a general overview of products that contain high amounts of vitamins and minerals, food fibres, salt, carbohydrates, etc. could be useful.

4.1.3.5 Vegetarianism and veganism

Vegetarianism and veganism is a hot topic, yet only 16 questions were recorded in this category. Most of these questions were about possible vitamin or mineral deficiencies related to this type of nutrition, five questions were about other topics like possible meat substitutes. Students were not able to answer 12 out of 16 questions (75%). They had more trouble answering questions about vitamin or mineral deficiencies (82%) than about the other topics (60%). After research, only one question (6%) could not be answered (case 186: pale skin, lips and eyelids, and the possible causality of vegetarianism).

Since vegetarianism and veganism is becoming more and more spread, it is important that pharmacists are able to hand out appropriate advice about possible vitamin or mineral deficiencies. The numbers above suggest that students were not able to do so. Hence, it could be useful to incorporate additional information about this subject into pharmacy education.

4.1.3.6 Functional foods / Nutraceuticals

Judging from the questions recorded in this study, not many patients come to a community pharmacy with questions about functional foods. Only five questions have been recorded, two of which could not be answered immediately by the interns. As shown in Figure 4.5, this is the category with the lowest percentage of questions that could not be answered immediately. After research, all questions were answered. The individual questions were about a different subject, so there does not seem to be a general concern about certain products.

Given the limited number of questions and the diversity of these, a basic knowledge about the existence of functional foods and nutraceuticals should suffice.
4.1.3.7 Food supplements

‘Food supplements’ is predominantly the largest category, with a total of 387 questions. This is far more than the other categories, implying the importance of this subject. Students had, in comparison with other categories, fewer problems with answering these questions. Out of 387 questions, 187 (51%) could not be answered right away. When looking at the three categories, the amount of questions that could be answered is comparable, ranging around 50%.

![Bar chart showing the percentage of cases with insufficient knowledge for different categories of food supplements.](chart)

Figure 4.8: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients’ questions about food supplements. This percentage is shown for the 3 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.

Strikingly, 306 out of 387 questions were about vitamins, minerals, fatty acids and/or amino acids. Only 24 people had questions about food supplements based on plants or plant preparations. The 57 questions in the category ‘other’ were about varying subjects, with the main topic being red yeast rice. There were also several questions about Q10 and probiotics. Remarkably, 44 of the cases were related to a product on prescription. Despite the fact that no prescription is necessary for food supplements, medicinal doctors apparently advice their patients to use food supplements quite often.

Because of the large amount of questions in this category, it is clear that food supplements should be discussed elaborately in pharmacy education. Special attention should go to supplements based on vitamins, minerals, fatty acids and/or amino acids. The questions that arose the most were about magnesium, folic acid, vitamin D, iron and the use of vitamins for extra energy, concentration or resistance. The most frequent questions about plant-based supplements were related to sleeping problems, depression or menopause. As discussed above, subjects like red yeast rice, Q10 and probiotics should be covered as well.
4.1.3.8 Novel foods – Hype surrounding superfoods

Despite the hype surrounding superfoods, only one question about this topic has been recorded. Possibly, people do their own research about this topic or turn to specialised markets like bioshops. The one question recorded (case 35) could not be answered without further research.

Still, taking into account the small amount of questions, it does not seem necessary to discuss this topic elaborately in pharmacy education. A basic mentioning of the concept should suffice.

4.1.3.9 Weight loss diets and products

This is the fourth largest category with 78 questions recorded. In total, 56% of the questions could not be answered without further research, which is average in comparison to the other categories as shown in Figure 4.5. In the end, only four questions (5%) could not be answered and in one of these cases the student did not search for additional information.

The categories about light products and specific diets only contained three and nine questions respectively. As shown in Figure 4.9, students could not answer 2 out of 3 questions (67%) concerning health effects of sugar substitutes and slimming effect of light products. Four out of nine questions (44%) about specific diets could not be answered before research. Most of these questions were about protein diets.

![Figure 4.9: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients' questions about weight loss diets and products. This percentage is shown for the 5 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image)
Most questions were about weight loss pills and meal replacements, with 24 and 20 questions respectively. As shown in Figure 4.9 students found the questions about meal replacements most challenging, with 12 students (60%) not being able to answer the question before research. After searching additional information, however, all of the questions could be answered. This in contrast to the questions about weight loss pills, of which 13 questions (54%) could not be answered before research, still three questions (13%) remained unanswered even after looking up additional information (case 222, case 687 and case 734: effectiveness of weight loss pills). Most of the questions in this category were about fat binders, fat burners, lipase inhibitors and appetite suppressants.

The category ‘other/general’ pools the questions about weight loss that do not fit any other category. Most of these questions are general questions for advice about how to lose weight most effectively. Students were not able to answer 13 out of 22 questions (59%) and one questions (5%) was left unanswered after gathering additional information (case 144: the effect of L-arginine on weight loss).

These results indicate that patients turn to their pharmacist quite often with their questions about weight loss diets and products. Therefore, this is an important topic to discuss in pharmacy education. Many of patients’ questions concern meal replacements and weight loss pills, like fat binders, fat burners, lipase inhibitors and appetite suppressants. Hence, these subjects should be discussed thoroughly during education. The benefits and risks of different diets and more generally healthy ways of losing weight should be addressed as well.

4.1.3.10 Food allergies and intolerances

The category ‘food allergies and intolerances’ is one of the categories with the highest percentage of unanswered questions before looking up additional information, specifically 82%. After research, two cases (6%) could not be answered (case 61 and case 108: questions about which foodstuffs are most likely to cause allergies and which foods to avoid when gluten and lactose intolerant respectively), of which one person did not gather additional information. Except for the single question about cow’s milk protein allergy, the different categories had a similar amount of questions: five questions about lactose, six
questions about gluten, gluten as drug excipient and other allergies and nine questions about lactose as a drug excipient.

As shown in Figure 4.10, the one question about cow’s milk protein allergy could only be answered after gathering additional information. The other categories had similar percentages around 80%, which is quite high. The category other comprises questions about specific allergies and intolerances, like strawberry allergy or wheat allergy. Trouble with answering these questions is to be expected more than the questions about gluten or lactose, since these intolerances are better known.

![Figure 4.10: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients' questions about weight loss diets and products. This percentage is shown for the 5 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image)

In terms of education, more attention should pinpoint allergies and intolerances, since students seem to lack knowledge about these subjects. Not all types of food allergies can be discussed, but seeing the amount of questions about gluten or lactose intolerance, these issues should definitely be addressed. This applies to both gluten and lactose in foodstuffs as in drugs.

4.1.3.11 High-protein foods / drinks

With 58 questions recorded, the category ‘high-protein foods and drinks’ is fairly extensive, despite being quite specific. The largest part of the questions (30 out of 58) is about a particular dietary drink for special medical purposes. Students were not able to answer the questions in this category in 53% of the cases. As shown in Figure 4.5, this
percentage is rather low in comparison with the other categories. Still, considering the frequency of use of these drinks, the amount of questions that could not be answered remains high. After research, three questions (5%) could not be answered (case 201 and case 236: high-protein drinks to strengthen a patient with autism and kidney cancer respectively; case 653: difference between two types of high-protein drinks).

Taking into consideration the high amount of questions in this category and the lack of knowledge about high-protein foods and drinks in many students, it would be advised to devote some lessons to this subject. Since many questions were related to dietary drinks for special medical purposes, special attention should be payed to these products.

4.1.3.12 Diet for phenylketonuria

Of the three questions recorded within this category, none could be answered by the students. Seeing the extreme rareness of this condition, this is not a surprising result. After research however, all of the students were able to provide the patients with an answer to their question.

In terms of education, a basic knowledge of this condition and the implications on diet should suffice. Questions about this subject in the pharmacy are very rare, and therefore being able to research reliable information is more important in this case than an elaborate education about this topic.

4.1.3.13 Diabetes and diet

Despite the high prevalence of diabetes of approximately 7% (64), only 11 questions about diabetes have been recorded in this study. This can probably be explained by the fact that many diabetes patients are enrolled in specialised support programmes, where they get dietary advice and have a possibility of asking their questions to specialists. Six out of eleven questions (55%) could not be answered by the students. After research however, all of the questions were answered. The questions asked varied, ranging from questions about dietary habits and the influence of certain foodstuffs on diabetes to artificial sweeteners and the influence of certain food supplements on diabetes.

It is not possible to address all of these issues in pharmacy education, due to the variety of the questions. The main purpose of education should be to provide a general resume of a healthy diet in diabetes patients.
4.1.3.14 Enteral and tube feeding

Only one question (case 206) about enteral and tube feeding has been recorded in this study. This question could not be answered by the student until after further research. This low amount of questions could be explained by the fact that many of these patients are under specialist’s supervision, whom they go to with their questions.

Considering the scarcity of questions within this category, enteral and tube feeding should not be discussed too extensively in pharmacy education. A basic knowledge of the subject should suffice.

4.1.3.15 Baby food

As shown in Figure 4.4, ‘baby food’ is the second largest category with a total of 187 questions. Students were not able to answer 99 of these questions (53%). This is a high percentage, but in comparison to the other categories (Figure 4.5) it is one of the lower percentages of cases that remained unanswered. A subdivision was made into five categories. As shown in Figure 4.11, students had most trouble answering questions about allergies and intolerances (63%), insufficient satiety (61%) and other subjects (59%). Questions about constipation, diarrhoea, reflux or colic (47%) and switching types of nutrition (46%) were easier to answer.

![Figure 4.11: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients’ questions about baby food. This percentage is shown for the 5 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.](image)

After research, all students were able to answer the questions about allergies and intolerances. In the category about constipation, diarrhoea, reflux or colic, students did not
find an adequate answer to three questions (6%) after research (case 457: artificial sweetener in formula, case 593: formula for digestive problems after 6 months, case 729: food that causes colic). One question could not be answered in the category ‘switching types of nutrition’ (case 937: switching from follow-on formula to growing-up milk), ‘insufficient satiety’ (case 945: thicken formula with locust bean gum) and ‘other’ (case 352: formula to gain some weight).

Patients often turn to their pharmacist with questions about baby food. Therefore, it would be advised to address this subject thoroughly in pharmacy education. All of the categories described before, contained a high amount of questions. Therefore all of these subjects should be discussed.

4.1.3.16 Food for the geriatric population

Only nine questions about food for the geriatric population have been recorded in this study. In six cases (67%), students were not able to give an appropriate answer. After research however, all of the questions could be answered.

Despite the low amount of questions in this category, discussing food for the geriatric population in pharmacy education remains important. Due to population aging, the geriatric population will become an even more important patient group in the pharmacy. Therefore, pharmacists should be able to advise them on a healthy and age-adjusted diet, even when no specific questions about the subject are being asked.

4.1.3.17 Food for athletes

The category ‘food for athletes’ contains 48 questions. As shown in Figure 4.5, a total of 79% of the cases could not be answered before research. This is a high percentage, indicating that the knowledge of the students concerning this subject is quite low. After research however, only two questions (4%) could not be answered, indicating that students are able to find the information they are looking for.

As shown in Figure 4.12, the category ‘food for athletes’ was subdivided into four categories. The category that contains most questions is ‘food supplements for athletes’. Many students lacked knowledge about this subject, since 19 out of 22 questions (86%)
could not be answered. After research however, all of the necessary information was provided.

![Graph showing percentage of cases in which students did not have sufficient knowledge to answer the patients' questions about food for athletes.](image)

Figure 4.12: Overview of percentage of cases in which students did not have sufficient knowledge to answer the patients’ questions about food for athletes. This percentage is shown for the 4 categories relative to the total amount of cases within that category. A subdivision is made into cases related to an OTC product, products on prescription or merely advice without the purchase of a product. The upper columns represent the percentages before gathering additional information, the lower columns the percentages after gathering additional information.

The categories ‘energy bars and gels’ and ‘sports shakes and drinks’, containing 4 and 12 questions respectively, were both unanswered in 75% of the cases. After research, one question in the category ‘sports shakes and drinks’ remained unanswered (case 488: combination of recovery shakes and a hot meal). Finally, the category ‘other’ contained 10 questions, of which 7 (70%) were unanswered. After research, one student was not able to find an adequate answer (case 560: product to accelerate metabolism during exercise).

Taking into account the fairly high amount of questions in this category and the lack of knowledge students have about this subject, food for athletes should be discussed more extensively in pharmacy education. Next to general advice about an adjusted diet for athletes, specialised supplements or shakes should be addressed as well.

4.1.3.18 Food safety

Out of the 11 questions recorded in this study, students were unable to answer 8 (73%). After research, all of the questions were answered.

Despite the limited number of questions in this category, food safety should remain an important part of pharmacy education. Students should not solely be prepared for a profession in a community pharmacy, but some students from both pharmaceutical care and drug development may progress towards a profession in food science. Food safety is a main pillar of food science. Hence, discussing this subject in pharmacy education is an important preparation for a scientific career.
4.2 EXTENSIVE INVESTIGATION OF ONE CASE

Analysis of the reviewers’ assessments of the 20 cases, revealed a great diversity in scoring of the same cases. This shows the subjectivity of the assessment of these sort of essays. First, the mean scores and minimal and maximal scores in general are discussed. In a second part, the cases that had the highest variation of scores between reviewers are discussed, as well as their motivation for the given scores.

4.2.1 Mean reviewers’ scores and range

Figure 4.13 shows the mean reviewers’ scores on the 20 essays. Practical feasibility of the advice is scored the highest, with a mean of 4.3 out of 5. Only two cases (case 167 and case 195) were scored below half, 2 out of 5, by one of the reviewers. Motivation for these low scores are discussed below. Most cases however, received a 4 (47% of the cases) or 5 (42% of the cases) out of 5. This means most students were able to turn the theoretical information they gathered from literature into an advice that is feasible in daily life.

![Correctness of the advice](image1)

Correctness of the advice

Scientific substantiation of the advice

Practical feasibility of the advice

Correctness of the advice | Scientific substantiation of the advice | Practical feasibility of the advice
---|---|---
4.1 | 4.0 | 4.3

Figure 4.13: Mean reviewers’ scores out of 5 on correctness, scientific substantiation and practical feasibility of the advice.

The category ‘correctness of the advice’ received a mean score of 4.1 out of 5. In this category, only one case (case 953) was scored below half by a reviewer, with a score of 1 out of 5. Most cases received a 4 (45% of the cases) or 5 (34% of the cases) out of 5. These scores show that most students were able to find the information they needed to answer the patient’s question. No reviewer found any of the essays to be substantively incorrect, but some answers were incomplete. This could indicate that research of some students was too superficial.

The mean score of the scientific substantiation of the advice was 4.0 out of 5. Four of the cases were scored below half, with one case receiving a 1 out of 5 (case 953) and
three cases a 2 out of 5 (two times case 745 and case 869). As in the two other categories, most cases received a 4 (41% of the cases) or 5 (33% of the cases) out of 5. These results indicate that most students used reliable scientific sources to write their essay. As discussed below, the interpretation of the term ‘reliable scientific sources’ differed between reviewers. Some reviewers defined this as mainly A1-publications, whilst other reviewers interpreted this more broadly.

The last evaluation criterion was the patient orientation of the advice. Figure 4.14 shows the distribution of the 20 cases according to the patient orientation assessment. Eleven of the cases (55%) were seen as well patient-oriented by the reviewers. In seven cases (35%), one reviewer did not find the answer patient-oriented. In both the categories with two or three reviewers evaluating the advice as not patient-oriented, one case (5%) was recorded. No cases were evaluated as not being patient-oriented by all of the reviewers. In general, this means that 15% of the assessments were negative when it comes to patient-orientation. For healthcare professionals who work closely with patients every day, this percentage is quite high. Giving correct and scientific-based advice is of not much use, when the patient does not understand it. Explaining the advice in laymen’s terms is crucial.

![Figure 4.14: Distribution of the 20 cases according to the answer to the question: “Was this advice patient-oriented?”](image)

The horizontal axis represents the number of cases. The vertical axis represents the answers (yes or no) of the four reviewers concerning the same case.

### 4.2.2 Outliers and motivation

One of the most noteworthy results of this analysis, is the subjectivity of the cases’ assessment. The reviewers’ scores that differ more than two points within the same case are being discussed, as well as the motivation for the difference in scores.
In case 953, two reviewers gave the scientific substantiation of the advice the highest and the lowest score. The motivation of the reviewer giving only 1 out of 5 was, that since the student did not ask any questions about the background of the case, no scientifically based answer could be given. Similarly, this reviewer gave the correctness of the case only a 1 out of 5. Since the student did not have any information about the age of the child, the duration of the symptoms, the type of diarrhoea, etc., a correct advice about nutrition for a child with diarrhoea could not be given. In contrast, an other reviewer made similar remarks, but still gave the correctness of the advice a 4 out of 5.

In four cases, both a score of 2 and 5 out of 5 were given in the same category. The first example was the practical feasibility of case 167. The motivation for the low score was that the advice did not give a clear yes or no answer to the question whether spinach can be reheated or not. The advice left too much scope for interpretation, which is why following this advice is not very feasible. Two other reviewers gave a 5 out of 5, and had no remarks about the given advice.

The second example was the practical feasibility of case 195. One reviewer gave a score of 5 out of 5, with nothing to criticize about the case. An other reviewer, however, only gave a 2 out of 5, because the advice was more of a theoretical explanation rather than a concrete advice. Therefore, the essay did not give any feasible advice for the patient to follow.

A third example was case 745, where one reviewer gave the correctness the maximum score, whilst 2 other reviewers only gave this criterion a 2 out of 5. The motivation for this low score of both reviewers was not that the advice given was incorrect, but it was incomplete. The student only explained what E120 was, but said nothing about the difference between the natural or synthetic variant, about possible health effects (allergies, ADHD, ...), etc.

The last example was case 869, about a modified diet during training for a marathon. One reviewer gave a maximum score for the scientific substantiation, whilst an other reviewer only gave a 2 out of 5. Most of the information gathered for this advice, was obtained from the journal ‘Nutrinews’ or the website of the Nutrition Information Centre (NICE). This is a centre commissioned by the Flemish Government and the Flemish
agricultural producers, and under supervision of a scientific advisory board (65). Hence, the first reviewer deemed these sources to be scientific reliable. The other reviewer however, did not see these sources as scientific and would have preferred the use of A1-publications, reviews, meta-analysis, etc.

In 16 other evaluation criteria, the maximal difference between two reviewers was two points, which on a scale of 1 to 5 is quite considerable. The most notable motivations for a low versus a high score are discussed in general below. There was not one criterion that was evaluated more varied, since six of these differences were about the correctness, five about the scientific substantiation and five about the practical feasibility of the advice.

For the correctness of the advice, most differences were related to missing information. Some reviewers gave the advice a high score when all of the information was correct, even when they had remarks about the completeness of the advice. Other reviewers however, gave a low score when information was missing. This resulted in several discrepancies in scores, proving again the subjectivity of rating scales and the importance of including reviewers’ motivation.

Differences in the rating of scientific substantiation arose mostly out of the opinion of some reviewers that A1-publications or reviews were necessary to obtain a high score on scientific substantiation. Other reviewers were more receptive to other types of sources, as long as they remain scientific reliable. An other problem that made some reviewers subtract points, was the insufficient referencing to the sources within the text. One reviewer also attached great importance to the use of the original sources, rather than articles that cited certain information.

The assessment of the practical feasibility differed between some reviewers because of the phrasing. They found the advices too theoretical, rather than a clear advice that could easily be applied in daily life. The evaluation of this criterion was often connected to the evaluation of the patient orientation. When the phrasing was not patient-oriented, because it was too theoretical or not on patient-level, the practical feasibility was often scored lower. Specific comments about the advice being hard to follow in daily life, were not made.
CONCLUSIONS AND FUTURE PERSPECTIVES

This study indicates that in the community pharmacy, patients rely on their pharmacist mostly to advise them on OTC-products. Of the 1,004 cases analysed, 47% were questions related to OTC-products, 42% comprised merely advice and only a smaller proportion of 12% was related to products on prescription. Overall, students were unable to answer patients’ questions in 55% of the cases, more precisely 62% of the questions for advice, 51% of the questions about OTC-products and 50% of the questions about products on prescription. There was no downward trend in these percentages throughout the course of the internship. Following an elective course in dietary products did not give students a significant advantage in answering the questions (P=0.195).

Students who were not able to immediately answer the patient’s question, gathered additional information in 99% of the cases. Even students who were able to answer the question, performed additional research in 51% of the cases. The supervisor and/or websites were consulted in 56% percent of the cases, without additional resources. Many of these websites however, were commercial websites or blogs, making the used resources less objective or scientifically reliable. After research, only 5% of the questions remained unanswered. As before, there was no downward trend in these percentages throughout the course of the internship. The students who followed the elective course in dietary products however, were significantly better at answering the patients’ questions after research (P=0.025).

To better align education with practice, 18 categories were analysed on their importance and on prior knowledge of the students about the subject. The categories that contained the largest amount of cases were ‘food supplements’ (39%), ‘baby food’ (19%), ‘healthy food and nutritional recommendations’ (10%), ‘weight loss diets and products’ (8%) and ‘high-protein foods or drinks’ (6%). Consequently, discussing these subjects should be a considerable part of pharmacy education. Four categories had 100% of unanswered questions, more precisely ‘enteral and tube feeding’, ‘novel foods’, ‘E-numbers’ and ‘diet for phenylketonuria’. These percentages, however, were heavily influenced by the fact that the first three categories comprised merely one question and the last category only three questions. The two categories with the highest percentage of unanswered questions, that
did comprise a considerable amount of questions, were ‘food allergies and intolerances’ (82%) and ‘food for athletes’ (79%). There were only two categories in which students were unable to answer less than half of the questions, more specifically ‘interactions between food, food supplements and drug’ (46%) and ‘functional foods and nutraceuticals’ (40%).

By combining the results about the amount of questions and the ability of students to answer them, several recommendations towards pharmacy education can be made. Students had enough knowledge on interactions between food and drugs and about ingredients in food. Therefore, in the new education system these topics should be addressed as before. For some topics, a basic knowledge should suffice in daily practice and should therefore not be taught elaborately. These topics are ‘functional foods’, ‘novel foods’, ‘enteral and tube feeding’, ‘diet for phenylketonuria’ and ‘E-numbers’. Because of the growing geriatric and diabetic population, addressing the general diet recommendations for these populations in education remains important.

The results indicate that there are a few topics nutrition-related courses in pharmacy education should mainly focus on. The first one is ‘food supplements’, with special attention to magnesium, folic acid, vitamin D and iron supplements. A second important topic is ‘baby food’. Healthy food and nutritional recommendations deserves special attention too, especially in respect to nutrients in food or nutrition in case of specific conditions. Weight loss diets and products should be discussed, with special attention to meal replacements, weight loss pills and healthy ways of losing weight. Finally, courses about high-protein foods, especially dietary drinks for special medical purposes, vegetarianism, food for athletes, food safety and allergies and intolerances should be added to the curriculum.

From the assessment of the detailed cases by the reviewers, the main conclusion is the subjectivity of these assessments. When it comes to advice, reviewers focus most attention on reliable, scientific resources, complete information, unequivocal advice and adapted language. In general, students scored well (> 4 out of 5) on all of these criteria.

In the future, a repetition of this study would be recommended, after adjustments in pharmacy education are implemented. A comparison of those and the current results can help evaluate if the new education program is better suited to prepare pharmacy students
for a profession in the community pharmacy. For students who started pharmacy education in the academic year 2012-2013, the new education system has already been implemented. The revised courses ‘Bromatology’ and ‘Special Nutrition’ are a mandatory part of the new curriculum. Sixteen out of the eighteen categories discussed in this study are already implemented in these courses, but the emphasis sometimes differs from the topics addressed in the recorded questions. An adjustment of the course content can be made based on the gathered data. Interactions between food and drugs are discussed in other courses. Information about novel foods is not yet mentioned in any of the courses, and hence should be added to the curriculum.
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ANNEX 1: QUESTIONNAIRE ABOUT FOOD ANALYSIS IN THE PHARMACY

Questionnaire – Food analysis in the pharmacy

Date:………………………….
Zip code pharmacy:………………………….

Description of the case

1. Phrase the question
   ………………………………………………………………………………………………………………………………………………………………………
   ………………………………………………………………………………………………………………………………………………………………………
   ………………………………………………………………………………………………………………………………………………………………………
   ………………………………………………………………………………………………………………………………………………………………………

2. The question
   □ was associated with the purchase of a product on prescription
   □ was associated with the purchase of an OTC-product: CNK number: ………………..
   □ concerned merely advice

3. Whom was the question related to?
   □ Man
   □ Woman
   □ Age: ……………………………
   □ Pregnant woman
   □ Breastfeeding woman
   □ Other: ……………………………

4. Did you have enough knowledge to answer the question straight away?
   □ Yes
   □ No

5. Did you gather additional information (possibly afterwards)?
   □ Yes
   □ No
6. Where did you look up additional information (multiple answers are allowed)?
   □ Textbook(s)
     □ Textbook food analysis
     □ Textbook dietary product
     □ Textbook food safety
     □ Other: .................................................................
   □ Manual(s)
     □ ..........................................................................
     □ ..........................................................................
     □ ..........................................................................
   □ Internet – Website(s) (write down the umbrella organisation, e.g. VIGEZ, ...)
     □ ..........................................................................
     □ ..........................................................................
     □ ..........................................................................
   □ Pharmacy software
     □ Delphicare
     □ Sophie
     □ Cybele
     □ ViaNova
     □ Other: .................................................................
   □ Farma Compendium
   □ Consulted the supervisor
   □ Online or telephonic helpdesk: .................................................................

7. Did you, after your research, dispose of enough knowledge to answer the question?
   □ Yes
   □ No
Below you can find a consulting list that can help you with describing your individual cases. The different categories that can be applied to the case, can be found below.

The case relates to the following category or several categories:

- **Interactions between food, food supplements and drugs**

- **Ingredients in food**
  - Composition
  - Labelling
  - Carbohydrates
  - Food fibres
  - Lipids
  - Cholesterol
  - Proteins and amino acids
  - Water
  - Vitamins
  - Minerals
  - Salt

- **E-numbers**
  - Colours
  - Preservatives
  - Sweeteners
  - Other: ............................................................................................................................

- **Healthy food and nutritional recommendations**
  - (Active) food pyramid
  - Nutritional recommendations from book/television/other media
  - Optimal distribution of meals during the day
  - Optimal distribution and intake of food nutrients/balanced meal
    - Carbohydrates
    - Food fibres
    - Lipids
    - Cholesterol
    - Proteins
    - Water (and other beverages)
    - Vitamins
    - Minerals
    - Salt
Exercise as part of a healthy lifestyle

Bio products

Vegetarianism and veganism
- Composition of a balanced meal
- Vitamins
- Minerals

Functional foods/ Nutraceuticals
- With ω-3 fatty acids
- With phytosterols/phytostanols (cholesterol lowering)
- With probiotics
- With prebiotics
- Other: ……………………………………………………………………………………………………

Food supplements
- With vitamins, minerals, fatty acids and/or amino acids
- With plants of plant preparations
- Related to deficiencies (e.g. vitamin D, vitamin B, folic acid, iron, calcium, magnesium...): refine: …………………………………………………………………………………………………
- Vitamins added to foodstuffs
- Minerals and trace elements added to foodstuffs

Novel food
- Hype ‘super foods’

Weight loss diets and related products
- New hype/new book
- Energy value of foodstuffs (Kcal)
- BMI
- Dyslipidaemia and nutrition
- Light products
- Sweeteners
- Meal replacements
- Other: …………………………………………………………………………………………………

Food allergies and intolerances
- Gluten
- Lactose
- To excipients in drugs
  - Gluten
  - Lactose
  - Other: refine: …………………………………………………………………………………………………
- Cow’s milk protein intolerance
- Nut, soy, peanut, fish, sesame, egg, shellfish, mollusc... allergy
  - Refine: ..............................................................
- Other: ......................................................................

- High-protein foods

- Nutrition in phenylketonuria and other congenital disorders of amino acid metabolism

- Diabetes and diet

- Enteral and tube feeding

- Baby food
  - Breastfeeding
  - Infant formula
  - Follow-on formula
  - Therapeutic formula
  - Baby cereals and jarred food
  - Other: ......................................................................

- Food for the geriatric population

- Food for athletes
  - Sports drinks
  - Energy-bars
  - Protein shakes
  - Other: ......................................................................

- Food safety
  - Food crisis (informed through newspaper, radio, television or other media)
  - Toxicity of nutrients
  - Carcinogenicity of nutrients
  - Microbiological food safety
  - Storage of foodstuffs
  - Expiry date of foodstuffs

- Contaminants
  - Antibiotics in meat, milk, honey, ...
  - Hormones, growth promotors, veterinary medicines in meat
  - Pesticides in vegetables, fruit, ...
  - Environmental contaminants in foodstuffs
    - Heavy metals
    - Organic contaminants (e.g. dioxins, PCBs...)
  - Mycotoxins
  - Other: ......................................................................
Food authenticity
  o Food adulteration
  o Food fraud

Organisations with a remit covering food, nutrition and food safety
  o European Commission
  o EFSA
  o FAVV
  o Health Council
  o Other: ........................................................................................................................................

Other: refine: ........................................................................................................................................
Hieronder vind je een raadplegenende lijst die een hulp kan bieden bij het uitwerken van de individuele cases. De verschillende domeinen die kunnen worden toegeschreven aan de vraag, vind je hieronder.

De vraag sluit aan bij het volgende domein of meerdere domeinen:

- Interacties voeding en geneesmiddel
- Ingrediënten in een voedingsmiddel
  - Samenstelling
  - Etikettering
  - Koolhydraten
  - Voedingsvezel
  - Lipiden
  - Cholesterol
  - Eiwitten en aminozuren
  - Water
  - Vitaminen
  - Mineralen
  - Zout
- E-nummers
  - Kleurstoffen
  - Conserveermiddelen
  - Zoetstoffen
  - Andere: ........................................................................................................
- Gezonde voeding en voedingsaanbevelingen
  - (Actieve) voedingsdriehoek
  - Voedingsadviezen vanuit een boek/ televisie/ andere media
  - Optimale verdeling van maaltijden over de dag
  - Optimale verdeling en inname van voedselbestanddelen/evenwichtige maaltijd
    - Koolhydraten
    - Voedingsvezel
    - Lipiden
    - Cholesterol
    - Eiwitten
    - Water (en andere dranken)
    - Vitaminen
    - Mineralen
    - Zout
- Beweging als onderdeel van een gezonde levensstijl
Bio producten

Vegetarisme en veganisme
- Samenstelling evenwichtige maaltijd
- Vitaminen
- Mineralen

Functionele voedingsmiddelen/ Nutraceuticals
- Met ω-3 vetzuren
- Met fytosterolen/fytostanolen (cholesterolverlagend)
- Met probiotica
- Met prebiotica
- Andere: ……………………………………………………………………………………………………….

Voedingssupplementen
- Met vitaminen, mineralen, vetzuren en/of aminozuren
- Met planten of plantenbereidingen
- Gerelateerd aan tekorten (vb. vitamine D, vitamine B, foliumzuur, ijzer, calcium, magnesium...): preciseer: ………………………………………………………………………………….
- Vitaminen toegevoegd aan voedingsmiddelen
- Mineralen en spoorelementen toegevoegd aan voedingsmiddelen

Novel food
- Hype ‘super foods’

Vermageringsdiëten en –producten
- Nieuwe hype/nieuw boek
- Energiewaarde van een voedingsmiddel (Kcal)
- BMI
- Dyslipidemieën en voeding
- Lightproducten
- Zoetstoffen
- Maaltijdvervangers
- Andere: ……………………………………………………………………………………………………….

Voedingsallergieën en -intoleranties
- Gluten
- Lactose
- Aan hulppstoffen van geneesmiddelen
  - Gluten
  - Lactose
  - Andere: preciseer: …………………………………………………………………………………………….
- Koemelkeiwitallergie
- Noten, soja, pinda, vis, sesam, ei, schaaldieren, weekdieren... allergie
- Preciseer welke: ........................................................................................................
  o Andere: ...........................................................................................................

- Voeding met hoog gehalte aan eiwitten
- Voeding bij fenylketonurie en andere aangeboren afwijkingen in het
  aminozuurmetabolisme
- Diabetes en voeding
- Enterale voeding en sondevoeding
  - Babyvoeding
    o Borstvoeding
    o Eerste leeftijd zuigelingenvoeding
    o Tweede leeftijd zuigelingenvoeding
    o Therapeutische melkvoeding
    o Graanvoeding en klaar-voor-gebruik babymaaltijd
    o Andere: ........................................................................................................
  - Voeding voor bejaarden
  - Voeding voor sporters
    o Sportdranken
    o Energierepen 'Energy-bars'
    o 'Protein shakes'
    o Andere: ........................................................................................................
  - Voedselveiligheid
    o Voedselcrisis (vernomen via krant, radio, televisie, andere media)
    o Toxiciteit van voedingsbestanddelen
    o Carcinogeniteit van voedingsbestanddelen
    o Microbiologische voedselveiligheid
    o Bewaren van voedingsmiddelen
    o Houdbaarheidsdatum van voedingsmiddelen
  - Contaminanten
    o Antibiotica in het vlees, melk, honing...
    o Hormonen, groeibevorderaars, veterinaire geneesmiddelen in vlees
    o Pesticiden in groenten, fruit...
    o Milieuc contaminanten in voedingsmiddelen
      - Zware metalen
      - Organische contaminanten (vb dioxinen, PCBs...)
    o Mycotoxinen
    o Andere: ........................................................................................................
Voedselaudenticiteit
- Vervalsing van levensmiddelen
- Voedselfraude

Organisaties die zich bezighouden met voeding, nutritie en voedselveiligheid
- Europese Commissie
- EFSA
- FAVV
- Hoge Gezondheidsraad
- Andere: ........................................................................................................

Andere: preciseer: ........................................................................................................
ANNEX 4: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – INTERACTIONS BETWEEN FOOD, FOOD SUPPLEMENTS AND DRUGS (n=44)

Antibiotics (n=19)

Case 115: These antibiotics, I heard I can’t take them together with milk. Is that true?
Case 164: I read in the patient information leaflet that my husband can’t use this drug (shows a box of ciprofloxacin) with dairy products? Is he not allowed to consume any dairy products?
Case 233: A patient who purchased ciprofloxacin got the advice to take the medicine in the morning and at night and not to combine this with dairy products. She asks if it would be a problem to eat something at night, before she goes to bed.
Case 277: Why can’t I combine these pills with yoghurt? I thought you were supposed to do that with antibiotics?
Case 327: In the pharmacy I usually visit, they told my husband it is better not to use dairy products in combination with antibiotics. Is this true?
Case 384: Why aren’t you allowed to combine doxycycline with dairy product?
Case 485: Why can’t I take these antibiotics with yoghurt? In the old days they used to say this was beneficial? Am I not allowed to eat or drink anything with milk in combination with these drugs?
Case 554: I guess it would be better for my intestinal flora to eat a yoghurt with this medication (moxifloxacin)?
Case 568: A client was advised not to use alcohol in combination with his metronidazole. He seemed surprised and was wondering if this was also a problem with other medication. He also wanted to know why.
Case 666: I suffer from intestinal problems quite quickly when I use antibiotics. Is it true that yoghurt could help me with this problem?
Case 711: Is it true that you should combine antibiotics with yoghurt?
Case 717: I thought it was always a good idea to combine antibiotics with yoghurt and other dairy products. But recently I read on the internet that this might not be such a good idea? So is it better to take these antibiotics in combination with yoghurt or not?
Case 802: Would it be better to combine her medication with yoghurt, to prevent diarrhoea, or not?
Case 823: The last time I used antibiotics I was told not to use any dairy products. Does this apply to my current antibiotics again?

Case 876: A man who has a prescription for co-amoxiclav is wondering if it would be a good idea to combine these with yoghurt.

Case 971: Would it be beneficial to combine my antibiotics with yoghurt, or not?

Case 978: I always heard you should have a lot of yoghurt and milk when taking antibiotics. Why isn’t this the case with these antibiotics (ciprofloxacin)?

Case 983: I always have 2 glasses of red wine in the evening. Could that hurt in combination with my medication (amoxicillin)?

Case 993: Am I allowed to drink alcohol in combination with my prescribed medicine (amoxicillin)?

**Food supplements (n=6)**

Case 126: A patient is wondering if it is true that you can’t eat yoghurt together with iron supplements.

Case 168: Am I allowed to drink alcohol with my valerian supplement or does this interfere with the functioning?

Case 451: I heard these vitamins (Saint John’s wort) can’t be combined with some other drugs? It can’t hurt in combination with my medication, can it?

Case 525: Can I combine a magnesium supplement with calcium? I heard somewhere that this isn’t allowed?

Case 935: Is it true that it is better to take vitamin D with a high-fat meal than with a glass of water?

Case 954: Why is it that in the morning I can’t drink milk with my iron supplements, but I can drink orange juice?

**Other (n=19)**

Case 114: What happens if you eat high-fat foods, like hamburgers or scampi in cream sauce, together with a lipase inhibitor?
Case 192: A patient read in the patient information leaflet of levodopa that proteins diminish the functioning of the drug. He is now wondering if this means that he is no longer allowed to eat eggs?

Case 297: Can you take quetiapine in combination with grapefruit? Someone told me that this isn’t a good idea, why is that?

Case 303: I use warfarin and I heard I should be careful with certain vegetables. Is this right?

Case 394: Is it allowed to drink alcohol while using ibuprofen?

Case 442: Am I allowed to combine this drug (melitracen and flupentixol) with alcohol? I would like to know because I’m here on a holiday with friends and I want to know what I can order when we enjoy a drink on a terrace.

Case 574: Can he still drink alcohol during the holidays, in combination with his ibuprofen?

Case 576: Am I allowed to eat everything in combination with my varenicline?

Case 587: When I eat bananas it lies heavy on the stomach, is that a problem in combination with my medication? Will it diminish the function of my medication when my banana is still digesting?

Case 628: My physician ordered a salt-free diet, so I searched the internet for salt substitutes. I found that most of these are based on potassium, but I know that one of my drugs also contains potassium. Could you please look into that to see if I can use these salt substitutes and to see if there are some other options for salt substitutes? Because my food really doesn’t taste right without it.

Case 649: A friend from my playing-card society told me that she is not allowed to eat grapefruit in combination with her medication. I eat 2 grapefruits and 1 kiwi every morning. Am I no longer allowed to do this?

Case 690: I take a supplement based on folic acid, iron and vitamin B12. This won’t interact with the medication (bisoprolol and cardiac aspirin) I use?

Case 698: I took a look at the patient information leaflet of my medication (amlodipine) and it said that I should take my pills with a large glass of water. In the morning however, I take it with my coffee. Is this a problem?

Case 719: I have been afraid of drinking alcohol since New Year, because I then started taking my medication (fesoterodine and betahistine). Could it hurt to have an occasional glass of wine in combination with my medication?
Case 815: My wife read somewhere that it’s not a good idea to combine grapefruit with some medication. This isn’t correct, is it? Would it be possible to check if we take any medication that can’t be combined with grapefruit?

Case 825: That vitamin D supplement I want to use, it won’t interfere with my pantoprazole, will it?

Case 872: A client is coming to get a food supplement based on milk thistle for his wife. He wants to know if his wife can use this in combination with her current medication, if this would do no harm. His wife takes nebivolol.

Case 974: A patient came to get an iron supplement and asked if she could take that in combination with her medication. It turned out she was taking L-thyroxine in the morning.

Case 1030: Can I combine ciclosporin with certain drinks? I would like to make a cocktail.
ANNEX 5: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – INGREDIENTS IN FOOD (n=8)

Carbohydrates (n=2)
Case 16: My physician told me that I have to use jam with fructose, do you have that? Why is that better?
Case 234: What is the difference between sugars in jam and honey?

Proteins (n=1)
Case 132: This local delicacy (cookies high on protein), what is the percentage of proteins in it?

Lipids (n=1)
Case 169: An elderly man read on the internet that the hazelnut spread he uses is unhealthy because of palm oil present in it?

Salt (n=2)
Case 968: People often tell me that eating salt will help me with my low blood pressure, but I can’t just eat plain salt. Are there any other foodstuffs that can help raise my blood pressure?
Case 1013: I suffer from a low blood pressure, but etilefrine has not been obtainable for a while. Is the only thing I can do about my blood pressure eat more salt?

Antioxidants (n=2)
Case 396: I know this is a strange question, but I have been eating a lot of bleu berries lately because they are rich in antioxidants. Would it be possible that they make my stool colour darker?
Case 532: I recently had a melanoma and I read on the internet that antioxidants are good to prevent cancer, is that true? And which foods contain antioxidants?
ANNEX 6: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – E-NUMBERS (n=1)

Case 745: I heard that E120 is made of crushed lice, is this correct? What is it used for?
ANNEX 7: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – HEALTHY FOOD AND NUTRITIONAL RECOMMENDATIONS (n=103)

Recuperation / gaining weight (n=2)

Case 10: Is there something I can do to help me gain weight? I used to live with a drug addict and he never cooked. Now I’m no longer used to eating. What would you advise me?
Case 68: Do you have some type of food that would help me gain weight?

Optimal distribution and intake of nutrients / balanced meals (n=57)

Carbohydrates (n=4)

Case 5: My mother had a gastric bypass surgery 2 weeks ago. On the hospital’s papers it says that she can’t eat sugar. But sugar is present in so many foodstuffs. Is this going to make her sick?
Case 60: My sugar is always high, even before I start eating. What is causing this? What should I do to solve this?
Case 957: Are carbohydrates unhealthy?
Case 1004: According to my doctor, my husband has high sugar levels, but not too high. Would it help to use artificial sweetener as a preventive measure?

Lipids (n=3)

Case 484: Lately my weight has been rising, despite eating just 1 sandwich at noon and 1 bag of crisps at night. I don’t understand this, because I’m not eating a lot?
Case 577: A woman has a question about deep frying fat. She knows ox tallow and regular deep frying fat, but she read something about coconut oil. She is now wondering if this is that much healthier than the other alternatives.
Case 743: Should I eat a lot of food stuffs containing alpha lipoic acid, like spinach and broccoli, to reduce my neuropathic pains? I’m already using gabapentin.
**Dietary fibres (n=21)**

Case 36: A woman has a prescription for laxatives. The physician told her that she had to adjust her diet the days before the bowel examination. She was wondering what she can or can’t eat?

Case 116: Which bread (white, brown, …) should I eat with spastic colon?

Case 203: I have to take a bowel examination next week and I have to take a laxative. What should I eat and what should I avoid the days before the examination?

Case 210: My child suffers from constipation, are there certain foods that I should avoid giving?

Case 228: I have a bowel examination next week. When should I use my laxative and what can or can’t I eat and drink in the days leading up to the examination?

Case 356: My husband has to have a bowel examination and he can’t eat too many fibres the days before it. What can he eat?

Case 382: My husband uses a laxative every day, but he is still constipated at times. We exercise a lot and we try to eat healthy, like brown bread, vegetables and fruit. Is there something else he should or should not eat to help with this?

Case 458: I have been suffering from constipation lately. I often use a laxative. I have been trying to eat fruit, but I don’t think it is helping me. Maybe I’m not eating enough fruit? Or what fruits and vegetables are most useful for this purpose?

Case 461: I have been constipated. Is there something more I can do besides using this laxative? Something I should avoid eating?

Case 481: My daughter is often constipated. It takes a few days before she can go and her stool is hard. Are there certain things we can do in terms of drinks or food to tackle this problem?

Case 535: What food should I use the day before a colonoscopy?

Case 546: A patient who has been suffering from constipation for a while is wondering if there is something extra she can do to help in terms of food.

Case 738: The doctor told me I should mind my diet the next few days, for instance I’m not allowed to eat many fibres. What can I eat and what should I avoid?
Case 798: A woman who is 6 months pregnant visits the pharmacy to purchase a laxative. She is normally often constipated but this has gotten worse since her pregnancy. She finds this hard to deal with and asks if there is something else she could be doing.

Case 818: What can I eat before a bowel examination?

Case 866: A patient has a prescription for a laxative, that has to be used preceding a colonoscopy. He was told he shouldn’t eat too many fibres the days leading up to the examination and he is asking for some help on how to do this.

Case 879: My son is constipated and the physician advised to try lactulose. Could this constipation also be caused by his diet and how should I change it?

Case 972: Lately I’ve been having trouble with hard and difficult defecation. I would first like to try and solve this in a natural way, what would you advise me?

Case 1000: When I travel I’m often constipated, is there something I could do about this or something I should take with me?

Case 1009: My daughter sometimes has trouble going to the toilet, but I think she is too young for medication. Are there some changes I could implement in her diet?

Case 1011: A woman who has been dieting for 1 month is complaining of constipation. She asks what she could do about this.

Salt (n=3)

Case 486: A woman who has been suffering from swollen feet is looking for something diuretic. After being asked about her dietary habits, she explains that she eats many packets of soup and she thinks that this is healthy. After being told that this contains too much salt, she is wondering if there is something like a natural diuretic that could help her.

Case 901: My friend advised me to use a substitute for salt to cook with. Is there something you could advise me?

Case 943: An older lady explains that her husband recently has been subscribed a new drug for his blood pressure. She is wondering if her husband should be avoiding food with a high amount of salt in it.
Vitamins and minerals (n=17)

Case 81: What foodstuffs contain vitamin D?

Case 193: A mother is visiting the pharmacy with her 15 year old daughter. The mother would like to talk about the eating habits of her daughter, who refuses to eat any kind of vegetables or fruit. The daughter explains that she doesn’t like those things and she can’t keep them down. Her mother is worried and she asks if this could cause problems.

Case 220: I had my blood tested and I have a vitamin B12 deficiency. In what foodstuffs can I find this?

Case 248: My blood tests show that I have an iron deficiency. Which foodstuffs contain a lot of iron?

Case 302: I heard that iron is difficult to absorb. Are there certain things I should take into account to make it absorb more easily?

Case 411: I have an iron deficiency. Which foods would be good for me?

Case 430: My wife has a slight iron deficiency and she would like to adjust our diet, could you give me some advice?

Case 441: A woman is trying to get pregnant and she is asking more explanation about folic acid. She wants to know for how long you have to take it and what for. She also wants to know how people did this in the old days. She would prefer to take up the folic acid from natural sources (diet).

Case 447: My iron is too low, but my physician tells me I don’t have to take a supplement. I should simply adjust my diet. How should I do this?

Case 604: According to my physician I have an iron deficiency. I have to take supplements for this, but isn’t there any food that contains this as well?

Case 618: From which foods can I derive vitamin D?

Case 744: According to my physician I have an iron deficiency. What can I eat that contains a lot of iron?

Case 757: A woman has visited her ophthalmologist and he advised her to take some vitamin A supplements. She has a prescription for these. She would also like to know which foods contain vitamin A?

Case 868: Are there any foodstuffs that contain extra vitamin D?
Case 913: Am I allowed to stop taking vitamin D supplements and take this in through my food?

Case 964: What food contains vitamin B12?

Case 1084: A woman had a rash (a type of eczema) on the cheeks and she was wondering if this could be caused by a sulphur deficiency or perhaps some other vitamin deficiencies.

**Cholesterol (n=8)**

Case 217: Do you have a list of foodstuffs that you have to be careful with when you have hypercholesterolemia?

Case 296: Is it true that I should use olive oil instead of butter for my cholesterol? And are there other foods I should avoid eating?

Case 443: My physician tells me that my cholesterol is too high and that I should change my diet. What should I look out for?

Case 465: My doctor reviewed my blood results and he told me that my cholesterol is too low, at 130. What should I do now?

Case 468: My physician asked me to pay him a visit. My cholesterol is too high and he wants me to take medication, but I don’t want to do that. Can’t I just pay more attention to my diet?

Case 892: A woman is asking some explanation about her blood test. Her cholesterol is too high. Since she doesn’t have a prescription, she is advised to use a supplement based on red yeast rice and green tea. The woman says that she already uses margarine enriched with phytosterols and that the doctor told her she could not use both together. Because of that, she is asking for some non-medical advice about healthy food for high cholesterol.

Case 1036: My physician just told me that my cholesterol levels are a bit too high. Are there some measures I could take?

Case 1080: I will probably have to take simvastatin for the rest of my life. Is there something else I could do, in terms of changing my diet?
Water (n=1)

Case 387: I started drinking a few glasses of water every day, because my urine is looking yellow. Lately I have been drinking a one litre bottle every day and it is still bit yellow. How much water should a person drink to be healthy?

Other / General (n=44)

Case 4: Do you have some type of honey for dogs to make him drink better? It’s for a 7 weeks old Chihuahua.
Case 43: I have diarrhoea and I can’t get rid of it. Could this be caused by my food?
Case 53: My friend is suffering from stomach flu and he can’t keep anything down at the moment. What should I give him that is light to digest and still gives him enough energy?
Case 139: I would like to start a liver sparing diet. Could you help me with this?
Case 179: I’m constantly suffering from diarrhoea during my antibiotic therapy, could I adjust my diet to prevent this?
Case 187: I sometimes suffer from gout and apparently that can also be caused by some types of food? What foods should I avoid?
Case 196: I heard you can avoid gout by changing your diet. What can or can’t I eat exactly?
Case 245: A client asked if her food supplements for her pregnancy had already been delivered. It turned out these were rovamycine tablets, so it was explained to the woman she probably had been infected with toxoplasmosis. Afterwards she received an explanation of which foods she should be careful with during her pregnancy.
Case 259: My husband and I went to eat mussels this weekend. Now we are both suffering from heavy diarrhoea. Could this be caused by these mussels? Do you have something good to stop the diarrhoea?
Case 274: A patient who often suffers from heartburn wants to know which foods mostly cause this.
Case 285: Is it useful to adjust my diet to reduce my acne?
Case 286: I’m pregnant and my physician told me that he would give me a brochure about which foods I should avoid while being pregnant. He forgot to give me this folder, do you have something like that for me?
Case 338: Is ginger good for the vocal chords?
Case 350: A baby has vomited, has a fever and is 1.5 years old. The mother wants to know if her baby can already try to eat something. And if she can, what should she give her?
Case 355: What foods should I be careful with during my gout treatment?
Case 380: I would like to use wheat germ oil to get pregnant. Does that work, wheat germ oil?
Case 402: A woman calls the pharmacy and explains that her husband is taking medication for gout. She wants to know if her husband should pay attention to his diet. The physician told her this wasn’t necessary, but she read something different on the internet.
Case 404: What type of food should I eat when I’m suffering from diarrhoea?
Case 469: A pregnant woman is asking for prenatal vitamins. She is wondering what she has to consider in terms of food while being pregnant.
Case 483: I have been suffering from heartburn since I’m dieting. Could my nutrition cause this?
Case 523: Would eating bananas help for my diarrhoea?
Case 561: The specialist told me I can’t use dairy products and hence no cream, but would it hurt if I used light cream during the holidays?
Case 594: I often suffer from migraine and I read in some magazine that migraine attacks would decrease if you stop eating citrus fruits. Could that be true? Because I eat an orange every day.
Case 617: My neighbour told me that tomatoes are bad for my joint pain. Is this true?
Case 644: A client is purchasing allopurinol for the first time to treat his gout. He wants to know if and how he should adjust his diet.
Case 658: I have noticed that when I’m driving my car at night, I can’t see very well. My sister told me that I should eat more carrots, because this would help. Is that true?
Case 670: A man who suffered from stomach problems wanted to try metoclopramide. His stomach problems improved during dinner. This could indicate gastritis. He wanted to know what types of food he should avoid eating.
Case 673: A woman explains she suffers from reflux when she is lying in her bed at night. She explains she takes her pills in the evening with soda water, because she thinks it is better for her stomach. She wants to know if there is anything else she could do to reduce her problems.
Case 675: Am I allowed to eat vegetable soup and apple when suffering from diarrhoea?
Case 741: A woman is complaining of heartburn. She is wondering if there is anything she can do about this. She explains that she had been busy lately, with bad dietary habits as result.

Case 752: My physician told me to avoid alcohol and red meat, because they can trigger gout. Are there other thing I should avoid eating or drinking?

Case 756: I have been diagnosed with arrhythmia a while ago. Am I allowed to use capsules with caffeine? And does coffee have an effect on the heart? And how about tea?

Case 766: I often suffer from diarrhoea after eating ripe cheeses (from a very young age), could I do something about this?

Case 789: I often suffer from a dry cough and my neighbour told me that honey would help. Is that correct? I would like to try this, but could you advise me on what honey to use?

Case 793: I drink a bear every night after my work. That’s not harmful, is it? Or should I avoid doing that?

Case 819: I bought potato juice because this is said to help with heartburn. When should I take this?

Case 831: I have gout and my physician gave me a list of things I should avoid eating. But I can’t remember why I should not eat these things?

Case 838: I’m pregnant and I came to ask what types of food I should or shouldn’t eat. Shellfish? Salami? Cheese? Vegetables? Eggs?

Case 839: A patient who suffered from prostate cancer is wondering if there is a connection between cancer and nutrition and if he could have prevented his cancer by eating differently. He was wondering what would be considered healthy food these days, because there is so much commotion around this in the media.

Case 881: My friend told me that ginger tea is really good for the circulation. Is that true?

Case 887: Would it be possible that tomatoes induce migraines for me? It’s like I always have migraines after I ate something with tomatoes …

Case 953: What type of food should I give my son who suffers from diarrhoea?

Case 988: Lately I’ve been having some stomach problems, sometimes the acid rises to my throat. It feels like I have more problems when I drink fruit juice, is that possible?

Case 999: My daughter and son are teenagers and they suffer from acne. Can I use a cream for that? Is it true that you get acne from eating to many fatty foods or chocolate, because I already told them this, but is it actually true?
ANNEX 8: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – VEGETARIANISM AND VEGANISM (n=16)

Vitamins and minerals (n=11)

Case 9: I’m a vegetarian and the doctor told me that I have a vitamin deficiency. Are there some type of vitamins especially for vegetarians?
Case 25: My husband doesn’t eat meat and he is training for a marathon. Would you have some type of vitamins for that?
Case 238: What supplements do I need as a vegan to keep my vitamin B12 reserves intact?
Case 363: My daughter recently switched from being a vegetarian to being a vegan and she read on the internet that this could cause a vitamin B12 deficiency? Now she would like me to purchase vitamin B12 injections, because this is supposed to be better than pills. She says that pills aren’t being absorbed as well as injections. Do you have something like that and how should she use this?
Case 513: My daughter is a vegetarian, but she doesn’t like vegetables. She is 15 and she is being a real teenager. She only wants to eat vegetarian burgers. I would like to give her some extra vitamins. What would you advise me to do?
Case 591: I have been really tired lately, would you know what could cause this? Could there be more than one causes, like nutrition, iron deficiency, ... because I’m a vegetarian.
Case 733: I recently became a vegetarian. Could you advise me something to supplement any possible deficiencies?
Case 763: Is there a special food supplement aimed at vegetarians? Because there are some vitamins and other nutrient you are not getting enough of? How could you best solve this?
Case 936: I would like to go vegetarian. If I stop eating meat, should I take extra vitamins?
Case 1014: I recently started eating vegan food and I also have been taking something for heartburn for years. I now read on the internet that this could cause a vitamin B12 deficiency. Should I supplement this, because I read this isn’t possible because of my gastric acid suppressant?
Case 1017: My 17 year old daughter is vegetarian and lately she has been sick regularly. She doesn’t eat meat, but she doesn’t eat vegetables or fruit either. Would it possible that she has a vitamin deficiency and that this is causing her to be sick so often?
Other (n=5)

Case 67: I’m participating in the ‘40 days without meat’ challenge, what would be good meat alternatives?

Case 186: I stopped eating meat a few weeks ago, but I started to notice that my skin and lips look pale and my physician told me that the inside of my eyelids look pale as well. Could this be caused by not eating meat?

Case 266: A woman visits the pharmacy after an operation for kidney stones. She has a form with her from the hospital that among others things states that she has to follow a lacto-vegetarian diet. She shows this form and wants to know what she can or can’t eat.

Case 339: I have an amino acids deficiency, do you have something to solve this and do you think this could have something to do with me being a vegetarian?

Case 505: I am looking for something that could give me a bit more energy? I’m a vegetarian and I have been very tired for months.
Case 24: My daughter has a urinary tract infection. She has this problem quite often. I read somewhere that cranberry juice could help prevent this. Is this correct?

Case 47: I heard that royal jelly is used as a natural antibiotic? Can I use this?

Case 190: What is the difference between green nettle tea and white dead nettle tea?

Case 191: Apparently soy is beneficial for a high cholesterol. Is it useful to take a spoon of soybean oil every morning?

Case 770: If I drink a lot of ginger soup, wouldn’t that be the same thing as taking this supplement?
ANNEX 10: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD SUPPLEMENTS (n=387)

With vitamins, minerals, fatty acids and/or amino acids (n= 306)

Case 7: Are there any vitamin cures that contain vitamins in less than 100% of the recommended daily intake? So that I can supply the rest of it through regular nutrition.

Case 8: I’ve been feeling very tired lately, could I take some vitamins for that, like iron?

Case 11: I have resits at the moment, for which I’m studying. I have been suffering from tiredness during studying and I fall asleep a lot, even during the day. Do you have something that could help me concentrate and make me feel less tired?

Case 12: Are there some kind of vitamins to treat chilblains?

Case 13: I often suffer from tense muscles and cramps and I heard that this could be caused by a magnesium deficiency? Is this right and could you give me something without prescription?

Case 19: On doctor’s advice I now take folic acid, but are there any other vitamins I should supply during my pregnancy?

Case 21: Which vitamins should I take in combination with my diet, to treat any deficiencies?

Case 22: My physician advised me to take magnesium supplements for my muscle cramps, but I now eat a lot bananas. Would that suffice?

Case 28: I would like to exercise a bit more. Do you have some vitamins or something to support me with that?

Case 29: My girlfriend is having anxiety attacks and now I’m wondering: what is this food supplement with magnesium? Would it help against her anxiety attacks?

Case 34: My child is allergic to cow’s milk proteins and my wife is breastfeeding. The ‘Child and family agency’ told my wife she can’t eat any dairy products herself and she wants to use extra calcium. Could this do any harm when she is breastfeeding?

Case 38: I have been taking this multivitamin complex daily for a long time and I’m very pleased with it, but with this harsh winter ahead and the flu epidemic, I would like something extra as a boost not to get sick. I heard that this other supplement based on folic acid and iron is good, can I combine that with my own supplements?

Case 41: My son barely eats any vegetables and fruit, would some extra vitamins help? Could this be the cause of his torn mouth?
Case 44: I had my blood tested because I have been feeling tired lately. My physician advised me to take iron and he prescribed these iron supplements. Would that work?

Case 45: My father past away this week and I’m feeling very down. Isn’t there something that could give me a bit more energy and strength during this time.

Case 48: I’m in the middle of an examination period and I would like something to help me concentrate. I already tried this tonic once and I was pleased with it. Could that do any harm if I combine it with my l-thyroxine, because I take that every morning?

Case 51: My dentist told me I should use more vitamin C, what should I take for that?

Case 63: If I take these vitamin C ampoules, will this prevent me from getting sick? Will it keep my strength up?

Case 66: Does this vitamin complex contain vitamin A? I read on the internet that this is good for your hair?

Case 74: Does it help to take a supplement based on beta-carotene to prevent sun allergy?

Case 75: I’ve been having problems with my short-term memory and my physician told me this could be caused by a vitamin B12 deficiency or something like that? Is there something you could give me for that?

Case 77: I would like some vitamins because I’m always tired after exercising? On top of that, I have a summer job that starts really early in the morning.

Case 79: I’m looking for a vitamin preparation for my son to boost his immune system. He gets sick rather quickly at school.

Case 91: My physician told me I have a vitamin A deficiency, he told me it shows from my skin. But he prescribed 6000 IU, I did some research on the internet but with how many mg does this correspond? And could this not be too much, or is that not enough?

Case 93: A middle aged woman wants some advice about essential fatty acids. Are supplements based on omega 3 and omega 6 preferable over those with solely omega 3?

Case 97: A father wants to know if he could have a supplement with vitamins for his 9 year old son, because he eats very few vegetables and fruit.

Case 99: My children don’t eat well. They hardly ever want to eat fruit or vegetables. I’m afraid that they will have a vitamin deficiency. I would like to give some vitamin supplements to make sure that they have no deficiencies. What could you advise me?
Case 101: I have been taking a vitamin cure for my hair for two months. I’m cramming right now and I would like to start a vitamin treatment to help me concentrate. Can I keep on taking my other vitamins?

Case 102: I am looking for vitamins for my child, which would you advise me to use?

Case 103: I would like to purchase a vitamin D supplement for myself, can I give this to my 7 month old baby as well? I’m still breastfeeding. Does my child really need this supplement?

Case 107: My husband and I have been trying to conceive the last few weeks and I would like to start taking some specific supplements pre-emptively. Could you advise me something?

Case 111: I would like to take some general vitamins for now and for during the winter with the January exams ahead?

Case 113: I would like a supplement with vitamins, something that starts with omni-... . What is the difference between these two vitamin supplements?

Case 117: My son is 12 and since he started school again he has been constantly tired. Would it help to give him some vitamins?

Case 119: A young woman who just went through a campylobacter infection is asking some information about a vitamin cure because she is still very tired from the infection and she feels like her immune system is undermined.

Case 125: I’m 2 months pregnant at the moment. Am I taking enough vitamins by only taking folic acid?

Case 128: The ‘Child and family services’ told me that it is advised to give vitamin D supplements to my baby until he is 12 years old. Is this really necessary?

Case 131: Lately I have been experiencing muscle cramps every now and then. Is there something I can take for this?

Case 133: A man is asking for a magnesium supplement. He has already tried a supplement based on magnesium, but he wanted to know if there is something else he could use?

Case 135: I would like to take a vitamin supplement to boost my immune system, but preferably without lactose?

Case 145: I have eczema but I stopped taking my medication because of my pregnancy. Would I benefit from taking vitamin D?

Case 147: My mother turned 90 and she stopped eating vegetables and fruit, the only thing she eats anymore is bread and spread and some meat and potatoes. Do you have any supplements that could supplement her deficiencies?
Case 149: I take folic acid, which other vitamins should I take once I’m pregnant?

Case 152: My blood tests showed that I have a vitamin B12 deficiency, I feel very tired. I have been getting vitamin B12 injections, is there something else I could take to energize?

Case 155: I am taking 1 tablet a day of this supplement containing magnesium, vitamin B and vitamin D, but I would like to take some extra vitamin B. Am I allowed to take 2 tablets a day or could this do harm because of the vitamin D in it?

Case 157: My physician prescribed a supplement based on lipoic acid, what is this product used for?

Case 170: Is this supplement (a tonic for tiredness) comparable to the other one (supplement based on ginseng)?

Case 181: I feel very tired, isn’t there a vitamin supplement that could help with that?

Case 182: I would like some vitamin D drops for my baby, because I heard they need to take that during their first life year, right?

Case 198: A woman takes ampoules containing vitamin D and she wonders if there is anything else she could do to treat her vitamin D deficiency?

Case 202: Can I take iron or do I have to take a blood test first?

Case 207: A woman visits the pharmacy with a prescription for vitamin B12 ampoules for injection for her husband. She wants to know if it would be possible to replace injections by oral tablets?

Case 209: I was recently diagnosed with ALS, for which my specialist prescribed riluzole and a vitamin and antioxidant supplement. He explained what the riluzole was for, but he didn’t say much about the supplement, only that it is an extra food supplement that contains extra vitamins. Is it really beneficial to take this?

Case 211: My children are having exams, would this (magnesium based supplement) help them to persevere?

Case 214: A client gave blood and they told him that his iron levels were low. He is looking for something without a prescription. After being advised about the choices, he is wondering if there isn’t anything stronger he could be taking and if he has to take the entire package.

Case 215: Does a multivitamin supplement suffice to give to my child or should I give him an other supplement?

Case 216: Do you have something against tiredness, maybe some vitamins or something?
Case 218: Would it be possible to purchase an iron supplement without a prescription? It’s for my husband, he is often tired and iron deficiencies run in the family. I heard that that tiredness can be caused by an iron deficiency?

Case 231: Do you have a general vitamin complex that would give me some energy and would it be ok for my 2 daughters to use it as well?

Case 235: I’ve been feeling tired lately, is there something on a natural base that could help me with that?

Case 237: I’ve been suffering a lot from chilblains. I read on the internet that vitamin B12 could help, is this right?

Case 243: A few weeks ago I went to my physician to take blood and it turned out I have a vitamin D deficiency. Normally I was supposed to travel shortly after that and my physician told me that the sun would already help a lot and that I could still take a supplement once I returned if necessary. But my trip got cancelled unexpectedly. Is there something you could advise me to treat this deficiency?

Case 249: I heard that warts in children can be caused by a vitamin deficiency. Would it be possible to remove the warts by giving my daughter some vitamins.

Case 269: A pregnant woman would like to take some vitamins, but without folic acid, because she is already taking this?

Case 271: I’m 50+ and I’ve just gone through a stressful period. Are there some kind of vitamins I could take? Would these vitamin C ampoules suffice?

Case 273: My friend told me I should take vitamin D ampoules, is this true?

Case 278: I would like to take some vitamins to give me some extra energy to study?

Case 279: I want to get pregnant, which vitamins should I take?

Case 280: Do you have some type of special vitamins for students?

Case 281: I stopped breastfeeding and I will start giving formula. Do we still have to use these vitamin D supplements?

Case 290: Are these calcium tablets better than this supplement based on devil’s claw?

Case 291: I have 2 children who are 4 and 6 and I was wondering if there are any vitamins I could give both of them to boost their energy, now that they have to return to school?

Case 295: My son is 17 and he is feeling washed-out. Could he benefit from taking a vitamin treatment to boost his energy?

Case 306: This vitamin B supplement, what are the benefits?
Case 311: My mother advised me to use supplements with omega fatty acids for the development of my baby’s brain. Can’t I take up enough omega fatty acids by eating enough fish?

Case 313: I found a new job and I’m feeling stressed and tired. Do you have some kind of vitamins to help me with that?

Case 322: I just visited my urologist and my PSA-values still haven’t improved since I started taking this supplement based on soy isoflavones, vitamin E and selenium. Do these pills really work against prostate cancer, because the urologist told me that they contain vitamins that will decrease my chances of getting prostate cancer, but what vitamins are that? Can’t I get those vitamins from vegetables and fruit, because I think I eat enough vegetables or fruit every day.

Case 325: The exams are coming up again. I would like something that could help me concentrate better and for a longer period of time?

Case 333: A woman is asking for a special supplement for pregnant woman. She wants to know if she has to take some extra iron on top of that or if the supplement already contains iron?

Case 335: Does magnesium help for muscle cramps?

Case 337: My physician prescribed a vitamin D treatment for my 4 year old daughter. Would it be useful to give her a full vitamin cure on top of that?

Case 340: I read somewhere that zinc could help with a cold. I’ve been having some problems for a few days now and I might like to try it?

Case 342: My wife told me she experiences stress, depression, anxiety. Would there be an alternative for this supplement based on magnesium, because I read that magnesium phosphates are being absorbed more readily than magnesium citrates?

Case 344: I’ve been experiencing muscle cramps at night. Am I allowed to take magnesium for it while breastfeeding?

Case 347: My physician told me that I should take folic acid because I’m trying to get pregnant. Why is that?

Case 351: My physician prescribed a vitamin syrup for my child. Will this enhance her immune system as well?

Case 353: Do you have products containing magnesium? I’ve been experiencing muscle cramps and I heard that it will help me with that.
Case 358: Why do I suddenly have to take vitamin D all the time? I never had a deficiency before and now I suddenly have such a big deficiency?

Case 379: I just went to the hairdresser and I was complaining about my hair thinning too much. The hairdresser told me that I could get some vitamins for that at the pharmacy?

Case 386: Do you have something that would help with muscle cramps or tired legs?

Case 388: I would like to get pregnant and apparently folic acid would be advised. Is that true?

Case 389: A physician gave a full list with specific dosages of EPA and DHA to a woman with cancer. The woman was now wondering what this was and what is it used for.

Case 395: Lately I’ve been waking up a lot at night because of muscle cramps in my legs. Someone told me magnesium would help with that. Is that true?

Case 397: I would like to use a general vitamin complex for tiredness?

Case 401: How is magnesium being absorbed better?

Case 406: My last blood tests showed that my calcium levels were low, the doctor told me that I could get something here? He told me they were chewables and a green packaging, is that right?

Case 407: Would you have something to enhance my children’s immune system?

Case 408: A woman wanted to know if there was a difference between the solution containing vitamin D and the solution containing vitamin A and D and if it would harm her children to take this. Because she asked for 2 bottles of the vitamin D solution but she accidentally got 1 bottle of each.

Case 413: I have been breastfeeding for 12 months but I’m thinking about switching to formula soon. Do I have to keep on giving vitamin D to my son?

Case 415: Do you have something that will help with fragile nails?

Case 416: My daughter would like some vitamins to help her study, but it should contain phosphatidylserine and ginkgo?

Case 417: My physician told me I have a vitamin K deficiency, but what is it for?

Case 418: My mother’s diabetes was kept under control well during her chemo by using a supplement based on lipoic acid. She would like to keep on using this after chemo in agreement with her specialist. But I would have liked to hear a pharmacist’s opinion about this product?
Case 419: I’m studying for my resits at the moment, but I can’t concentrate. Are there some kind of vitamins I could use to enhance my concentration?

Case 422: My son is having exams. A friend told me that there are tablets to help you concentrate? Do you have this and what substances does this contain?

Case 424: I have a vitamin D deficiency, but how is this caused and what are the symptoms?

Case 425: I visited my physician and it turns out I have a vitamin C deficiency, but I don’t understand how this could happen. I have been drinking a squeezed lemon every morning for 2 years now?

Case 429: Is this supplement containing folic acid, vitamin D3 and iodine the best supplement for pregnancy?

Case 434: Is it necessary to supplement vitamin D for a child that is feeding on formula?

Case 435: I’ve been tired lately and I get sick quickly. Would it be possible to use some kind of multivitamin complex? I heard this general vitamin complex works well?

Case 438: I have a vitamin D deficiency, but how can I make sure I have more vitamin D, is that in something? Or can I purchase that here?

Case 439: I read somewhere that people are often short on vitamin D. Should I take some extra vitamin D?

Case 450: Do you have a food supplement that stimulates hair growth?

Case 455: I would have liked to have a box of antioxidant capsules. I also have a general vitamin complex at home and I was wondering if it would be safe to combine both?

Case 460: A woman wanted to know if there would be a vitamin cure that would offer her daughter, who has just had a difficult breakup, some extra vitality and inner peace.

Case 467: I would like to give my daughter a vitamin cure? She has had glandular fever last year and she is feeling very tired again this year. She also just started her first year.

Case 471: I saw a commercial about this supplement based on magnesium. Does it work?

Case 474: Do you have something that could help me study?

Case 476: I would like a vitamin preparation specifically for during my pregnancy, but nothing with fish oil, because I’m a vegetarian.

Case 479: My wife is looking for a good vitamin supplement for ‘during winter’?

Case 482: My hair is starting to thin and I would like some vitamins or something to stop this?

Case 487: I’ve been feeling washed-out lately. Could this be caused by a vitamin deficiency?
Case 489: I am looking for a good vitamin B preparation, a complex with all types in it, because I often suffer from nerve pains.

Case 494: Is it possible that these magnesium supplements are giving me bowel problems?

Case 495: I have trouble eating (only soup) and therefore I’m not absorbing vitamins. What would you advise me?

Case 497: My iron levels are low. Is that because I’m not eating enough meat?

Case 500: Because of my statins I’m suffering from muscle cramps at night, I heard that magnesium would help. Is there something you could advise me?

Case 502: I have been taking an iron supplement for a while now and I was wondering if you can overdose on them and when you should take them, because a friend of mine told me I should take them 15 minutes before my meals, is this true?

Case 508: A student with diabetes is looking for vitamins to help him study during his exams?

Case 509: Are there some kind of vitamins I can use for my hair and nails? I’m losing a lot of hair and my nails are fragile.

Case 511: I’m pregnant and my doctor told me I should take the lowest dose of this folic acid supplement, but what concentration is that?

Case 515: I’m in menopause and I hear from my friends that they are preventively taking something for osteoporosis? I would like to use this, but I forgot the name.

Case 516: I read somewhere it is beneficial to take some extra vitamin D and K, is that right?

Case 518: I’m looking for some vitamins to reenergize.

Case 519: I would like to get pregnant and I heard I should take folic acid, but in which dose should I use this? Do I have to take this every day and for how long? What is it for?

Case 520: The paediatrician told me that my baby needs vitamin D, but for how long do I have to give him that and how much?

Case 533: I’m pregnant and I have to take vitamins. What is the difference between all these brands of pregnancy vitamins?

Case 536: My 9 year old child has ADHD. I read on the internet that omega 3 fatty acids help with concentration problems. I would like to try this with my son.

Case 540: I need a vitamin preparation for tiredness?

Case 543: My wife has been feeling very tired lately. Do you have some kind of vitamins or vitamin C that would help with that?
Case 547: My husband and I would like to get pregnant by August. Is it useful to start taking folic acid preventively?

Case 553: I’m suffering from winter blues. Would vitamin D3 benefit me? I read that somewhere?

Case 555: I would like some vitamins for fatigue to build some resistance. I used to take this supplement containing vitamins, minerals, ginkgo and ginseng but I’m breastfeeding, could it hurt? Can I keep on taking these vitamins or should I switch to a different kind?

Case 557: I’m suffering from chilblains and skin fissures and they told me that vitamin A or vitamin D could help against this? I don’t know if that is right?

Case 558: I would like some vitamin C but natural based, not synthetic. I read somewhere that the natural based is better than the synthetic kind. Is there a big difference between both? Is it useful to take vitamin C the entire year?

Case 559: Does this magnesium supplement help for stress?

Case 566: Which product should I use as a supplement for vitamin D during menopause?

Case 567: I would like to use a vitamin cure to build my resistance for upcoming winter season. What would you advise me?

Case 569: I suffer from muscle ache and cramps. Could magnesium help with this or do you have a different type of supplements?

Case 571: I am looking for some type of vitamins for during exams in January, the stronger the better?

Case 573: I’ve been suffering from hair loss. Aren’t there any vitamins to help counter this?

Case 578: My friend told me that when you take vitamin B, your body releases a substance that protects you against malaria mosquitos. Is that true?

Case 582: I’m pregnant and I have been taking this folic acid supplements from before my pregnancy, but I heard from some friends that they switched to a more general prenatal vitamin complex, because it contains more vitamins. Is that better or do these folic acid supplements suffice?

Case 586: Could you advise me some vitamins that prevent my nails from breaking so easily?

Case 588: I was wondering if there was something to boost my energy? Maybe some vitamins?

Case 589: I would like to use vitamins that makes my hair grow faster and stronger. I know a friend of mine uses something like that and it works for her.
Case 598: What kinds of supplements can I use to improve my blood levels? My blood analysis showed that my iron levels are low, my cholesterol high and vitamin D levels low.

Case 601: I’m looking for some vitamins to help me during cramming. Last year I took this tonic for tiredness, but I didn’t really notice any effects. Do you have something that works to help me concentrate more?

Case 608: Is it advised for everybody to take vitamin D supplements during winter?

Case 610: Do you have something that would help against fatigue?

Case 614: I heard that a lot of people have a vitamin D deficiency. Is it necessary for me to take supplements or should I have my blood tested by a doctor first?

Case 616: I’m looking for a multivitamin preparation for my niece, she is 20 years old. She has been suffering from her shoulder and her physio told her that she might take some extra vitamins for this?

Case 619: Is it possible to have too much vitamin D when you’re using a supplement?

Case 623: Are both of my children allowed to use the same vitamin syrup or is their need different because of their age?

Case 624: Do you have some vitamins to help against fatigue or for a better memory and concentration? I feel that I’m getting tired a lot during the day and that I can’t work as focused as I used to.

Case 625: Do you have some kind of vitamins or food supplements for hair loss?

Case 627: What food supplement should I use to suffer less from muscle cramps?

Case 629: I would like some vitamins for my daughter who is studying at the moment. What could you advise me?

Case 630: Is it possible that my stool is black because of the iron supplements?

Case 632: How long do I have to take this vitamin B supplement? It was advised by my doctor because of nerve pains, but I just finished the first box.

Case 637: What food supplements would be advised during pregnancy?

Case 647: I would like to take two iron supplements at the same time, because I have been feeling tired lately. Am I allowed to combine both? Is that safe?

Case 648: What vitamins are essential during pregnancy?

Case 654: I would like to take some extra magnesium. I’ve been told that this helps with fatigue and muscle cramps. Is that true? Can I simply start taking these?
Case 655: My son has been experiencing loss of concentration during studying and he would like to try taking this supplement containing vitamins, minerals, caffeine and oats extract.

Case 656: My physician once told me that I should take vitamin D ampoules from October until spring. But if I start using a box of 4 ampoules now (December), won’t that be too long? How long do I have to take this and at what time of the year? Should I still start it now? Or can I share it with my husband?

Case 665: Could you advise me a different curcuma extract than this curcuma based supplement?

Case 667: Do you have something for muscle cramps containing magnesium? I heard that would help?

Case 677: A client has been feeling tired and would like some vitamins that give him a boost. He has never taken any type of vitamins before.

Case 679: A woman wants to know if it could hurt to combine a pregnancy supplement containing omega 3 and a folic acid supplement, because she noticed that both contain folic acid. And with regard to her pregnancy she prefers to be extra careful.

Case 680: My baby takes vitamin D drops every day. Do I have to keep on giving these to him for a long time?

Case 681: A woman is asking for something, a nail polish or vitamin preparation, for breaking nails. She wants to know if this could be caused by her diet that she has been following for a few months now.

Case 682: What vitamin preparation could you recommend me to enhance the immune system?

Case 684: I read on the internet that amino acids prevent skin ageing, which is why I would like to try it. Do you think it works?

Case 685: Normally I use a magnesium supplement, but do I have to start taking vitamin B as well because I heard from a friend that an other supplement containing magnesium and vitamin B would be better. Is this right?

Case 688: My daughter is cramming. Do you have some kind of vitamin supplement that would help her focus more?

Case 689: I’m pregnant and I would like to use some vitamins. What would you recommend?

Case 694: What should I take for fatigue?
Case 696: I’m suffering from Crohn’s disease and the doctor prescribed an iron and magnesium supplement. Why do I have to take these?
Case 700: The prescription says I only have to take these tablets (vitamin C) twice a month. Is this correct?
Case 701: My son has an iron deficiency, but he experiences stomach problems with this iron supplement. Do you have an alternative or is there something I could do to prevent these problems?
Case 705: Do you have some kind of vitamin cure to have more energy?
Case 708: I’m in the middle of my exams and I have trouble focussing. I heard that this supplement for students would help with concentration problems, but how does it work? And does it really work?
Case 710: My friend advised me to use prenatal vitamins with extra zinc. Why is that necessary?
Case 712: A client is taking a supplement containing magnesium, vitamin B and taurine. His wife who just gave birth and breastfeeds, would like to take magnesium as well. Can she use the same supplement? His wife would also like to take some omega fatty acids and the client is wondering what other vitamins are important when breastfeeding?
Case 713: I have a vitamin D deficiency. Does that exist in tablet form or something else?
Case 715: My daughter is studying and she wants some vitamins to boost her energy and maybe build up her immune system?
Case 720: My child is 2 years old, are there any vitamins for a child that age to improve the immune system?
Case 723: My husband can’t go outside anymore. Should he take some vitamin D or is that not necessary?
Case 728: What is omega 3? Would I benefit from using that?
Case 735: A client’s son has some exams soon. She was wondering if there are any vitamins that could help to improve his concentration?
Case 742: What vitamins should we give our 2 year old child?
Case 746: I would like to get pregnant and apparently I have to take folic acid? Is this true and is this really necessary? Because normally I really try to avoid taking pills unless it is absolutely necessary.
Case 751: It can’t hurt to take extra vitamins when you’re pregnant, even if your blood levels are ok, right? I asked my physician if there was anything I could do and he prescribed me these prenatal vitamins?

Case 758: I would like to take some extra vitamins. Which should I take and can I combine these vitamins with my blood thinners?

Case 762: How can I supply deficiencies in lysine and vitamin C?

Case 769: I would like to give my child some vitamins, to get through the winter?

Case 771: I would like something for a vitamin D deficiency, what could I take?

Case 772: Until what age is it recommended to give my child vitamin D supplements?

Case 773: Can you have any side effects from taking magnesium supplements?

Case 776: My physician advised me to take vitamin D. Which products could I use?

Case 777: My son is studying, but he feels like he can’t focus enough. He sent me here to ask if there are any vitamins or something else that could help him focus?

Case 778: I’ve been feeling a bit weak lately. My physician prescribed a vitamin C cure. What else should I take on top of this?

Case 779: Recently I have been diagnosed with spasmophylia. My physiotherapist advised me to use omega 3 supplements, would this help with my spasmophylia?

Case 786: My daughter is cramming and I would like something to calm her nerves and against mental fatigue?

Case 792: I took this brochure from the pharmacy last time and I would like to try this product (magnesium and vitamin B supplement). Do I still have to keep on taking my cod liver oil capsules?

Case 801: My physician told me I have a vitamin D deficiency. Are there any pills that contain vitamin D? What dosage do I need then?

Case 803: I’m looking for something that could help not fall asleep during the day?

Case 804: A patient is asking about omega 3 fatty acids, because he heard that this would help with his statin to lower his cholesterol?

Case 807: I would like a vitamin C preparation, but I know that ascorbic acid could cause heartburn. I heard that there is an other preparation that doesn’t have this side effect?

Case 810: Could you explain me a bit more about omega 3 during pregnancy?
Case 812: After my blood tests, my physician told me I have to take some extra vitamin D. He talked about ampoules, but how do I take these, how often and how long do I have to keep on taking these?

Case 813: I would like to have a vitamin supplement in the form of effervescent tablets. What kinds exist and what are the differences?

Case 824: I would like to use a magnesium preparation, since I’ve been told that a magnesium deficiency is associated with stress and I’ve been having a lot of stress lately because of my work. I went through a hectic time last year and I used a magnesium supplement back then. During that period of time I often suffered from colic and diarrhoea. I don’t know if this is connected, because this could also be caused by an unhealthy diet because of my irregular schedule. What are your thoughts on this or what would you advise?

Case 826: I definitely have a magnesium deficiency but I’m looking for something that is absorbed well?

Case 827: I often suffer from cracked corners of the mouth and mouth ulcers. That’s why I would like to try a vitamin B cure, because I heard that would help?

Case 829: What is the best thing to take for hair loss?

Case 830: I’m 6 weeks pregnant and I take a folic acid supplement, but should I take any other vitamins?

Case 832: I’m looking for vitamins to help with both mental and physical fatigue, but I do have arrhythmias?

Case 833: I would like a supplement for the eyes?

Case 835: Is it necessary that this supplement for my child contains omega 6 and omega 9?

Case 837: I would like to take some kind of vitamins to help me enhance my immune system, because I’ve been having several colds lately. Last year I took Echinacea chewable tablets and I was quite pleased with that, but what would you recommend me?

Case 840: Why is vitamin B being supplemented in deficiencies?

Case 842: I’ve been feeling a bit sick, maybe I’m getting the flu. Do you maybe have some kind of vitamins that could help with that?

Case 852: I am pregnant and I use a vitamin supplement with DHA. This is quite expensive and I heard they exist without DHA? Is there an added value to having DHA in the supplement? What is the use of DHA?

Case 859: What are the uses of vitamin K and vitamin D?
Case 861: A father who had a prescription for vitamin K and vitamin D supplements wanted to know what the purpose of these vitamins was?
Case 863: Are there any good vitamins to help me study?
Case 867: I’m looking for vitamins to boost my energy. I’ve been tired a lot lately. A friend of mine uses a supplement containing vitamins, minerals and lactic ferments. Is this advisable or are there any other possibilities?
Case 871: These are prescriptions (vitamin K, vitamin D, vitamin E, folic acid and vitamin C) for my newborn preemie. They told me they were vitamins. What are these for?
Case 873: I just gave birth and I have been losing a lot of hair since. I would have like to have some vitamins to counter this?
Case 875: An elderly man has a prescription for vitamin D ampoules. He wants to know why he only has to take these once a week, while he has to take his other vitamins daily?
Case 877: Am I allowed to always use these vitamin supplements throughout the entire year?
Case 880: Do you have something that could help strengthen my hair?
Case 883: I breastfeed so I would like some vitamin D and vitamin K drops. Up to what age do I have to give these drops?
Case 889: My husband has had a severe flu, would this (supplement containing vitamins, zinc, Echinacea and cat’s claw) help him get back on his feet again?
Case 894: A 27 year old woman visits the pharmacy. Her physician prescribed her 4 ampoules of vitamin D last week. He told her she should take 2 ampoules a month for her vitamin D deficiency. After reading the patient information leaflet she noticed that pregnant woman can only take 1 ampoule a month. Seeing she is 3 months pregnant she is wondering if it is safe to take 2 ampoules a month?
Case 897: What could be the cause of my vitamin B12 deficiency? Could this be caused by my diet?
Case 898: My nails show these ridges and they are very brittle. Do you think I should have my blood checked? I’m afraid I might have a vitamin deficiency.
Case 905: I have a lot of stomach problems when I’m taking these iron supplements. Is that because I have to take them on an empty stomach? Am I not allowed to eat something small with it?
Case 906: I’m looking for a supplement that can prevent osteoporosis. Is there something you could recommend me?

Case 907: How much calcium and vitamin D can I take daily? Is excessive use harmful?

Case 908: Lately I’ve been feeling a bit tired and I was wondering if there aren’t any multivitamins that could help me with that?

Case 910: I’m cramming and I would like something to boost my energy. Could you advise me something? I once heard about these vitamin C ampoules?

Case 919: I’ve always had trouble with a high blood pressure and since I started taking these vitamin supplements for more energy my blood pressure has risen again. On the internet it said that this could be caused by the effervescent form? Why is this and what should I do about it?

Case 921: I’ve been menopausal for a few months now and lately I’ve been experiencing a lot of hot flashes, both day and night. Is there something you could advise me for this?

Case 922: My husband has weakened a lot. He had the flu last week and after that a bronchitis. He got antibiotics, but he’s still not completely back on his feed. He has weakened a lot because of the antibiotic treatment and he is barely eating. Do you have some vitamins to strengthen him? Isn’t magnesium helpful with that, you hear a lot about that lately, or what is that used for?

Case 923: I’ve had the flu and I would like some vitamins to get back on my feet. Do you have any?

Case 924: My children (13, 15 and 17 years old) keep on getting sick. Colds, tiredness, stomach ache, ... Previous years I gave them vitamins, but I forgot this year. Can I still give them vitamins to build their resistance or is it too late?

Case 928: I’ve been experiencing a lot of ache in my calves and the doctor told me that I should take some magnesium for that. It doesn’t help and I heard somewhere that I should take potassium as well, because it goes together with magnesium? What type of potassium should I use?

Case 930: A 19 year old student has suffered a lot from her parent’s divorce. She has had therapy and is under treatment for that. Her mother fears she might be too tired to get through the exams and she wants to know if there are some kind of vitamins to help her.

Case 931: I want to fast soon and I’m looking for some vitamins for during that period. What should I take? I’m not going to eat bread or meat, but I will still eat vegetables and fruit.
Case 933: A 54 year old woman is asking for a supplement containing L-cysteine, vitamin B6, arginine and zinc. She is asking for it on the advice of her sister-in-law. She uses this supplement for hair loss and is very satisfied with the results. The woman still wanted to know a pharmacist’s opinion about the supplement.

Case 938: I’m pregnant and I would like to take some folic acid and omega 3, but I have trouble swallowing pills. Isn’t there something I would be able to ingest?

Case 939: A patient is asking for a vitamin D supplement because after analysis of her blood levels, her physician told her that she is not meeting the expected values.

Case 947: I’ve been experiencing a lot of nightly muscle cramps in my calves. I read on the internet that magnesium could help me bring relief. Is that true?

Case 950: I’ve been giving vitamin K drops to my baby. My sister didn’t have to do this. Why do we have to do it?

Case 952: Since I started taking my multivitamin preparation, I’ve been feeling nauseous. How can I solve this or should I stop taking my treatment?

Case 955: I stopped using birth control pills and I would like to have some folic acid. What kind should I take?

Case 961: You have to take calcium on top of magnesium to improve absorption, right?

Case 965: I heard that my daughter has to take iron and magnesium for her hair loss, but could this be stress related? Because she has been working a lot.

Case 969: A mother wants to know if she has to give her baby vitamin D, because a friend of hers did. She is still breastfeeding.

Case 981: Both of my parents suffer from osteoporosis. As a child I drank soy milk because of a cow’s milk protein allergy and I still consume very few dairy products. Would it be recommended for me to start taking a calcium supplement to prevent osteoporosis?

Case 987: My husband has been taking a daily vitamin supplement for a long time. Now his physician prescribed a vitamin B supplement, but my husband forgot to tell him he’s already taking vitamins. I’ve checked and his daily vitamins contain vitamin B as well. Could this hurt or can he keep on taking his own vitamin supplement on top of the new supplements?

Case 989: A mother visits the pharmacy with a prescription for probiotic drops because her child is suffering from diarrhoea. It was mentioned to her that these drops contain vitamin D3. The mother explains that she stopped giving her child vitamin D drops after breastfeeding. She wants to know if this could do any harm and why she has to keep on
giving it. She wants to know if she has to start giving vitamin D drops again after the bottle of probiotic drops is empty and up to what age this is necessary.

Case 991: I read something about these prenatal vitamins. They help you to get pregnant, right?

Case 997: My husband has to take these vitamin D ampoules, but why is that? I always cook him fresh food, so he should have enough vitamins? Should I take some as well?

Case 1001: A patient has a prescription for vitamin D ampoules and wants to know what vitamin D is necessary for.

Case 1002: I am using calcium supplements but I saw a brochure for a different preparation and I was wondering if I should switch to the one from the brochure?

Case 1010: My daughter is in the middle of exams and she is feeling very tired. She doesn’t like taking medication but she is wondering if there would be a vitamin cure or something like that to help her through it?

Case 1015: Do you have something for extra energy, to help me focus on work, to give an extra boost?

Case 1020: A man has been feeling very tired lately and he is looking for a vitamin preparation to help him get back on his feet.

Case 1023: My physician prescribed some vitamins (vitamin B), could this help against pain?

Case 1024: Why did my physician prescribe this (vitamin E magistral preparation)?

Case 1025: I’m looking for something against hair loss, what could I use for this? Do these vitamins interact with medication?

Case 1027: I read on the internet that vitamin B is good for pain. How does that work?

Case 1033: My wife is 6 weeks pregnant, what should she pay attention to? Are there things she has to eat a lot or vitamins she should be taking? Which are the most important? Are there things she should avoid eating?

Case 1034: Do you have something that will help me build my resistance?

Case 1039: I think I might need a supplement because I have been feeling weak during the day and I haven’t been sleeping well at night?

Case 1043: For how long do I have to give vitamin D to my child and should I give less during the summer?

Case 1045: I have osteoporosis. Am I allowed to take calcium supplements next to my medication for osteoporosis when I have a history of kidney stones?
Case 1046: I read somewhere that magnesium could help relieve stress. Is that true?

Case 1047: Are there any vitamins for a lack of sleep, to have some more energy? It’s for my husband, he hasn’t been sleeping much. Can this be taken in combination with magnesium? Because otherwise I would take the supplement as well, but I’m already taking magnesium because I’m breastfeeding.

Case 1050: I often suffer from muscle cramps. A friend told me that magnesium could help with that, is that true?

Case 1051: I recently heard that a lot of people have a magnesium deficiency. What are the consequences of that?

Case 1057: I have osteoporosis of my shoulder. I have to go to a specialist, but is there something I could already take for this? I read something on the internet about calcium tablets, could that be right?

Case 1065: I’m pregnant and I would maybe like to use some extra vitamins on top my folic acid?

Case 1067: A woman is using a supplement containing vitamins, minerals, ginkgo and ginseng and she wants to start using a vitamin B supplement on top of that because she’s been having nightly muscle cramps. She wants to know if she won’t be taking too much magnesium when using both.

Case 1069: A while ago my physician diagnosed an iron deficiency. I took an iron supplement for the last 3 months and I have been feeling a lot healthier. I took my last pill 5 days ago and I was wondering if it could hurt to start taking some iron again? Could it do any harm to have too much iron in the body?

Case 1070: I’m looking for Omega 3 but I’m a vegetarian, so it should not be any fish oil. Do you have something like this?

Case 1074: A patient is looking for some kind of vitamin supplement for fatigue. She has been feeling really washed-out lately.

Case 1076: My friends are all starting to take calcium supplements and they are telling me I should do the same, due to my age. Is that really necessary and what is the use?

Case 1077: My son is in the middle of his exams. Do you have something to relief the stress a bit during studying?

Case 1079: Am I allowed to take this (Echinacea based supplement)? Because I’m pregnant.
Case 1081: A man is taking anti-ageing supplements and supplements containing extra omega 3, 6 and 9. He is wondering if he has to take these when he is having a varied diet?

Case 1083: I would like some of those anti-ageing vitamins. Do you think it is alright for me to continuously keep on taking these?

With plants or plant preparations (n=24)

Case 146: A friend of mine uses a supplement based on St John’s Wort and black horehound and it calms her down. Seeing she is pleased with it and I’m suffering from stress, I might like to try it. What do you think?

Case 242: What plant extract is good for my joints?

Case 332: Is it ok to use ginseng during your pregnancy?

Case 423: I’ve been having trouble sleeping, what plant based supplements do you have for this?

Case 440: How does this (supplement based on alder buckthorn, tamarind, plum and basil) work?

Case 507: I recently visited my physician. He established that my cholesterol is high and he wanted to prescribe a drug, but I don’t want to start using this drug. Isn’t there a plant based product I can use to lower my cholesterol?

Case 514: A patient was asking for a food supplement for hot flashes. In the herb shop they advised her something based on red clover. She wanted to check this in the pharmacy first, since she has a history of breast cancer and has been diagnosed with a swollen liver a week ago.

Case 527: A young woman often suffers from bladder infections. She is looking for a natural substance to help her solve this, because she doesn't want to take medication.

Case 595: I sometimes suffer from bladder infections. Is it true that this supplement based on cranberries or cranberry juice could help me with this?

Case 764: I’m experiencing a lot of discomfort from my menopause. I tried everything, but it didn’t help. Do you have something strong for this that is plant based?

Case 782: I would like to have a food supplement to help me sleep, something with valerian? Can I combine this with my anti-depressants?
Case 856: My wife doesn’t have a lot of energy lately and I heard that there is a syrup based on ginseng that could help with that, is this right?

Case 865: I feel a bit washed out and down, is it right that St John’s Wort could help with this?

Case 900: Do you have something purifying based on tea that is cleansing for the liver?

Case 917: What would be better to help me sleep: the sleep medication prescribed by my physician or a food supplement based on rhodiola. Because I’m a little bit scared of immediately using such a strong medicine prescribed by the doctor?

Case 942: An elderly woman wants to order a supplement based on ginkgo biloba through the phone. She wants to know which types of supplements would be advised?

Case 976: I’m looking for a remedy to help me sleep. I’ve been having a lot of things on my mind lately, which is making it difficult to fall asleep. I once used a supplement based on valerian and this seemed to work at the time?

Case 980: Is St John’s Wort a good alternative for other anti-depressants?

Case 992: I have my driving test tomorrow. Do you have something on a natural base that could calm my nerves?

Case 1007: A patient is taking an anti-depressant. He wants to stop his medication and is tapering his dose. His girlfriend wants to know if there are any alternatives based on herbs?

Case 1041: Do you have something plant based against nausea and vomiting?

Case 1052: I would like to order this plant based supplement to help me sleep. This is not addictive, is it? What does this supplement contain?

Case 1071: I read in the paper that rosuvastatin is harmful to health? Should I stop using this? I read on the internet that there are plant based products for high cholesterol?

Case 1082: My neighbour recently started taking a supplement based on saffron and she is feeling a lot better because of it. She advised me to start taking it since I’m going through a difficult period of time. How does saffron function?

**Other (n=57)**

Case 15: Would red yeast rice supplements be safer that statins?

Case 73: My physician prescribed me this supplement for a health boost (based on acetyl-L-carnitine, Q10, Rhodiola rosea extract, fosfatidylserine and biotine). He gave me a sample. I
was able to concentrate more and the studying (higher education) went smoother. I was
wondering if this could really be caused by the supplement, because I was studying in a new
environment as well. (Does the supplement really work?)
Case 106: Can I use this tonic (based on ginseng, kina and royal jelly) for more than 3 boxes
in a row?
Case 118: A client bought a food supplement for somebody who had a little bit of trouble
swallowing and can’t eat as much because of it. He wanted to know if this serves as food
replacement or if the patient still has to eat with it.
Case 134: I’m suffering from constipation at the moment. A friend of mine advised me to use
psyllium supplements. Does that work?
Case 140: Do you have supplements with whey-proteins?
Case 143: Do you have a supplement that boosts milk production in breastfeeding?
Case 163: My physician tells me that my cholesterol is too high. I would like to watch my
diet, because if my cholesterol levels haven’t decreased next month, I will have to use
medication. In addition, I would like a product based on red yeast rice. I heard that this
would lower my cholesterol levels?
Case 229: What is the role of Q10?
Case 239: I suffer from typical menopausal complaints, is there something good I good use
without a prescription?
Case 254: A client was asking for brewer’s yeast. After being offered 2 kinds, he wanted to
know the difference between both.
Case 265: A man visits the pharmacy feeling better and he is wondering if he has to keep on
taking his Q10.
Case 272: Is there a food supplement that can be used for high blood pressure? The patient
checked his blood pressure at home and he had a value of 150/90 mm Hg.
Case 330: Patient uses simvastatin and has to stop this for a month because of muscle ache.
A family member advised to use a supplement with omega 3 and omega 6 during this stop.
They told him that these fatty acids will maintain his cholesterol levels at the same level. The
patient is now wondering what he should use.
Case 343: A woman is worried about her husband. He is being treated for throat cancer and
he can barely eat, which is causing him to lose weight quickly. She is looking for a food
supplement with a caloric value as high as possible.
Case 346: Does the use of fish oil stimulate the memory?

Case 367: I have been suffering from migraine for a long time and I use triptans, magnesium, iron and omega 3 for this purpose. I would like to try using Q10 as well, because I heard at a conference that this would help? Can I take this in combination with my medication and do you think it will help for my migraine?

Case 371: My brother uses a supplement based on unsaponifiables of soybean and avocado. His physician prescribed this as an anti-inflammatory and painkiller because he already uses a lot of painkillers. The physician told him this would help him to use less painkillers and anti-inflammatory drugs. Could my husband use this as a painkiller as well?

Case 390: A woman wants to purchase a specific supplement based on glucosamine HCl and chondroitin. She had already used this before, but she felt like she still had to use too many painkillers. She used to take a different supplement (based on glucosamine, chondroitin, MSM and Vitamin C) and she felt much better with that one. Now she is wondering what the difference between both supplements is?

Case 391: My husband developed heavy diarrhoea after using antibiotics. Two weeks after stopping this use, he still had liquid stool two times a day. Examination of the stool showed that his intestinal flora wasn’t fully repaired yet. He is asking for a stronger probiotic than the one he is using now.

Case 420: I’m pregnant and I have stomach problems. Could the ginger in this supplement (ginger based supplement for stomach problems) do any harm?

Case 432: I have a protein deficiency and the doctor wants me to take some extra proteins. Do you have tablets that contain proteins? I’m a vegetarian and they also can’t contain sugar, colorants or chemical preservatives.

Case 456: My husband is suffering from high cholesterol and he has been taking something the doctor prescribed him for a while. But he doesn’t feel comfortable using this. He experiences cramps. Would it be better for him to try red yeast rice? I read something about that in a magazine.

Case 501: What is the significance of red yeast rice?

Case 504: My dog limps a bit. I went to the vet and he told me that it’s arthrosis. The vet talked about a food supplement containing glucosamine (chawing tablets), which would help his mobility and the condition of his muscles?
Case 517: I really don’t like brown bread. I would like something to provide me enough fibres. Do you have something to help with that? I’m not constipated, but I would like to take my daily dose of fibres.

Case 537: An older lady sees a product based on red yeast rice and is wondering what it is used for.

Case 563: I’m looking for a food supplement to strengthen my muscles? Or would it be possible to take in enough proteins through dietary adjustments?

Case 583: A patient visits the pharmacy with a prescription for moxifloxacin. She explains that she suffers from diarrhoea when she uses antibiotics. She is now wondering if it would help her to use probiotics?

Case 600: A patient just visited his physician. Her blood tests showed she suffers from high cholesterol. She asks if there are any product for high cholesterol. She also wonders if red yeast rice would work?

Case 605: A patient visits the pharmacy to buy a ubiquinol based supplement. She explains that she was suffering from muscle cramps. Her physician told her this could be caused by her medication and that she should use this supplement because of that. She is now wondering if this product is muscle strengthening.

Case 634: An older woman is wondering why a cardiologist she knows advised her to use omega 3 fatty acids in addition to her statin, thyroid hormone and beta blocker.

Case 661: A client has a prescription for red yeast rice and explains that her doctor wanted to try this because she is suffering from muscle cramps and hair loss with her cholesterol medication. She was worried and wanted to know if the red yeast rice would stop the muscle cramps and hair loss.

Case 662: A woman visits the pharmacy and complains about the fact that her beginning menopause is causing her discomfort. She would like something to relieve her discomfort, but she is against using hormones because breast cancer runs in the family.

Case 674: My husband has a slightly increased cholesterol. The doctor advised to try this (brochure about red yeast rice) before starting the medication, since his cholesterol is not that high. Would this work?

Case 716: A patient wants some information about a collagen generator.

Case 718: I’ve been having joint problems and my physician prescribed an anti-inflammatory drug, but I would prefer not having to take this every day. Do you have something else?
Case 731: A woman is looking for a high-protein food supplement to gain some weight. Due to allergies it has to be free of gluten and casein.

Case 736: I am now using a product based on red yeast rice to lower my cholesterol. This product lowers the fat in my body, doesn’t it? Will this make me lose weight? Or should I use a fat binder?

Case 750: A woman uses simvastatin and is suffering from muscle cramps. She has been taking magnesium supplements, but this is not helping. She is wondering if a Q10 based supplement would be better?

Case 759: A 76 year old man explains that his physician prescribed probiotics to use with his antibiotics. He is wondering why he has to use this. After explaining that antibiotics can interfere with bowel functioning, he is wondering how the probiotics help with the diarrhoea.

Case 784: I use coumarins and I feel like my blood is thicker since I started using Q10. I have been doing some research on the internet. Is this possible?

Case 800: What is the difference between these two products (one product with red yeast rice and dry extract from olives and the other product with monacolin K from red yeast rice). Is it true that the first product is less harmful for my liver?

Case 821: I have high cholesterol and I use statins. My friend told me that there are some vitamins for that? She calls them fish-pills?

Case 822: A friend told me that red yeast rice would help with my cholesterol?

Case 828: I read somewhere that curcuma contains high levels of antioxidants. Is this right and does it exist as a food supplement?

Case 853: My neighbour told me that she eats a lot of blueberries to prevent cancer. I thought it was something called antioxidant? Is this right? Do you have pills that contain this?

Case 864: I read in a magazine that red rice is beneficial for your cholesterol. My husband is using cholesterol medication at the moment, but maybe he could try eating this red rice? Or wouldn’t that work? And is it possible to get this in tablet form?

Case 874: I often suffer from joint problems. Do you have any food supplements to aid in this?
Case 886: I’m occasionally suffering from muscle ache. Last time someone told me that my cholesterol medicine could be causing this and I got a Q10 supplement. Is that something good?

Case 918: Is red yeast rice equally effective as my statin? Is it safe?

Case 990: My son only eats meat and sandwiches, fortunately recently he started eating brown bread. In addition he has trouble going to the toilet. Do you have some kind of vitamins or foods that could aid in this problem?

Case 994: I often suffer from joint problems. I have trouble walking, but I’m an avid hiker. Would you have something to help me?

Case 1022: My daughter told me that I should use Q10 with my supplement based on red yeast rice and dry extract from olives. What should I know about that?

Case 1042: A woman wants to reinforce her intestinal flora. She is wondering if she could use probiotics every day.

Case 1054: I’ve been having knee problems due to aging. Someone advised me to use bioglucosamine. Can I take this with my diabetes?

Case 1072: What are bee pollen being used for?
Case 35: I read in a magazine that krill oil is good for the brain. I use fish oil at the moment, but wouldn’t that krill oil be better than my fish oil?
ANNEX 12: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – WEIGHT LOSS DIETS AND RELATED PRODUCTS (n=78)

Light products / sugar substitutes (n=3)

Case 225: Do you have any sugar free products? What sugar substitutes are present in these products. Are they healthy?
Case 556: What is xylitol?
Case 739: My dietician advised me to eat nothing but light-products, but after 3 months I still haven’t lost any weight?

Weight loss pills/supplements (n=24)

Case 32: Someone recently told me that these fat binders can help you lose weight. I’m on a diet and I was wondering if this product could help me lose weight? How does this product function?
Case 52: A patient would like to know if it is allowed to use a fat binder during pregnancy.
Case 189: Do weight loss pills work?
Case 222: Do these types of fat burners really work to help you lose weight? Is there something better than that?
Case 275: A woman used a fat binder a few years ago to lose weight and she wanted to know if any new and better products have reached the market.
Case 308: After delivery of a lipase inhibitor, a patient wants to know how to use these pills. She also wants to know if she can still keep on eating everything?
Case 314: I would like to lose weight and I heard a few stories about the different possibilities with this brand (brand with a wide range of weight loss supplements). What would you advise me?
Case 345: I’m trying to live a bit healthier and to lose some weight. A friend of mine told me that l-arginine would help me do that? I’m trying to exercise more, but I’m afraid I don’t have a lot of time. Is this true what I’ve been told, because these things probably aren’t very cheap?
Case 354: Does this product work (fat binder)? I’m not expecting any miracles, but I gained 5 kilos this summer and I would like to go back to my original weight. Do you think this product could help me do that or would you advise me something else?

Case 503: Do you have those pills I used to see in the commercials to help lose weight? Does it work and is it safe?

Case 639: What type of weight loss pills should I use to lose weight the fastest?

Case 687: Are there some kind of pills that help you lose weight?

Case 734: Do these weight loss supplements really provide benefit in losing weight?

Case 749: Does this supplement based on white beans work well?

Case 755: I have been trying to lose weight for a while now and it is not working. I am using a fat binder, do you know what could be the problem?

Case 849: What should I eat in combination with weight loss pills?

Case 858: Do you have fat burners? I exercise a lot, but I’m still developing a tummy. Do you know something that could help me lose the belly fat?

Case 860: I gained a few kilos over the winter and I would like to lose some weight. Are there some kind of pills you could advise me?

Case 893: I would like to lose some weight and I wanted to try one of those fat binders. Do I have to change my diet as well?

Case 904: I would like to try a lipase inhibitor, but I’ve never used this before. How does this work and would it help me to get through the holidays?

Case 932: A woman visits the pharmacy with heavy pain in the lower abdomen. She is wondering if this could have something to do with her recent use of chitosan based supplements to lose weight. She explains she has a stabbing pain in the lower left abdominal area that radiates to her back. Sometimes the pain is also located more centrally in the abdomen. She has trouble making stool and this morning she had heavy diarrhoea. One time her stool was black. She had ulcers 3 years ago.

Case 960: My husband eats too much. He already tried dieting but it doesn’t help him. Are there some kind of appetite suppressants?

Case 995: Since I quit smoking, I gained 15 kilos. Is there something that can suppress my appetite?

Case 998: I’m asking advise for a friend. Her husband quit smoking with the help of varenicline and she was wondering if there is something similar to help you lose weight?
used appetite suppressants but could this help her too? She is very heavy and she is wondering if she would still be allowed to eat everything?

**Meal replacements (n=20)**

Case 2: A patient who would like to lose a few kilos before the holidays, is asking for the pharmacist’s opinion about meal replacements. A friend of hers tried a treatment with those and she was very pleased.

Case 27: Which products does this brand (of meal replacements) have, how many a day can I use and can I still eat normal food in combination with these products? What should I do if I’m hungry?

Case 89: Do these meal replacements work? I found this package for 5 days and I think I might like to try it. But do you think it works?

Case 130: A woman visits the pharmacy and explains that she is following a high-protein diet. She doesn’t see the products she usually uses, but she does see an other brand of meal replacements. She would like to know if this works in the same way as her other products.

Case 154: Do those high-protein pancakes help to lose weight and won’t you lose a lot of weight once you stop using them?

Case 159: I would like some information about the use of these meal replacement shakes to use in a weight loss diet.

Case 184: I am following a high-protein diet my dietician drew up. I have been using these meal replacement products for 3 weeks now and I am pleased with the results, but it is very expensive. Do you have something similar? A friend uses a different brand, but I know those products contain more sugars then the products I’m using. What would the influence of that be on my diet?

Case 185: I found this brochure. I’ve already used fat binders, but maybe this (meal replacements) could help me lose even more weight?

Case 253: Do these products (meal replacements) work and how do they function?

Case 312: I’ve quit smoking a while ago, but I’m not able to lose the excess kilos. I was wondering if it would be a good idea to use one of these shakes? I would like to lose 5 kilos. I gained about 8 kilos, but losing 5 would make me happy.
Case 349: I’m dieting at the moment. I’ve already lost 15 kilos but I would like to lose 20. I’m already using 2 meal replacements a day, is there something extra I could be doing?

Case 412: I have been using these meal replacements for 2 weeks now to lose some weight, but it’s not working?

Case 473: I would like to lose weight and I heard that there are some products you can use as meal replacements and that these are a good way of losing weight. Could you advise me something?

Case 478: Is there an alternative for this brand of meal replacements that contains more proteins and less carbohydrates?

Case 496: Are there shakes that can replace your meal? Mainly because bread is giving me a swollen belly.

Case 643: I would like to use meal replacements in the form of shakes, but I don’t know which would work or how I should take these? Do I have to use 3 of them and not eat any other food? Or should I only replace 1 meal? Is it effective? What would you advise me?

Case 920: Is there something more you could tell me about these high-protein meal replacements? How do they work?

Case 949: How do these meal replacements work?

Case 963: I would like to lose some weight. A friend told me about these meal replacements. How do these work exactly?

Case 1049: A woman wants to lose weight by using meal replacements. She had been replacing 2 meals by them for 1 month. The programme advises to replace 3 meals during 2 weeks, but she doesn’t succeed in doing this. She is asking some advice on what she should do now.

**Specific diets (n=9)**

Case 17: I’m trying to lose weight, but it’s not working anymore. I recently started to eat a lot of fruit (6-7 pieces a day) because I have been constipated. Why is it that this is not causing me to lose more weight?

Case 39: Do you have products for a high-protein diet without carbs? The products I used before aren’t available anymore.

Case 82: Would it be possible to have some more information about high-protein diets?
Case 153: I would like to lose some weight and I heard about something called a protein diet? Could you tell me something more about that?

Case 180: I started this protein diet programme and I have been having trouble going to the toilet since, despite drinking a lot. Is there something I could do to solve this?

Case 188: A man is following a low-carb diet, but for the sake of safety he would like to monitor the ketone levels in his urine. On top of that, he has a few more general questions about his diet.

Case 378: This protein diet programme consists of 3 phases. The attack phase lasts for 3 days. Am I allowed to sustain this period for a prolonged period of time?

Case 470: A man who is following a protein diet programme is complaining of bad breath. He is wondering if there is something he could use to refresh his mouth, preferably a spray. It can’t contain any sugar.

Case 528: A 56 year old overweight man has tried many different diets already, each of them unsuccessful. The patient admits he is not very motivated and he lacks perseverance. Yet, he is being supervised by a dietician. Recently, his dietician talked to him about a high-protein diet. He would like to know how this diets works and if it is effective.

Other / General (n=22)

Case 3: I suffer from migraines a lot. Is it recommended to use weight loss products in my case?

Case 69: I’m looking for something to reduce my cravings for sweets. I think a diet is too difficult and not effective.

Case 90: A middle aged man wants to lose some excess weight and asks if there is something that will help him lose weight. He also explains that he often eats fatty foods, like French fries.

Case 144: I heard that L-arginine would help to lose weight, is that correct?

Case 151: What should I do to lose some weight?

Case 255: A middle aged woman is asking about weight loss products. She has very unhealthy eating habits in which she only uses her first meal at 6 pm.

Case 282: My husband ran a marathon last year but he hasn’t been occupied with intensive sports and healthy food since, hence he gained a lot of weight. Now he would like to lose at
least 10 kilos but he would have liked to have help from weight loss products. What are your thoughts about this and what could you advise us?

Case 348: Lately my weight has been rising. A few days ago your colleague advised me to have an extensive breakfast and to eat a lighter meal in the evening. I’m also taking something to lose weight on top of that, but my tummy is still bloated?

Case 376: What type of diets are there? What would be the most effective one? Is there a healthy way to lose weight?

Case 480: I gained 6 kilos, because I’ve had a plaster for a long time. I would like to lose this weight. Do you have something that could help me do this?

Case 491: Could you advise me a type of diet to lose weight?

Case 565: Are there any good products that could help me lose weight?

Case 572: A woman explains that she had a brain haemorrhage a year ago and that she has gained 15 kilos since. She thinks this is caused by her paroxetine and she wants to stop taking this medicine because of it. It turns out she was already taking this medication before her brain haemorrhage and stopping it would not be a good idea. She admits her physician told her the same thing. She is wondering what she can do to control her weight?

Case 575: My aunt is not allowed to eat any fat and she always purchases fat replacement product at the pharmacy. I would like to cook for her as a surprise, but I don’t want to ask her which products she uses. Do you think you would have something like that?

Case 612: An overweight man wants to know what ‘a calorie’ means.

Case 615: A woman wants to purify her body and lose some weight after the holidays with a cleansing cure. She wants to know if this is a good cure to follow.

Case 620: I’m looking for a good way to lose weight fast for a patient of mine. I don’t want to use that protein diet programme, because it makes you regain your weight fast after stopping the diet.

Case 730: I would like to lose some weight, would this tea work?

Case 765: Do you have a nasal spray that contains oxytocin? I read somewhere that this works really well to lose weight.

Case 787: I’ve been following a very strict diet for the entire week. It’s very effective, I’ve already lost 5 kilos. But I haven’t been able to go to the toilet for the entire week. Is there something I can use to solve this? Do I have to change my diet again? I have to tell you that I haven’t been eating any fat at all.
Case 890: I’m looking for a product to help me lose weight, because I’m suffering from knee pain because of my obesity. I tried that protein diet programme once, but I gained a lot of weight afterwards. What could have caused this?

Case 1059: I would like to lose some weight. What kind of products are on the market and what is effective?
ANNEX 13: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD ALLERGIES AND INTOLERANCES (n=33)

**Gluten (n=6)**

Case 23: Is there a type of cake without gluten or eggs that is already baked?
Case 270: People who visit the pharmacy get honey sweets with their purchases. A client wants to know if these sweets contain gluten, because her grandchild is gluten intolerant.
Case 377: My son has been diagnosed with gluten intolerance. I don’t know what to do. Could I receive some information about which foods and medication he can or can’t use?
Case 410: Could you give me some advice about coeliac disease?
Case 492: My daughter-in-law is coming over for dinner at Christmas Eve, but she is gluten intolerant. How should I make a sauce, because my son told me she can’t eat flower?
Case 774: What foods should I give my son for sure to avoid him having any deficiencies, because he can’t eat a lot of things, because of his gluten intolerance?

**Lactose (n=5)**

Case 20: A woman is looking for supplementary food without lactose and without gluten on doctor’s advice.
Case 108: My son is lactose and gluten intolerant, they make him vomit. Which foods should I avoid, do you know that?
Case 596: Parents of a child with lactose intolerance came to ask if there was something that could help with this problem (so that their child could eat an ice cream during the summer).
Case 977: A mother visits the pharmacy looking for rice flour. The product she usually uses is off the market, so a different product is being proposed. She want to know if this product contains lactose, because her daughter is lactose intolerant.
Case 984: I think I’ve turned lactose intolerant. What should I pay attention to?

**Drug excipients (n=15)**

**Gluten (n=6)**

Case 14: My wife is gluten intolerant. Are there any gluten in this probiotic?
Case 227: How can I (woman with coeliac disease) know which medication I can use and which I can’t? Can I find this on the packing? Or is there some list where I can find this?

Case 671: A patient visits the pharmacy with a prescription for cetirizine. He explains that he has coeliac disease and wants to know if he can use this drug.

Case 768: Can I use this laxative? Because I’m gluten intolerant and I don’t know if I can use this. But a friend of mine advised it because it works really well.

Case 797: A woman is looking for a product for her husband who has developed a gluten intolerance because of bowel infection. Because of this, her husband has trouble absorbing enough vitamins and minerals, which is why his wife is looking for a multivitamin supplement. Because her husband is gluten intolerant, it’s important that this supplement doesn’t contain any gluten.

Case 970: Does this food supplement contain any gluten?

Lactose (n=9)

Case 64: Do these pills contain lactose? Because I’m lactose intolerant.

Case 109: A woman has a prescription for birth control pills. The doctor told her she should mention that she is lactose intolerant. She had to ask if there are similar pills that contain less or no lactose.

Case 174: Do you have painkillers based on mannitol? Because I’m lactose intolerant. I think most painkillers contain lactose, so I never dare to take medication when I have a headache.

Case 263: I would like to take these throat lozenges. Do they contain lactose or gluten? Because I’m looking for products that are lactose and gluten free, since I’m lactose and gluten intolerant.

Case 289: I want to purchase an antioxidant, but I’m lactose intolerant, so it can’t contain any lactose. Does that exist?

Case 293: Are there any preparations with just iodine, without lactose?

Case 475: They recently diagnosed me with lactose intolerance. Does this painkiller contain lactose?

Case 973: I’m suffering from cold sores again. I read somewhere that lysine, zinc and vitamin C would help with that. But I’m lactose intolerant and all of the products that contain these
substances, contain lactose as well. Do you know anything I could use? I have to tell you that I might be pregnant.

Case 1062: On the patient information leaflet (of a syrup for rhinitis) I read that this contains lactose, but he is lactose intolerant so he can’t use this?

**Cow’s milk protein allergy (n=1)**

Case 914: A child has atopic eczema on her arms and the mother wants to know if her nutrition could cause this. The child turns out to have a cow’s milk protein allergy. The mother wants to know how she can solve this.

**Other (n=6)**

Case 61: A woman explains she has been suffering from hot flashes. She thinks it might have something to do with her food, because it usually happens after she eats something. She doesn’t have it with every meal and she also has it with different types of meals. She saw a brochure about a supplement based on diamine oxidase (which according to the brochure would help with digesting histamine) and she want to know if there are some types of foods that cause allergies more frequently than others.

Case 287: My son is allergic to cold, raw carrots but not to warm carrots, how come?

Case 292: A woman wanted to know if she could get cookies without proteins (for her friend’s child), because Saint Nicolas is coming.

Case 506: I recently found out that I’m allergic to wheat. Can I use those products (points at a gluten-free range)?

Case 836: I’m looking for a multivitamin supplement for my daughter, but she is allergic to strawberries. Am I allowed to use vitamins or syrups with this taste?

Case 1003: I would like a magnesium supplement, but I’m allergic to macrogel and polyethylene glycol. Can I use this supplement?
ANNEX 14: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – HIGH-PROTEIN FOOD / DRINKS (n=58)

Case 59: My husband, who is very sick and can barely eat anymore, uses these high-protein drinks for medical use. His kidneys got worse lately. The home nurse told me that this drink isn’t ideal for him. Are there any other options?

Case 65: I’ve been feeling a bit weak lately and a friend advised me to use a high-protein meal replacement for this. Would this be appropriate for this purpose?

Case 76: I am completely healthy but I heard in the nursing home that almost everybody is drinking these high-protein drinks for medical use. I was wondering if it is necessary for me to start using these since I’m 70 years old and my enzymes might not be working as well as they used to?

Case 87: Can these high-protein drinks for medical use replace my meals?

Case 94: My father doesn’t want to eat anything anymore and he is very weak. He does want to drink liquids, so I was thinking about giving him some of those high-protein drinks. Are there any special drinks to strengthen underfed people?

Case 121: My friend has been drinking these high-protein drinks for medical use for a while now. She was wondering if there was something similar that you don’t have to drink, like pudding? Because she is tired of those drinks.

Case 158: My child has severe epilepsy which makes it hard to eat. Do you have something liquid that can still give her enough calories?

Case 161: I am too thin, but no matter how many calories I eat, I don’t gain any weight. I have to visit a dietician, but aren’t there any powders to add extra proteins to my meals?

Case 166: My son has Crohn’s disease. His symptoms are under control with his medication, but he keeps on losing weight despite eating normally. Does he need a special diet?

Case 177: My son is terminal (cancer) and he hasn’t been able to eat anything for five days now. That’s why we have been giving him these high-protein drinks for medical use, but this is making him constipated. Are there any alternatives?

Case 201: My son is autistic and this makes it difficult for him to eat. He has a problem with new tastes and textures and has an unbalanced diet because of it. He is actually underweight. Do you have something I could give him as supplementary food?

Case 213: My husband has cancer and has difficulty eating. Do you have something to strengthen him? A special drink or something like that?
Case 219: What should I eat to regain weight? Because I have been very sick and normal food doesn’t help me to gain enough weight.

Case 221: Do you have something to thicken my disabled son’s drinks?

Case 223: Are there any ways to gain extra weight, because I keep eating and I’m not gaining any weight at all.

Case 236: A patient with kidney cancer is looking for supplementary food to strengthen him a bit (he is looking into high-protein drinks for medical use).

Case 251: Do these high-protein drinks for medical use have to be stored in the fridge?

Case 256: A 55 year old woman visits the pharmacy for some advice. Her mother’s health has been deteriorating fast. She is physically weakened and doesn’t get enough energy through normal food. The woman is wondering if these high-protein drinks for medical use are appropriate for her mother. She would also like to know what kind is the best and how many of these drinks she should give her.

Case 305: A woman wants to use high-protein drinks for medical use for her child and wants to know which flavours are available. Her child (9 years old) is sick, doesn’t eat a lot and has been losing weight.

Case 315: My father is terminal and he can’t eat very well anymore, is there something that could give him a bit more strength?

Case 323: I use these high-protein drinks for medical use because I’m often nauseous and I lose too much weight, but I’m having difficulty finishing it. Isn’t there something else I can use?

Case 328: A patient has been having trouble eating lately and he has lost some weight. He wants to know if there is something he can use to replace his meals?

Case 359: What is the difference between this regular high-protein drink for medical use and the ‘extra’ kind? What would you advise me to use?

Case 362: A woman has had a thyroid surgery and has been experiencing complications. She keeps on losing weight and has difficulty swallowing. Her husband wants to know what he could give her that she will be able to eat?

Case 369: A slim woman wants to know if high-protein drinks for medical use could help her to gain weight. She heard from a friend that this was the case.
Case 370: My daughter has had her wisdom teeth removed and she is constantly hungry. She can’t use solid foods yet and she is tired of foods like pudding. Isn’t there something else I could give her that makes her less hungry?

Case 383: My husband has had the upper half of his teeth removed temporarily. This is making it very difficult to eat. At home I can mash everything, but that is a bit difficult at work. Is there something he could drink that gives him enough energy when he can’t eat at noon?

Case 444: A methadon patient wants to know if there are products to help you gain weight?

Case 449: I have trouble eating and my mother used to drink those high-protein drinks for medical use. Do those still exist?

Case 453: My husband has an impaired health and he barely eats anything, which is making him lose a lot of weight. I know that there are some kind of drinks for that, some people told me about those?

Case 498: A woman has starting pressure sores. The doctor has prescribed high-protein drinks for medical use. She wants to know what these are for.

Case 529: A woman’s daughter is having an eating disorder and she refuses to use any food. The girl started taking high-protein drinks for medical use, but she now refuses to drink those. She says they are too heavy on the stomach. The mother returns to the pharmacy and wants to know if these drink exist for children, because she hopes that her daughter would be willing to drink those.

Case 607: Are these two types of high-protein drinks for medical use the same?

Case 631: Can I replace these regular high-protein drinks for medical use by a stronger product? I already tried a fortifying tonic in combination with these regular drinks and it wasn’t enough.

Case 635: I heard that these regular high-protein drinks for medical use won’t be on the market anymore, is there something else that resembles them?

Case 636: Do you have some type of supplementary food for a thin bedridden person?

Case 653: What is the exact difference between these two types of high-protein drinks for medical use?

Case 668: My husband is losing weight because of stress. He eats enough, but he would like to gain some weight. Is there something that can help him do this?
Case 693: My husband is a palliative patient and has trouble keeping in and digesting solid foods because of his cancer. The hospital told me that there is something like liquid food? Are there different types of those? How should he use this?

Case 699: A woman wants to know about supplementary food for her husband (cancer patient), because he has trouble eating, is saturated quickly and is losing weight.

Case 781: My child has trouble eating, is there a version of these high-protein drinks for medical use for children?

Case 817: I’m using these high-protein drinks for medical use to convalesce, but they are making me a bit nauseous. Do I have to drink everything at once?

Case 855: My son is very skinny, they are now running examinations to find out why. Do you have something that could help him grow, something muscle building?

Case 884: My sister is a dialysis patient and is starting to get underfed. She doesn’t want to eat anymore and she is bedridden. Do you have astronaut food?

Case 891: My husband has been diagnosed with cancer and he can barely eat. Do you have something to drink from which he can get enough energy?

Case 896: A woman wants to purchase high-protein drinks for medical use for a friend of hers for the first time. She would like some explanation.

Case 899: I would like to have some of those high-protein drinks for medical use. How many a day should I use?

Case 912: My physician told me that I have not been getting enough proteins and that I should take some extra. He told me about something that I could get from the pharmacy, but I forgot the name. Do you have something high on proteins that I can use as a supplement?

Case 915: What is the difference between all of these types of high-protein drinks for medical use you have in the pharmacy?

Case 940: A woman was looking for a meal replacement because her husband has been treated with radiation in the neck and he has trouble swallowing. She was wondering what the difference was between two types of high-protein drinks for medical use.

Case 946: A woman visits the pharmacy to purchase high-protein drinks for medical use for her mother at the advice of her physician. She would like some more information about the use of these products.
Case 958: My husband is being treated with chemotherapy and he has lost a lot of weight. The dietician advised me to buy high-protein drinks for medical use in the pharmacy. Do you have something like that?

Case 975: My father isn’t eating enough, what should I give him supplementary? Some type of high-protein drinks for medical use?

Case 1012: My wife stopped eating and has lost a lot of weight. She has a lot of stomach problems. I would like to give her something to regain some strength. She only weighs 40 kilos at the moment.

Case 1026: My husband has to have a bowel examination on Monday, but he is not allowed to eat any solid food the day before. What should he eat? They told me I could get some of those special high-protein drinks for medical use in the pharmacy?

Case 1060: Are these high-protein drinks for medical use good meal replacements?

Case 1064: I am weakened because I have been ill and I also don’t have a good appetite. Is there something that could replace my meals and that contains a lot of proteins and vitamins to stop my body from weakening?

Case 1073: I underwent jaw surgery and have trouble taking in solid foods. Is there something liquid that could replace my meals?
ANNEX 15: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – DIET FOR PHENYLKETONURIA (n=3)

Case 195: My son has phenylketonuria. I would like to switch from formula to solid foods. What type of products can I use?

Case 320: My daughter has phenylketonuria and needs to use PKU coolers for the first time. What is their exact function and what is in them?

Case 512: Are there special snacks for children with phenylketonuria?
ANNEX 16: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – DIABETES AND DIET (n=11)

Case 58: A diabetes patient had a question about nutrition. She was wondering if she could eat white bread or if it would be better for her to eat brown bread.

Case 171: I’ve just visited my physician. He told me that I have diabetes. He told me that I should adjust my dietary habits, but what types of food should I eat?

Case 545: I have diabetes and I know I can’t use a lot of alcohol, but I would like to have an occasional drink with my dinner. What should I choose: a glass of wine or a glass of beer?

Case 613: I have diabetes and I’m looking for a liquid artificial sweetener to use in hot and cold dishes.

Case 638: I have diabetes and I’m told that I have to eat something when I take my drugs. But what should I eat exactly?

Case 663: A 67 year old woman visits the pharmacy with her husband’s prescription for an oral antidiabetic drug. It is the first time he has to use this drug, because he has only been diagnosed last week. She asks what other adjustments she should make in their dietary habits. Besides diabetes her husband also suffers from obesity and high cholesterol. The physician advised her to change his diet.

Case 704: A 52 year old woman wants to purchase a food supplement with magnesium. A friend of hers told her she was feeling a bit faint and the woman told her friend that this supplement helped her. But now she wonders if her friend can use this supplement, because she has diabetes?

Case 726: My aunt has diabetes and she uses high-protein drinks, but is this beneficial for her? Do you have drinks specifically for diabetes patients?

Case 748: My father had diabetes. I’m looking for something that will improve his defecation problems. He doesn’t want syrup.

Case 775: My physician just informed me that I have type 2 diabetes. He advised me to try and change my dietary habits in the future. Do you have any suggestions?

Case 796: A man with diabetes visits the pharmacy to buy needles for his glucose meter. He ate a whole bowl of mussels yesterday and now was wondering if it was harmful to eat shellfish when you have diabetes.
ANNEX 17: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – ENTERAL AND TUBE FEEDING (n=1)

Case 206: My son has Crohn’s disease. What would you advise me concerning tube feeding?
ANNEX 18: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – BABY FOOD (n=187)

Switching types of nutrition (n=56)

Case 1: My baby is 10 weeks old and I give him infant formula at the moment. When should I switch to the follow-on formula?

Case 30: My 13 month old son is now drinking an anti-regurgitation growing up milk, but I would like to switch to other baby food. What are the options?

Case 46: I’m breastfeeding my 3 month old baby, but I would like to switch to formula. Which type should I buy? Because he suffers from reflux.

Case 55: I have a 2 month old baby with whom a cow’s milk protein allergy has been diagnosed. I would like to switch from breastfeeding to formula, because of my work. Which formula is most suited for this purpose?

Case 86: What type of infant formula should I use after breastfeeding?

Case 92: From what age on can I introduce my baby to solid foods? And what types of food should I start with?

Case 95: Can I switch to a regular follow-on milk or combine this with my infant formula for digestive problems, now that the baby is 6 months old?

Case 98: Are there a lot of differences between the follow-on formula and the growing up milk? Because I just saw that my baby should actually already be using the growing up milk, but I just bought a box of follow-on formula. Is she going to incorporate enough nutrients?

Case 100: Patient with a small baby is trying to switch from breastfeeding to formula. She tried a certain formula, but the baby didn’t like this. Now she is asking specifically for a formula that resembles breastmilk the most in terms of taste and texture.

Case 105: My baby is 4,5 months old and he is quite big. At the moment I am still using the infant formula, but would it be better to switch to a follow-on formula?

Case 110: My wife has been breastfeeding for two months, but in 3 months she has to start work again. Which formula would be the most appropriate for our baby?

Case 112: When can I switch from infant formula to the follow-on formula?

Case 123: I’m planning on switching from breastfeeding to formula in a short while. Which would be the most appropriate formula for my baby?
Case 136: A client’s baby turns 6 months in a few days and has always been a heavy baby and easy to feed. The woman asks if it would be ok to switch to the follow-on formula already.

Case 138: A concerned mother has switched from formula to jarred baby food. She is noticing that her baby’s stool has changed (harder). What should she do?

Case 148: I’m here to buy infant formula. Normally I buy a hypoallergenic type of formula, but it is too liquid. Can I switch to an anti-regurgitation type?

Case 165: Up to what age can I use this follow-on formula?

Case 183: A woman is using a hypoallergenic follow-on formula, but she would like to switch to growing up milk. This doesn’t exist in a hypoallergenic form and she was wondering if she could use the regular type? She only used the hypoallergenic formula because her husband purchased this by mistake the first time and she didn’t want to switch after that. The baby doesn’t have any gastro-intestinal problems.

Case 197: A young mother asked for a regular growing up milk and wondered if it was still necessary to use formula or special baby food once the baby reached 12 months.

Case 212: My daughter is turning 6 months soon. Should I purchase an infant formula or a follow-on formula?

Case 244: We have been giving our baby regular formula for a few months now. When should we switch to solid foods?

Case 276: The ‘Child and family agency’ hasn’t given me advice on which formula I should use to feed my baby yet. Can you help me?

Case 299: My baby has to start in daycare soon, so I have to switch to formula. My mother told me that I should choose a hypoallergenic formula because allergies are very frequent in our family. Do you know which formula I should choose?

Case 318: I have been feeding my baby with a follow-on formula, but he turned 1 year. What should I give him now?

Case 341: I have been breastfeeding for 8 months and I would like to switch to formula. The doctor is advising me to use a whey based formula. What would you recommend?

Case 365: Which formula would you recommend for my 3 month old baby?

Case 393: I would like to switch from breastmilk to formula. I’m wondering which formula resembles breast milk the most?

Case 426: I would like to switch from breastmilk to formula. Which type should I use?
Case 524: I have a 6 month old baby. Can he still drink the infant formula or should I switch to a follow-on formula?
Case 526: My son is turning 1 soon, should I buy growing up milk or should I keep giving him the follow-on formula?
Case 538: A man is visiting the pharmacy and wondering which formula would be the best for a baby who isn’t satiated with just breastmilk.
Case 597: Can I switch to a follow-on formula already? Because my daughter is only turning 6 months in a week and a half.
Case 611: At the moment I am breastfeeding, but can I change directly to a formula milk?
Case 641: What types of formula exist for a 6 month old baby? I think the regular formula will be ok.
Case 660: Should I switch to the growing up milk?
Case 695: My physician told me I could switch to a follow-on formula for my 3 month old baby, because he weighs 6 kilos already. Is that right?
Case 702: My daughter is 11 months old and she uses a follow-on formula. At what age should we switch to the growing up milk?
Case 707: Two new parents are coming to the pharmacy to buy formula for their first baby. They are asking some advice on how they should prepare the formula.
Case 709: I breastfeed, but I think I don’t have enough milk, so I would like to add some formula. Which type should I use? How do I prepare the formula?
Case 721: I’m breastfeeding and I would like to switch to bottle feeding, because I’m starting work again. What would you advise me?
Case 727: I have a question. At the moment I’m still breastfeeding, but I would like to switch to bottle feeding. What formula would you advise me to use?
Case 780: I’m breastfeeding at the moment, but I would like to wean my baby from breastfeeding. Which type of formula should I use? My son is now 5 months old.
Case 783: From what age on do we have to switch from the infant formula to the follow-on formula?
Case 794: From what age on can a baby start with fruit puree and how should I make that? What has to be in it?
Case 795: A child is 5.5 months old and the paediatrician advised to switch to a follow-on formula. The client is wondering if this transition isn’t too abrupt and if there is an interim step.

Case 808: A woman visits the pharmacy and explains that her husband accidentally bought the wrong formula. He bought the infant formula instead of the follow-on formula. They can’t return the package, because they already opened it. The woman wonders if this is a problem for her baby and if he will incorporate enough nutrients.

Case 811: A mother isn’t able to produce enough milk for her 4 month old baby. She is wondering if there is something she could add?

Case 814: A client’s baby wasn’t sleeping well at night, so she wondered if it would be ok to give him formula at night and breastmilk during the day.

Case 848: When transitioning from infant formula to follow-on milk, should you mix both powders during the first weeks or can you switch abruptly?

Case 850: A woman is purchasing a follow-on formula. Her child is 1 year old and she is wondering if she can keep giving this formula or if she should start using the growing up milk?

Case 903: Our son is now 6.5 months old. We don’t know at what age we should switch to the follow-on formula? We still have a full package of the infant formula at home, can we still use this one before we switch?

Case 937: How long can I use this follow-on formula for digestive problems? Until the age of 1 like the other follow-on formulas? They don’t mention this on the packaging.

Case 996: My child is just under 6 months, but I need new formula. I normally use the infant formula, but can I switch to a follow-on formula already?

Case 1037: At what age should I switch from infant formula to the follow-on formula?

Case 1040: I would like to switch from breastfeeding to bottle feeding because I have to get back to work. But my baby suffers from severe reflux and sometimes colic. If I would use this anti-regurgitation formula, will that make her constipated and cause colic?

Case 1066: A man visits the pharmacy showing a brochure of the ‘child and family agency’. He has a 4 month old son that drinks both breastmilk and formula. The brochure says that it is not advised to give breastfed babies vegetables and food at the age of 4 month. A bottle fed baby can eat fruit and vegetables at that age. But since his baby is drinking both, he is wondering when he should start giving his baby vegetables and fruit?
Insufficient satiety (n=36)

Case 70: A client’s baby doesn’t sleep through the night and wakes up because of a hungry feeling. The client is wondering if there would be a possibility to use something that gives the baby a satiated feeling for a longer period of time?

Case 122: My 4 month old baby doesn’t sleep through the night yet. He still needs 6 bottles a day, of which he needs one at 2 am and one at 6 am. My husband and I both go to work. Is there something I could do to make him sleep through the night? Can I use locust bean gum or does this have too many calories?

Case 156: A mother is wondering if she can still add the regular formula, after switching to a thickened formula?

Case 298: After giving the bottle, my baby is still hungry. He is already drinking a formula thickened with potato starch for extra satiety. Is there something else we can add to the bottle?

Case 304: My son used to have an anti-regurgitation formula because of his reflux, but since this caused him to have a lot of colic and made him uncomfortable, my paediatrician suggested to switch to a casein hydrolysate based formula with probiotics. This formula works better for him, but it is very liquid. Would it be ok for me to add a thickening agent?

Case 324: A woman who recently (2-3 weeks ago) gave birth to a baby, is asking for infant formula to complement her breastfeeding.

Case 360: A woman is asking some advice. Her baby is now using a regular infant formula, but he wakes up a lot at night, despite normal portions and number of feedings. What would be the possibilities to solve this?

Case 361: I bought a thickening powder based on cellulose gum, but it causes a lot of clotting. Is that normal? Is there another product I could use to thicken formula?

Case 373: I feed my baby with hypoallergenic formula, but recently he started waking up around 4 am again. Would it be a problem if I replace his last bottle with pre-thickened infant formula?

Case 400: My baby is constantly hungry. I read that there is a product you can add to the formula to thicken it, but I forgot the name. Do you have something like that?

Case 437: At what age should I switch to ‘real’ milk and which milk should I choose?
Case 452: My daughter has been crying a lot lately. I think she could be hungry. Would it be ok for me to switch to growing up milk already?

Case 454: I accidentally gave my 1 month old baby follow-on milk. I bought the wrong box. Will this harm her?

Case 459: A mother explains that her 6 month old son is waking up again at night because he’s hungry. She recently switched from infant formula to follow-on formula. He didn’t need a nightly feeding anymore with the infant formula. What should she do?

Case 493: My baby doesn’t sleep through the night and is always hungry. Do you have something to help with that?

Case 550: My child is 1 month old and already drinks 120mL. He wakes up every night at 2u30 am because he’s hungry. Is there something that could make him less hungry?

Case 551: My baby is always hungry. I breastfeed, but after 1 hour he’s already hungry. Can I add formula?

Case 585: My baby drinks special formula for digestive problems, but he cries a lot. I tried different things for colic and reflux, but he keeps on crying. Could he be hungry? Because he cries every 2 hours?

Case 602: A young mother started to feed her baby with normal infant formula, but this caused the baby to vomit. She switched to a special anti-regurgitation formula, but this caused colic. Yesterday the woman bought a thickened formula. This apparently helped with the colic, but the baby is now still hungry after feeding. She is asking if there is something you can add to the formula to thicken it.

Case 642: I don’t have enough breastmilk for my baby, so I would like to use formula in addition to the breastmilk. The paediatrician advised us a hypoallergenic formula but I used a regular brand for my first baby and I wanted to use the same formula because it worked well for him. What would be the best thing for my son?

Case 650: My baby normally drinks a thickened formula for better satiety and because he suffers from colic easily. Do you have other alternatives for this purpose? Do they have the same composition and taste?

Case 652: I thicken my baby’s food (anti-regurgitation formula) with rice flour. Can I do that or should I use an other product?

Case 676: A young mother has a hungry baby that is never satiated with the normal formula. She is wondering what the different possibilities are to solve this problem.
Case 678: I would like some advice concerning baby food. My child is 14 months and I give him normal follow-on formula combined with vegetable- and fruit puree, but he often wakes up at night. Is there something I can do to solve this? Giving him thickened formula doesn’t help.

Case 692: I think my son is not satiated with his current formula, he’s hungry again quickly. Is there a type of formula that would make him more satiated?

Case 697: I breastfeed, but I feel like my baby is often hungry at night. That’s why I would like to give him a bottle at night to make him sleep through the entire night. Which type of formula should I use? He often suffers from colic and reflux.

Case 753: My baby is hungry only shortly after feeding him. Is there an other type of baby food I can give him?

Case 834: The paediatrician is advising to switch from casein hydrolysate based anti-regurgitation formula to a special formula based on rice proteins, because the baby is constantly hungry. The mother is wondering if the milk will have the same thickness?

Case 857: My child doesn’t tolerate his formula well. He’s always hungry and he experiences colic afterwards. I’m embarrassed to admit it, but I gave him whole milk with flakes out of desperation. Could this harm my child?

Case 945: A baby was drinking standard infant formula, thickened with locust bean gum. Recently the mother tried a special formula for digestive trouble (with prebiotic fibres), but her baby is still hungry. She wonders if she is allowed to thicken this with the locust bean gum?

Case 1032: A mother of a 4 month old baby is complaining that her baby wakes up a lot during the night feeling hungry. She asks what she can do about this?

Case 1038: Is there something to thicken fruit puree with, that doesn’t contain traces of cow’s milk?

Case 1053: Can I thicken breastmilk with locust bean gum?

Case 1055: My baby is not satiated with his bottle and he wants a new bottle quickly. We are using a regular infant formula at the moment, do you have something else to help with this problem?

Case 1056: Our 1 month old baby has been struggling with his formula lately. I give him a regular infant formula, but he’s always spitting up and he’s also hungry again very quickly.
Case 1061: When do children experience their growth spurt, because my daughter has recently started to ask for the bottle again at night. She is really hungry. Could that be the cause? What could I do to solve this? She is now 8 weeks.

**Constipation/diarrhoea/reflux/colic (n=49)**

Case 62: A young woman enters the pharmacy and explains that her baby suffers from colic. She is wondering if she could use a different formula to solve this?
Case 71: A young mother is complaining that her baby spits up a lot of formula while feeding and was wondering if this was caused by the type of formula used?
Case 85: My baby spits up milk after giving him the bottle. What can I do to avoid this?
Case 96: My baby has been suffering from reflux and colic since birth. Is there a special kind of formula to solve this? My mother also advised me to try a specific brand of homeopathic medicine for the relief of infantile colic.
Case 162: My daughter spits up milk after bottle feeding. What can I do to prevent this?
Case 232: My child suffers from diarrhoea, for 2 weeks already. Could you recommend me something to thicken her formula?
Case 260: I’m looking for formula against colic. My baby suffers from colic a lot, but has no diarrhoea.
Case 261: I switched from breastfeeding to formula a few weeks ago, but my baby now suffers from reflux. What can I do to prevent this?
Case 262: Client is asking information about formula, because her grandchild is spitting up after feeding.
Case 267: My baby switched from regular infant formula to a hypoallergenic formula two days ago. Now I think he is suffering from colic. Is it possible that the formula is causing this?
Case 294: I’m looking for a formula to prevent regurgitation. Do you have something like that?
Case 310: When we first started using formula, my son suffered from reflux. We then switched to an anti-regurgitation formula, which solved his reflux but made him constipated. This is why we switched to a special formula for digestive problems (constipation, colic, ...). The problem is that now his reflux has returned. Are we allowed to mix both formulas or is there an other formula that helps with both the reflux and the constipation?
Case 317: My baby is 4 months old and I use regular infant formula, but lately he has been suffering from reflux a lot. Should I change his formula?

Case 319: Since I switched from infant formula to follow-on formula, my baby has been experiencing colic and diarrhoea. With the transition from breastfeeding to infant formula, we had the same problem for 2 weeks, but I’m worried that my baby might not be getting all the necessary nutrients? What should I do?

Case 321: Since I am bottle feeding, my baby has been experiencing constipation. What should I do to solve this?

Case 326: My baby frequently suffers from regurgitation, which formula would you recommend to solve this?

Case 329: My baby is now using regular infant formula, but she has a lot of regurgitation. What can I do about that?

Case 366: My baby suffers from colic. My mother advised me to try products based on fennel. This won’t harm my child, will it?

Case 392: A young mother is visiting the pharmacy to purchase fennel- or camomile tea for her 3 month old son. He has been crying many times in the last few weeks and is experiencing colic. The woman read on the internet that fennel- or camomile tea would solve this problem. She is wondering if this is true and if she can give this tea to her son?

Case 403: My baby used to have a regular formula, but his stool was too hard. We then switched to a special formula for digestive problems, but now he has diarrhoea. Is there something else I can try?

Case 409: My baby is now 10 weeks and he suffers from regurgitation pretty badly. I read that there are special formulas to help with this problem? Should I switch to one of these formulas?

Case 414: My son (1 year and 3 months old) is vomiting every time he gets regular baby food. I had him tested for lactose intolerance, but this was negative. What do you think I should give him?

Case 431: My 3 month old son suffers from colic and hard stool a lot. He now drinks a special formula with probiotics and corn starch, but a friend of mine advised to use a special formula for digestive problems. What would you advise?
Case 433: My baby drinks a special formula for digestive problems now. He no longer suffers from colic, would it be ok for me to switch to a regular formula again? Because earlier today he had a full diaper 3 times in a row. Could this special milk cause this?

Case 457: I have twins and one of them is constantly vomiting, but it’s not reflux. The doctor told me to add an artificial sweetener to her casein hydrolysate based formula, but I don’t trust this advice? What do you think? Should I give her something else?

Case 466: A young mother normally purchases an anti-regurgitation infant formula, but she would like to switch to a regular follow-on milk. She asks about the regular milk, but she would like it to be hypoallergenic.

Case 541: A young mother has some questions about the added value and the functioning of an anti-regurgitation infant formula.

Case 542: My child suffers from regurgitation. Could an anti-regurgitation formula help with this? Or is it better to add a locust bean gum based thickener?

Case 544: A client’s baby suffers from mild reflux every now and then. She asks if it would be useful to switch from breastfeeding to bottle feeding with a special anti-regurgitation formula.

Case 562: My baby drinks a regular infant formula, but he suffers from colic and sometimes reflux. Would it be better to switch to an other formula?

Case 584: If I would like to switch to an other formula, do I have to review this with my doctor? My baby is 6 weeks old and drinks a regular formula, but is constipated and sometimes suffers from colic. It’s not very serious. Do I have to keep using this special milk once I switched? I have to go to the paediatrician soon.

Case 593: I am now using this special formula for digestive problems for my baby. Am I allowed to keep using this after 6 months?

Case 603: My daughter suffers from reflux. I switched to an anti-regurgitation formula. But since this switch, she often suffers from colic. What could cause this and what can I do to solve this?

Case 609: My newborn has a lot of reflux. They advised me to thicken his formula. Will this help or what other advice can you give me?

Case 626: A young mother came asking for a special formula to help her baby who suffers from colic. The paediatrician suggested a few types of formula to her. She wanted to know if it would be possible to use these.
Case 659: My child is 13 months old. I always gave her a formula for digestive problems because of her digestive trouble. At the moment she does not have those problems anymore and I would like to use a regular follow-on milk. Which type should I choose?

Case 714: My baby suffers from severe reflux. He has serious trouble keeping his food down. Which formula should I give him?

Case 724: My baby suffers from colic a lot and he is often constipated. I think I might be giving him the wrong milk. What should I replace it with?

Case 725: Our 2 month old baby has a rash around her mouth and behind her ears and she has very few and very hard stool. She already drinks a special formula for digestive problems, but the doctor advised to use an other formula that would be better. Does this work?

Case 729: My 14 month old child suffers from colic a lot. Are there certain vegetables, fruit or other foods that could cause this? Or what type of food causes colic in babies?

Case 740: A couple enters the pharmacy and asks for a specific brand of formula for digestive problems. She asks if it helps for colic and constipation. And she would also like to know what type of water she should use to prepare the formula.

Case 788: Is it better to add thickening powder based on cellulose gum to regular formula or to use a special anti-regurgitation formula for vomiting and reflux?

Case 791: My daughter is often constipated. I give her a glycerine suppository every 3 days and that helps. It has been a problem for over a month. I switched to a formula based on rice proteins one week ago. Is that a bad thing or will it help with the constipation? I also bought some special magnesium sulphate-rich natural mineral water, but I haven’t tried it yet. Is there anything else I can do?

Case 846: I’m breastfeeding my baby, but since I don’t produce enough milk I combine this with formula. Since I started this hypoallergenic infant formula, my baby has been suffering from flatulence, colic and hard stool. Because she has to make such an effort to go, she now has reflux. The paediatrician advised me to switch to a specific formula with probiotics and corn starch. The ‘Child and family agency’, however, told me that it would be better to choose a more complete formula, because the one my paediatrician advised is specific for constipation. Which of both types would you advise me to use?

Case 878: Are we giving our baby too much formula if he regurgitates it?
Case 966: My baby has been suffering from diarrhoea for a while. We already tried many different drugs. These help him at the beginning, but after a while, it starts again. Could his food cause this?

Case 1044: My 8 month old daughter often suffers from constipation. How should I change her formula?

Case 1048: My 9 month old baby is constipated. Could the formula I feed him cause this? Is it better to give him a glycerine suppository or to change his milk or baby porridge?

Case 1068: A young mother is feeding her 8 month old baby an anti-regurgitation formula. She switched to this formula when the baby was 1,5 months old, because of frequent regurgitation. This formula completely solved the problem. Now the woman is wondering if it would be ok for her to switch back to the regular infant formula.

Allergies/intolerances (n=19)

Case 84: My child is almost 12 months old and I give her hypoallergenic follow-on formula. Is there a growing up formula that is hypoallergenic or what should I give her?

Case 120: A mother visits the pharmacy to buy a soy-based follow-on formula for her 2 year old daughter. Her daughter has a non-congenital lactose intolerance, for which the doctor advised this special formula. Because her daughter is now 2 years old, the mother would like to try using regular formula. She asks if she could already switch to the regular follow-on formula and how she should manage this.

Case 175: What is the difference between whey hydrolysate based formula and casein hydrolysate based formula?

Case 176: Can I mix this casein hydrolysate based formula with the regular follow-on formula? Because we talked to the paediatrician about doing a provocation test. Our baby is 20 months old already.

Case 230: My child is allergic to lactose and gluten. Is there a thickening agent that doesn’t contain these to thicken his formula?

Case 368: My child has a cow’s milk protein allergy. On top of that, he also suffers from colic and constipation. The child and family agency advised me to try a hypoallergenic formula for 3 months and to try and use the regular formula after this period. What do you think?
Case 385: I’m sorry to bother you again, but last week I bought an infant formula for my 4 week old son. I bought special formula for digestive problems, but this doesn’t seem to help him. He stills has a lot of colic and diarrhoea and he is always hungry. My mother told me I should try a soy-based formula? She used it when my sister and I where babies and my aunt uses it for her children. My daughter is lactose-intolerant, so I used a lactose-free formula for her as well. Do you think I should switch to a soy-based formula? Does it have bad side-effects? Can I switch back to regular formula later on or is that impossible? Will this formula cause better satiety, because he’s now constantly hungry and I already feed him 1 extra bottle.

Case 399: My baby has a cow’s milk protein allergy. Which formula would you advise me to use instead of the regular formula?

Case 421: My son suffers from diarrhoea and colic a lot. I read he could have a cow’s milk protein allergy. Would that be possible and which formula should I switch to?

Case 428: The paediatrician advised to switch from a hypoallergenic formula to a regular anti-regurgitation formula, to check if the baby has a cow’s milk protein allergy. The mother wants to know if this is a good idea.

Case 464: A woman has a prescription for a casein hydrolysate based formula, because her baby has a cow’s milk protein allergy. She asks what other types of food she should be careful with?

Case 472: I’m allergic but my husband isn’t. Should I use a special hypoallergenic formula for my baby?

Case 530: I’m looking for soy-based baby food for a 10 month old baby?

Case 570: An 8 month old child usually drinks a special infant formula produced from synthetic amino acids, but he now refuses to drink it (probably because of the taste). He had not been drinking milk for 2 weeks, which other milk could be advised?

Case 722: This special formula based on rice proteins is very expensive. Isn’t there an other possibility? My paediatrician says that because I have allergies, my child could be allergic to cow’s milk (and other proteins). But how can I identify this?

Case 760: Are there special infant formulas for a baby with lactose intolerance?

Case 805: A baby turned out to be lactose intolerant, after suffering from severe colic when drinking regular formula. The mother gave him a lactose-free formula after this diagnosis. When the baby was 6 months, she switched to a special type of formula for constipation,
hard stool and colic. The mother was now wondering if it would be ok for her to switch back to a regular infant formula.

Case 929: My baby is drinking a hypoallergenic infant formula at the moment, but the ‘Child and family agency’ told me that this formula for digestive problems is also hypoallergenic and I could use it to feed my baby. Is this correct?

Case 1078: A woman is visiting the pharmacy to purchase formula for her 10 month old child. Normally she purchases the follow-on hypoallergenic formula, but since her baby is 10 months old she should switch to growing up milk. The problem is that her regular brand doesn’t have a hypoallergenic type. She is wondering if she should continue the hypoallergenic follow-on milk or if she should switch to the regular growing up milk.

**Other (n= 27)**

Case 72: My child is 1 year old and I feed her a special formula based on rice proteins. She also eats biological fruit, vegetables and nuts that I prepare. Is this sufficient? I don’t want her to have any deficiencies.

Case 78: Normal infant formula is too thin for my baby, the thickened formula is thick enough but too heavy on the stomach. I heard that you can use thickening powder based on cellulose gum in the normal formula, to thicken it without making it too heavy?

Case 141: 12 days ago I gave birth. I would like to give my baby tea instead of breastmilk. What type of tea would you recommend?

Case 172: A young woman visits the pharmacy to purchase a regular follow-on milk for her 9 month old child. She sees a package of soy-based formula and is wondering what the differences are with the formula she is using.

Case 199: Is this a classical infant formula? What other options can I use? What is the difference between HA and AR? Does this really work?

Case 208: Is this growing up milk from the pharmacy the same as the other brand from the supermarket? Because my baby is used to the taste of the supermarket milk and he often doesn’t want any other types. Are they similar in terms of taste?

Case 240: What is this (shows a casein hydrolysate based formula)? What is the difference with regular formula?

Case 252: Is there a good tea to help with breastfeeding?
Case 268: An 8 month old child has been drinking an anti-regurgitation follow-on formula since he was 6 months old. He doesn’t drink his entire bottle at night (2 bottles a day). The client is wondering if this is a problem. Because the child eats well the rest of the day.

Case 352: My 5 week old baby has been losing a lot of weight after I stopped breastfeeding. I was taking a drug at the time. Now I am breastfeeding again, but I would like to add formula to make the baby gain some weight. What formula should I use to do this?

Case 427: A couple of friends told me that breastfeeding would lower the chances of my baby developing allergies later in life. Is this true?

Case 590: Which type of formula should I use for my grandchild? She is turning 6 months this Sunday. Should I use this number 1 or 2 or a special type for digestive problems or something else?

Case 621: What is the difference between anti-regurgitation formula and a thickened formula?

Case 640: I’m a little worried because my child doesn’t drink a lot. She mostly drinks milk and some soup every now and then. She refuses any type of solid food. Is there something you could advise me to make her a bit more hungry?

Case 657: Can I give my child (6 months) puree with bananas for his diarrhoea? Is that helpful?

Case 664: Is it true that follow-on milk contains more vitamins then growing up milk?

Case 706: I’m starting bottle feeding my baby. I was wondering if I should use tap water of bottled water?

Case 732: My baby hasn’t been wanting to drink for a few days already. What can I do?

Case 785: Is it allowed to add some sugar free honey to your baby’s pacifier to calm him down?

Case 809: How do I have to prepare the formula? In the hospital they did this for me.

Case 882: A young mother has two children that use a different type of formula. One uses a formula for digestive problems, the other one a pre-thickened formula. She is wondering what the difference is between both types.

Case 934: Does it matter what type of water I use to prepare the formula? Would it harm my baby if I use a mineral water?

Case 944: Can I mix this (anti-foaming agent used to reduce bloating) with my baby’s formula?
Case 951: A breastfeeding mother is wondering if there are certain things she shouldn’t be eating or drinking in order not to harm her baby.

Case 956: Is there a kind of artificial sweetener for babies? My baby doesn’t like the unsweetened fennel tea. My neighbour told me that I could purchase something to help here.

Case 1019: Our baby is malnourished. Do you have a special type of formula for malnourished babies?

Case 1021: My 8 month old baby has a rash on his head. I breastfeed him, could this cause the rash? I already tried applying some cream, but I think the rash got even worse.
ANNEX 19: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD FOR THE GERIATRIC POPULATION (n=9)

Case 150: My mother doesn’t have a good appetite. Is there something you could recommend me for that?
Case 241: My husband is getting older and he is very skinny and has difficulty walking. His physician sent me here for a drink that would help with that to gain some weight. What is he talking about?
Case 331: My father hasn’t been having a good appetite lately and he has a lot of trouble eating. Isn’t there something that can stimulate his appetite?
Case 334: A woman explains that her father hasn’t been eating well lately and that is fairly skinny already. She wants to know if there is something she can do about this, if there is something extra she could give him?
Case 446: My mother is 84 years old and she has had some health problems for a few weeks. She has lost a lot of weight since and she has restricted mobility. Aren’t there any supplements or drinks or something else that would help her strengthen a bit faster?
Case 686: I’m here for my mother. She doesn’t eat a lot, is weakened and she has diabetes. Is there something she could use to help her gain some weight?
Case 941: My grandfather passed away recently and my grandmother is not taking care of herself at all. She barely eats and the things she does eat are very monotonous. Is there something that could help her regain some strength?
Case 985: A nurse wanted to know if there is some type of food (for instance pudding) for an elderly woman with a reduced renal function? She still eats a little bit of normal food, but does this contain enough nutrients?
Case 1029: A 52 year old woman explains that her 81 year old mother recently fell and has diminished mobility after that. She has trouble eating because she doesn’t have any teeth. Her mother mainly eats vegetables, but barely any meat. She has lost a lot of weight. The woman would like to know if there is something that could help her mother regain weight, maybe something liquid?
ANNEX 20: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD FOR ATHLETES (n=48)

**Energy bars and gels (n=4)**

Case 127: I'm participating in triathlons at recreational level. What would you advise me to use during a competition or during a training? Fast sugars, energy bars, ...?

Case 258: Is this fruit bar for athletes suited for footballers and how many sugars does it contain?

Case 499: I heard that those energy gels make you ride your bike really fast, but someone else told me that I can’t use those because I wouldn’t burn all the calories. Do you think those gels would be good for me?

Case 820: I run half marathons regularly and I see that other runners use energy gels. Does that work?

**Sports shakes and drinks (n=12)**

Case 18: Can I combine this full training complex with this recovery shake?

Case 178: My son sent me to the pharmacy to get some protein shakes for after his fitness training. What would you advise me?

Case 436: My son plays football and before a match everyone uses a type of sports shake to gain some extra energy. Should I give him that as well and do you have something like that?

Case 448: What should I drink during training? At the moment I’m using powders high in carbohydrates, but the jar runs low fast. I need 4 scoops a bottle. Could you advise me something else?

Case 488: Am I allowed to combine these recovery shakes with a hot meal?

Case 521: I would like something for an accelerated muscle growth. I would need amino acids for that, right? What are those? Which do I need? What kinds do you have, preferably in one preparation.

Case 539: I am looking for something to add to my drinking bottle that boosts my energy.

Case 552: To go mountain biking during the winter, should I use the thirst quencher or the energy drink?

Case 651: I would like an energy drink for during mountain biking?
Case 1006: I often go to the gym and I’m looking for a drink that helps with my muscle build up. I heard that there might be special protein shakes for that purpose?
Case 1008: My husband rides his bike a lot. He would like something to put in his drinking bottle during and after riding his bike for recovery. What could you advise me?
Case 1028: A friend of mine advised me to use recovery shakes after exercising. How do these work?

**Supplements for athletes (n=22)**

Case 6: I’m a runner and I was wondering what I should use after working out: this supplement based on hydroxymethylbutyrate or based on creatine?
Case 50: I’m running a marathon soon and I was wondering if you had some advice concerning food before and during a marathon? What supplements would be useful for me?
During my long trainings (26 km) I sometimes need a boost as well. What could I use for that?
Case 88: A client is asking about a specific supplement for athletes and wants to know if there is something better he could use?
Case 137: My friend is taking something extra during exercise to be able to exercise for a longer time. I thought it was creatine? Does this really improve the endurance and can I get it here?
Case 194: A professional basketball player wants some information about special shakes for athletes and he want supplements based on creatine as a preparation for the new season. He wanted to know if he had to take the supplements every day, even when he is not working out, if there are side effect to the supplement and how he should combine the supplement and the shake.
Case 224: What is the difference between the regular magnesium supplement and the ‘relaxation’ kind? Which of the two is better to use after exercising?
Case 250: Do you have a supplement for the cartilage? Preferably for during exercise.
Case 264: I recently started going to the gym. A friend of mine advised me to use a creatine based supplement to help build up my muscle mass faster.
Case 307: My daughter dances very intensively (10 hours a day), which vitamins should I give her?
Case 364: Are there any magnesium supplements specifically to prevent muscle cramps caused by exercise?

Case 374: Why do you need iron supplements as an athlete?

Case 463: I’m following a course to become a lifeguard and I read in a magazine that the use of creatine as a food supplement could help increase your fitness faster?

Case 548: What food supplement can I use for fat burning and muscle growth, because I go to the gym a lot.

Case 579: I would like to start exercising again and improve my fitness. I would like a supplement as an extra boost. What would you advise me?

Case 580: A woman explains that her husband started working out more intensely. Are there vitamins that boost his energy?

Case 592: At the end of February I’m running a marathon for the first time and I would like to prepare for it. A friend of mine uses these supplements for athletes and he told me that there are different kinds for before, during and after exercise. What would you advise me to take before a marathon? What is the difference between the products I should use before, during and after exercising?

Case 806: I’m running a triathlon soon. They told me that I should start taking magnesium supplements already. What kinds are there?

Case 843: My friend would like to build muscle and want to use supplements for athletes on top of his training. What tablets would work the most?

Case 888: I heard from a friend that the use of zinc could enhance your performance, do you have something like that?

Case 959: I go to the gym (power training) but I would like to take some extra supplements to gain as much muscle mass as possible in the shortest period of time, but in a healthy and controlled way. I wanted to use products from this assortment (supplements for athletes), because I heard a lot of positive comments from my environment. Could you compose a package for me with products I need for this purpose?

Case 1005: A patient suffers from muscle cramps during soccer. He wants to know if magnesium would help solve this?

Case 1016: I ran a marathon this weekend, do you have some kind of vitamins against fatigue?
Other (n=10)

Case 33: A woman has some questions about high-protein foods for her husband, who wants to run a marathon.
Case 49: Do you have something good to use during exercise, for cycling? Would this be good for me?
Case 83: I would like some information concerning food during the preparation for, days before and days after a triathlon.
Case 104: Is there some type of sports nutrition containing maltodextrins to eat before a triathlon?
Case 142: I started going to the gym and swimming and I would like something for muscle recovery after exercising.
Case 316: I'm participating in a running contest and I heard that carbs before a competition are beneficial. What foods contain carbs?
Case 510: What products should I use to have enough energy during a marathon?
Case 560: I'm looking for something to accelerate my metabolism during exercise, do you have something like that?
Case 816: An athlete wants to know about red beat juice. He read somewhere that this could benefit his performance?
Case 869: I'm training for a marathon at the moment. Through a sports coach I'm following a diet, but would it be possible to get some more information about this myself?
ANNEX 21: TRANSLATED CASES THAT WERE USED IN THE ANALYSIS – FOOD SAFETY (n=11)

Case 167: Am I allowed to reheat spinach the next day?
Case 288: I’m from Brazil and we sometimes use chlorine tablets to disinfect vegetables in tap water. Is that necessary over here as well?
Case 381: Are there any kinds of toothpaste without fluoride, it’s for my husband. He believes that fluoride is injurious to health. Is fluoride necessary in toothpaste or are there types without fluoride?
Case 646: Could I get this drug without aspartame and with as few E-numbers as possible?
Case 703: We’re traveling to Africa. It’s the first time. I hope we won’t get diarrhoea. I bought a water filter earlier. Could I get some more food advice?
Case 847: A woman visits the pharmacy with an article from a magazine. The article is called “Be careful with red yeast rice”, and it warns about the presence of citrinin, a toxic product formed during the fermentation process of the red rice, and especially in the kinds that aren’t standardized. She has been using a supplement based on red yeast rice for a while now. Naturally she is concerned about the levels of citrinin in her supplements and she wants to know if these are standardized preparations or not.
Case 885: A client’s daughter bought a house without running water, but with a well. She wants to know what has to be analysed to check the potability.
Case 911: What are parabens? I saw a programme about it on television yesterday and it seems unhealthy?
Case 916: I recently saw a youtube clip about the toxicity of fluoride in toothpaste, is that true?
Case 982: During a banal conversation with an elderly woman, the question arises whether reheating spinach is toxic or not?
Case 1035: I read somewhere that bioglucosamine is being extracted from a crab using heavy metals. Are there any residues left of these heavy metals in bioglucosamine?
ANNEX 22: ASSESSMENT FORM FOR REVIEWING CASES

ASSESSMENT FORM CASES FOOD SCIENCE IN THE PHARMACY

1 = very poor
2 = poor
3 = average
4 = good
5 = very good

1. Correctness of the advice (content)
   
   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 |

2. Scientific substantiation of the advice
   
   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 |

3. Practical feasibility of the advice
   
   |   |   |   |   |   |
   | 1 | 2 | 3 | 4 | 5 |

4. Was the advice patient-oriented
   
   yes □     no □
1. **PAEDIATRIC DRUG FORMULATIONS (BY PROF. J. BREITKREUTZ)**

In paediatric medicine, one of the main things to keep in mind is that children are not small adults. Besides their smaller size, children also have a different body proportion, water content, functioning of enzymes and so on. This has implications for dosage calculations as well as the toxicity of active ingredients and excipients used in drugs. Dosages can’t simply be calculated based on body weight, but the different pharmacokinetic properties in children have to be kept in mind. In addition, substances that may be safe for adults can cause toxicity in children. This applies to both active ingredients and excipients.

Another important factor in the paediatric population is correct dosing and suitable dosage forms. A recent study at the Heinrich Heine University shows that in contrast with traditional believes there is a higher acceptance for mini-tablets than for a sweet syrup, even in small infants and neonates. Other important new drug delivery concepts that are being explored are orodispersible films and multi-particulate dosage forms. More research is necessary to establish safety and acceptance of these new dosage forms in the paediatric population.

2. **THE PHARMACIST IS A KEY STAKEHOLDER IN MEASURING AND MANAGING PATIENT'S ADHERENCE TO MEDICATION. (BY PROF. B. VRJENS)**

Adherence is key to therapeutic success, but adherence in real life is much more complex than a yes or no question. A taxonomy of medication adherence has been developed to describe how and to what extend patients comply with the prescribed treatment. There are three important phases in the process of taking medication: initiation, implementation and persistence. Non-adherence can originate from each of these phases. Even in clinical studies, where patients are highly selected, non-adherence is present in a significant amount of subjects. This has important implications, like poor estimation of effectiveness, toxicity or dosing regimen. Therefore adherence has become a regulatory priority.

Many adherence measurement methods have been developed. Methods like patient diaries, pill counts or retrospective questionnaires are highly biased. Therapeutic drug monitoring is a reliable measurement, but it is a snapshot in time. The most reliable methods are through electronic monitoring. The pharmacist has a very important role in discussing these data with the patient and changing their behaviour by increasing awareness. By improving
patient’s adherence, more complex treatments can be avoided thus saving society many costs.

3. GLOBALIZATION @ JANSSEN: WHY WOULD YOU BE INTERESTED? (BY MR. W. BRAECKMANS)

Janssen is the pharmaceutical segment of the larger organisation Johnson and Johnson. Johnson and Johnson is a complex, global company employing over 120,000 people. The term ‘global company’ sometimes has a bad connotation. Still, globalisation is often necessary to address larger problems. A general rule in business is: a company needs to match the complexity of the world it is interacting with. A good idea alone is not enough, you need to be able to spread it on a large scale. In a global organisation, diversity is important, because it helps to connect with people’s needs across communities. Another important factor is having employees that have the same values as the company. Expatriation and repatriation are aspects that a global company has to deal with. Cultural differences are always present, due to a different reasoning framework. But besides the personal issues, a global company has to deal with globalisation of its structure. With expansion, the difficulty of integrating different aspects of the supply chain grows. Gartner Supply Chain Maturity Model describes a demand based model, consisting of five stages. These stages range from random problem solving to more structured approaches and demand driven processes. These are just a few examples of the challenges globalisation poses. Yet, the impact you can have on the world surrounding you, is larger when working in a global company. As with everything, global companies have good and bad aspects. The biggest challenge is to make sure the good keeps outweighing the bad.