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HYGIENIC ASSESSMENT OF FREQUENCY OF CONSUMING FOOD PRODUCTS OF ANIMAL ORIGIN IN THE DIET OF MEDICAL STUDENTS AND RATIONALE OF WAYS OF ITS CORRECTION

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Ключевые слова: *частота потребления, карта-опросник, пищевые продукты животного происхождения, рацион питания, алиментарные заболевания, пути коррекции, студенты-медики*

Abstract. *Hygienic assessment of frequency of consuming food products of animal origin in the diet of medical students and rationale of ways of its correction. Yeltsova L.B. Omelchuk S.T. Petrosian A.A. Availability of various healthy food products in the student's diet and conscious student's choice represents the best way of prevention of the alimentary and alimentary-associated diseases, preservation and promotion of health. The aim of the study: hygienic assessment of frequency of consuming food products of animal origin by medical students in order to prevent alimentary diseases by means of correction of diet. The authors studied medical students' diet using map questionnaire with the subsequent data assessment. The study includes the data of 858 respondents, students of the 2nd, 4th and 6th years of study of medical faculties of O.O. Bogomolets National Medical University. Random sampling was used. The age of the respondents ranges between 18 and 25 years, 570 females and 288 males. Frequency of consumption was estimated according to the following categories: consuming of food products of animal origin once a day or even more often, consuming them almost every day, consuming them once a week, consuming them several times a week, consuming them once or several times a month, consuming them rarely or never. The study assessed frequency of consumption of such product groups as: meat and meat products, fish and seafood, milk and dairy products, eggs and fatty products. The authors have established that one third of the respondents, regardless of their gender and year of study, consume meat and meat products once a day or almost every day. From 20% (the 2nd year of study) to 28% (the 6th year of study) of male respondents and from 13% (the 2nd year of study) to 21% (the 6th year of study) of female respondents consume fish and seafood once a week or several times a week. Less than 30% of both male and female respondents, without regard to the year of study, consume milk and dairy products once a day or even more often. About 20% of male respondents and from 10% (the 2nd year of study) to 25% (the 6th year of study) of female respondents consume eggs daily. 16-18% of male respondents and 6-10% of female respondents consume fatty products (butter, lard) daily or almost every day. The obtained results make it possible to conclude that more than 2/3 of the medical students' diets according to the frequency of consuming food products of animal origin do not correspond to the National recommendations on nutrition precisely by the frequency of their consumption [12, 13]. This may lead to polynutrient deficiency and development of alimentary diseases, which proves the necessity of correction of medical students' diet.*

Реферат. *Гігієнічна оцінка частоти споживання харчових продуктів тваринного походження в раціоні студентів-медиків та обґрунтування шляхів його корекції. Єльцова Л.Б., Омельчук С.Т., Петросян А.А. Забезпечення доступності до різноманітних здорових продуктів у раціоні студентів, їх вільний самостійний та свідомий вибір – це один з найкращих заходів профілактики аліментарних та аліментарнозалежних*

захворювань, збереження та зміцнення здоров'я. Мета роботи: гігієнічна оцінка частоти споживання харчових продуктів тваринного походження студентами-медиками з метою профілактики аліментарних захворювань шляхом корекції раціонів харчування. За допомогою опитувальної карти була зібрана інформація та проведена оцінка результатів дослідження раціонів студентів-медиків. В анкетуванні взяли участь 858 респондентів 2, 4, 6 курсів медичних факультетів НМУ імені О.О. Богомольця. Анкетування проводилось анонімно за попередньою поінформованою згодою респондентів. Формування вибірки довільне. Вік респондентів від 18 до 25 років, серед них 570 респондентів жіночої статі та 288 респондентів чоловічої статі. У роботі представлені результати оцінки частоти споживання харчових продуктів тваринного походження в раціоні студентів-медиків. Частота споживання харчових продуктів тваринного походження оцінювалась відносно споживання протягом дня, тижня, місяця та проводилась за такою шкалою: споживання один раз на день або майже щодня, один раз на тиждень, кілька разів на тиждень, один або декілька разів на місяць, рідко або ніколи. Проводилась оцінка частоти споживання таких груп харчових продуктів: м'яса та м'ясних продуктів, риби та продуктів моря, молока та молочних продуктів, яєць та жировмісних продуктів. Встановлено, що лише третина респондентів, незалежно від статі та курсу навчання, використовує в раціоні м'ясо та м'ясні продукти один раз на день або майже щодня. Від 20% респондентів чоловічої статі (2 курс) до 28% (6 курс) та від 13% респондентів жіночої статі (2 курс) до 21% (6 курс) використовують у своєму раціоні рибу та продукти моря один або декілька разів на тиждень. Менше 30% респондентів, незалежно від статі та курсу навчання, один раз на день або майже щодня включають у свій раціон молоко та молочні продукти. Щоденно використовують у раціоні курячі яйця близько 20% респондентів чоловічої статі та від 10% (2 курс) до 25% (6 курс) респондентів жіночої статі. Щоденно або майже щодня включають у свій раціон жировмісні продукти (масло вершкове, сало) 16-18% респондентів чоловічої статі та 6-10% респондентів жіночої статі. Отримані результати дають можливість зробити висновок про те, що більше 2/3 раціонів студентів-медиків за частотою споживання харчових продуктів тваринного походження не відповідають національним рекомендаціям щодо харчування населення саме за частотою їх споживання [12, 13]. Ситуація, що склалась може призвести до виникнення полінутрієнних дефіцитів харчових речовин та в подальшому аліментарних захворювань, що підтверджує необхідність проведення цілеспрямованої корекції раціонів харчування студентів-медиків за частотою споживання харчових продуктів тваринного походження.

The presence of food products of major groups in the diet of students makes it possible to provide the body with all essential nutrients and thereby ensure high levels of working capacity, including mental activity. Diversity, balance and moderation in the use of the main food groups in the diet with a certain frequency is one of the basic principles of a healthy and rational nutrition of the population, including students. Eating an adequate amount of food every day due to a balanced set of the main food groups can significantly reduce the risk of nutritional, nutritional-related diseases and the subsequent risks of developing cardiovascular and oncological diseases and diabetes, the most common among Ukrainians [9, 11, 12, 14]. Food products of animal origin - meat and meat products, fish and seafood, milk and dairy products, eggs, butter, lard are the main sources of high-grade proteins with a high content of essential (essential) amino acids, essential fats (PUFA W3), group B vitamins, biotin, folacin, pantothenic acid, fat-soluble vitamins A, E, D, chelated forms of hematopoietic elements (Fe, Cu, Co, Mn, Zn), Ca chelate forms, and iodine [1, 10, 15].

The introduction in Ukraine of the new norms of the physiological needs of the population in basic nutrients and energy, modern recommendations on

healthy nutrition [12, 13] updates the monitoring of nutrition and health of the population, students and medical students including [3, 4, 6, 7, 8], with the aim of developing and introducing scientifically based nutritional recommendations into their daily lives.

The purpose of the work is a hygienic assessment of the frequency of consumption of food products of animal origin by medical students in order to prevent alimentary diseases by correcting diet.

MATERIALS AND METHODS OF RESEARCH

To conduct the study, modern adequate methods were used, namely: analytical, questionnaire-based, statistical (data were processed using the program - IBM SPSS Statistiks Base v.22, which has official licensing for processing medical data in Ukraine). A questionnaire-chart developed by the Department of Nutrition Hygiene (Hygiene and Ecology No. 4) of A.A. Bogomolets National Medical University was used [5] which passed an expert assessment of leading experts of the institutions of Ukraine in the field of food hygiene, gastroenterology and dietetics.

Study Design: Cross-sectional blind study. The survey was conducted anonymously by prior agreement of the respondents. Inclusion criteria: medical

students of 2, 4, 6 courses. The exclusion criteria: students being on dietary, therapeutic or preventive nutrition temporarily or for a long time, preferring non-traditional types of food (vegetarians, rawatarians), pregnant (2 and 3 trimesters), those who have chronic diseases in the stage of sub- and decompensation.

The survey was conducted in a short-time period, from December 2016 to March 2017 due to the fact that during this period (autumn-winter, winter-spring) the manifestations of nutritional deficiencies in the body of students are the most pronounced. The survey was conducted by pre-prepared interviewers (the period of preparation was 2 weeks).

With the help of questionnaire-chart 858 respondents were surveyed. The theoretical statistical error of the random sample of 858 respondents from the total population of 10,000 with a confidence probability (P)=0.95 does not exceed 0.032 (3.2%). Medical students of 2, 4, 6 courses of medical faculties № 3, 4 and the faculty of training doctors for the Armed Forces of Ukraine are among them. Sampling is arbitrary. The age of the respondents is from 18 to 25 years, of which 570 are female respondents and 288 are male respondents. Students of the 2nd course: 213 females, 126 males; students of the 4th course: 192 females, males – 89; students of the 6th course – 165 females, males – 73.

RESULTS AND DISCUSSION

With the help of a questionnaire-chart, we collected and evaluated results of study of medical students' diet. In previous works, the results of evaluation of the questionnaire-chart by some of its sections were presented [2, 5]. In this paper, we present the results of evaluating frequency of consumption of foods of animal origin in their diet. The frequency of consumption of food of animal origin was evaluated by the following scale: consumption once a day or more often, almost every day, once a week, several times a week, once or several times a month, rarely or never. The frequency of consumption of such food groups as meat and meat products, fish and seafood, milk and dairy products, eggs, fat-containing products - butter, lard (taking into account the food preferences of Ukrainians) was evaluated..

When assessing the frequency of consumption of meat and meat products, it was revealed that 31.75% and 27.75% respectively of male-respondents of the 2nd course and 38.0% and 26.8% respectively of female-respondents of the 2nd course consume them daily or almost every day; once a week or several times a week – 8.75% and 19.0% of the male-res-

pondents and 7.5% and 14.0% of the female-respondents; once or several times a month, rarely or never – 7.95% and 4.8% of male-respondents and 8.5% and 5.2% of female-respondents; every day or almost every day – 12.35% and 24.7% respectively of male-respondents of the 4th course and 22.4% and 21.9% respectively of female-respondents of the 4th course; once a week or several times a week – 28.1% and 18.0% of male-respondents and 27.1% and 20.3% of female-respondents; once or several times a month, rarely or never – 14.6% and 2.25% of male-respondents and 4.7% and 3.6% of female-respondents; daily or almost every day – 34.25% and 37.0%, respectively of male-respondents of the 6th course and 27.3% and 35.15% of female-respondents, respectively, of the 6th course; once a week or several times a week – 6.85% and 13.7% of male-respondents and 15.15% and 10.9% of female-respondents; once or several times a month, rarely or never – 8.2% and 0.0% of male-respondents and 7.26% and 4.24% of female-respondents. Data on the frequency of consumption of meat and meat products are presented in the form of a graph (Fig. 1).

When assessing the frequency of consumption of fish and seafood, it was found that 7.15% and 11.9%, respectively, of male-respondents of the 2nd course and 4.7% and 9.4%, respectively, of female-respondents of the 2nd course consume them daily or almost every day; once a week or several times a week – 26.2% and 21.4% of male-respondents and 20.6% and 13.6% of female-respondents; once or several times a month, rarely or never – 15.9% and 17.45% of male-respondents and 29.7% and 22.0% of female-respondents; daily or almost every day – 7.85% and 7.85%, respectively, of male-respondents of the 4th course and 4.15% and 8.9% of female-respondents, respectively, of the 4th course; once or several times a week – 20.25% and 25.85% of male-respondents and 22.9% and 16.65% of female-respondents; once or more times a month, rarely or never – 16.85% and 21.35% of male-respondents and 37.0% and 10.4% of female respondents; every day or almost every day – 2.75% and 12.3%, respectively, of male-respondents of the 6th course and 2.7% and 10.9% of female-respondents, respectively, of the 6th course; once a week or several times a week – 28.75% and 26.0% of male-respondents and 26.1% and 21.3% of female-respondents; once or several times a month, rarely or never – 20.5% and 9.7% of male-respondents and 18.2% and 20.8% of female-respondents. Data on the frequency of consumption of fish and seafood are presented in the form of a graph (Fig. 2).

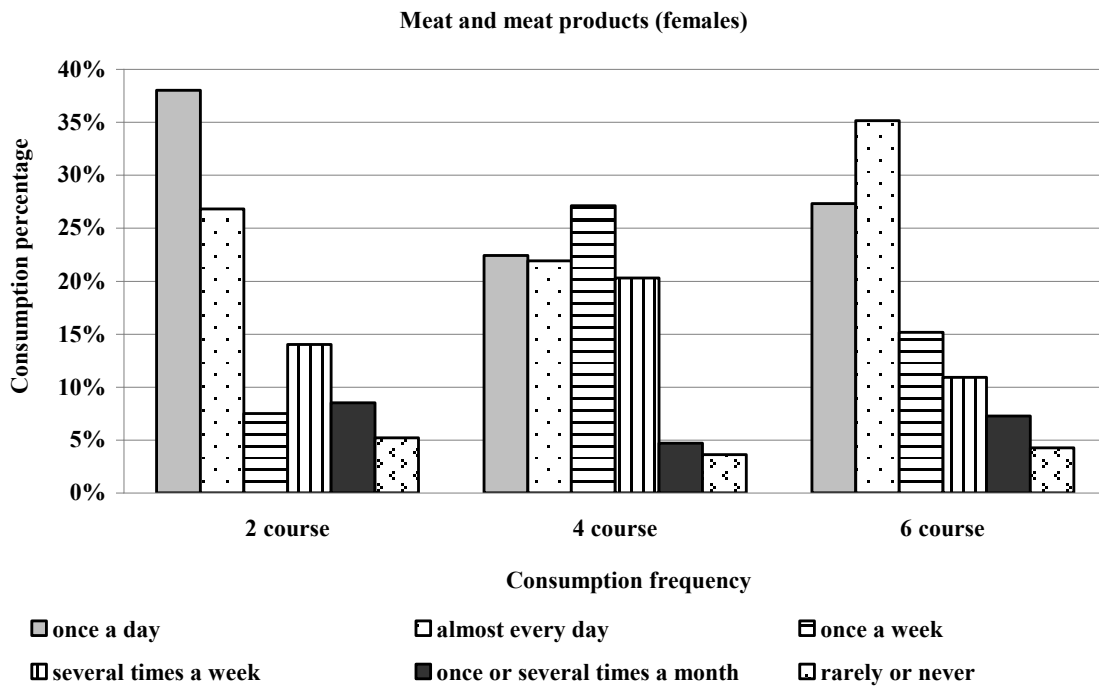
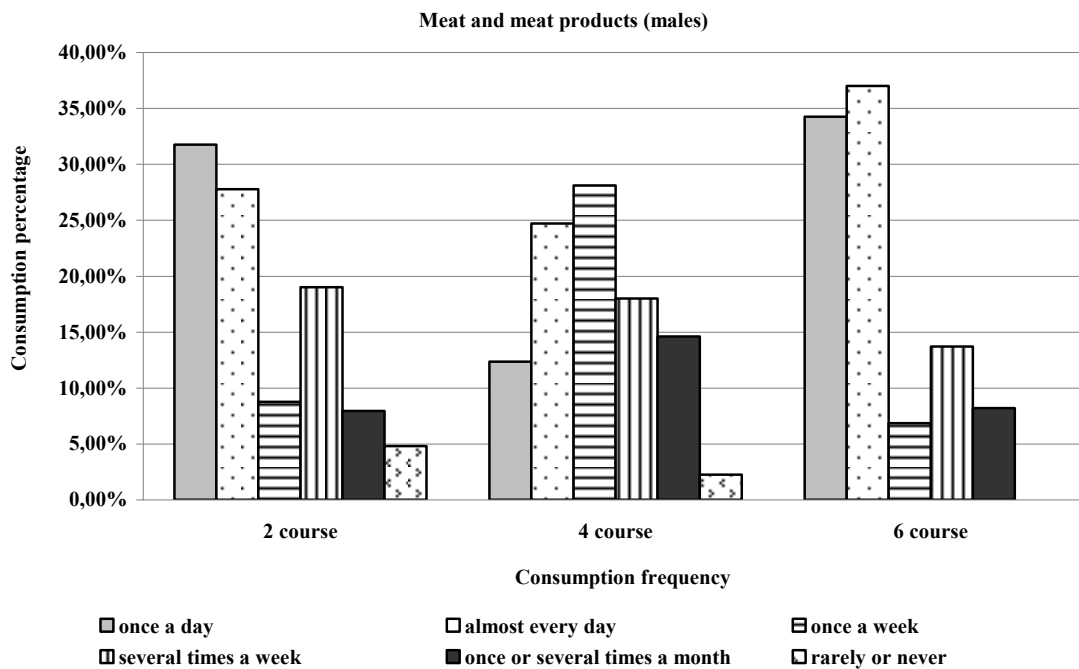


Fig. 1. Frequency of consumption of meat and meat products by medical students

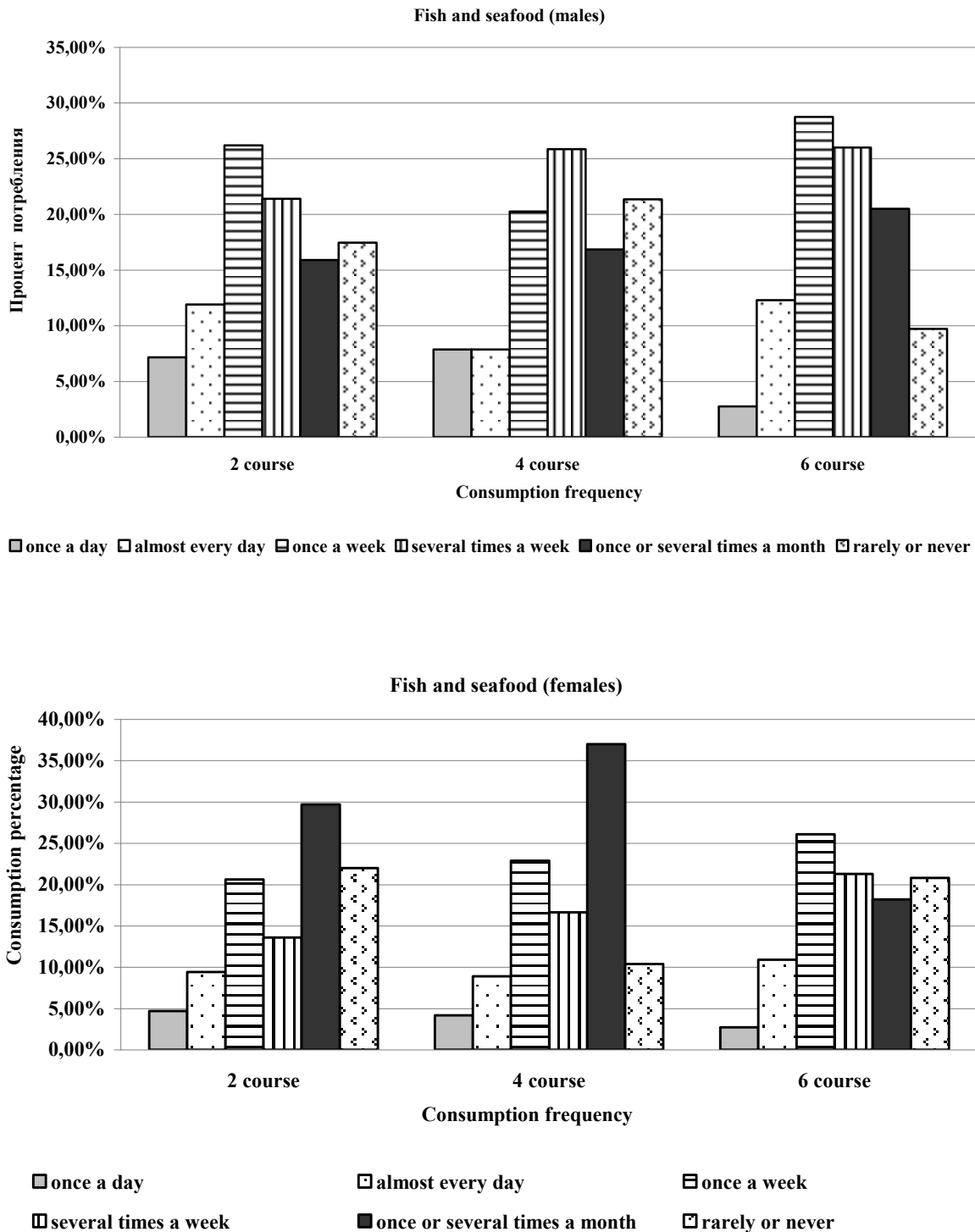


Fig. 2. Frequency of consumption of fish and seafood by medical students

When assessing the frequency of consumption of milk and dairy products, it was revealed that 23.0% and 36.5%, respectively, of male-respondents of the 2nd course consume them daily or almost every day, and 31.0% and 29.6%, respectively, of female-respondents of the 2nd course; once a week or

several times a week – 12.7% and 17.45% of the male-respondents and 6.6% and 18.7% of female-respondents; once or several times a month, rarely or never – 6.35% and 4.0% of male-respondents and 8.9% and 5.2% of female-respondents; daily or almost every day – 28.1% and 20.25% of male-

respondents, respectively of the 4th course and 24.5% and 39.6% of female-respondents, respectively of the 4th course; once a week or several times a week – 21.35% and 18.0% of male-respondents and 17.2% and 9.9% of female-respondents; once or several times a month, rarely or never – 6.7% and 5.6% of male-respondents and 4.7% and 4.1% of female-respondents; daily or almost every day – 20.5% and 17.8%, respectively, of male-res-

pondents of the 6th course and 20.7% and 29.7% of female-respondents, respectively, of the 6th course; once or several times a week – 20.5% and 27.5% of male-respondents and 26.7% and 12.0% of – respondents; once or several times a month, rarely or never – 5.5% and 8.2% of male-respondents and 8.5% and 2.4% of female-respondents. Data on the frequency of consumption of milk and dairy products are presented in the form of a graph (Fig. 3).

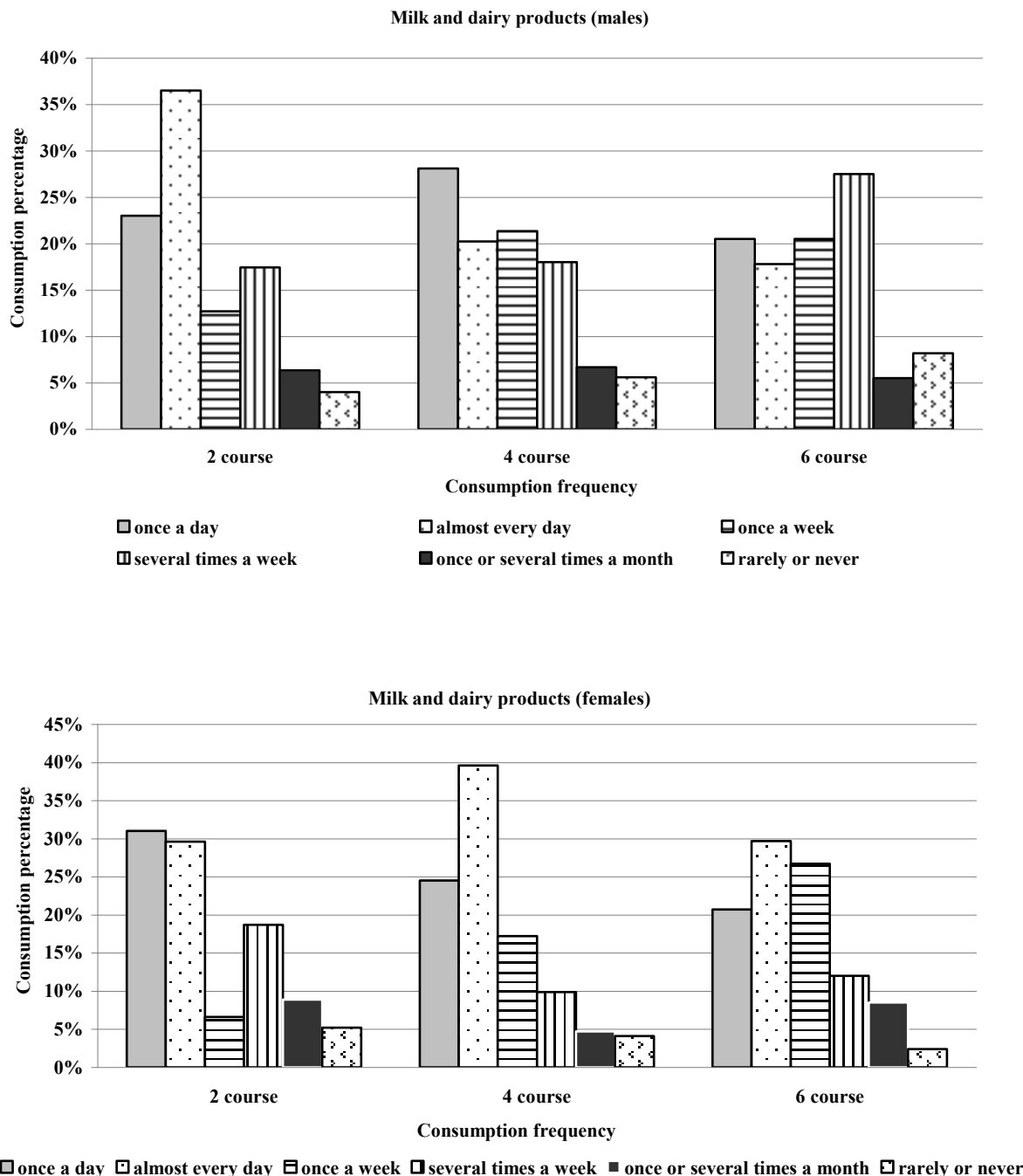


Fig. 3. Frequency of consumption of milk and dairy products by medical students

When assessing the frequency of consumption of eggs, it was found that 21.4% and 21.4%, respectively, of male-respondents of the 2nd course and 11.75% and 19.25% of female-respondents, respectively, of the 2 course consume them daily; once a week or several times a week – 24.6% and 19.0% of male-respondents and 20.2% and 20.6% of female-respondents; once or several times a month, rarely or never – 8.0% and 5.6% of male-respondents and 10.8% and 17.4% of female-respondents; daily or almost every day – 18.0% and 19.1% of male-respondents, respectively, of the 4th course and 10.95% and 30.7% of female-respondents, respectively, of the 4th course; once a week or several times a week – 18.0% and 22.4% of male-

respondents and 23.95% and 18.25% of female-respondents; once or several times a month, rarely or never – 13.5% and 9.0% of male-respondents and 9.9% and 6.25% of female-respondents; every day or almost every day – 12.2% and 26.0%, respectively, of male-respondents of the 6th course and 13.3% and 25.45% of the female-respondents, respectively, of the 6th course; once a week or several times a week – 22.0% and 22.0% of male-respondents and 24.85% and 20.7% of female-respondents; once or several times a month, rarely or never – 9.6% and 8.2% of male-respondents and 10.9% and 4.8% of female-respondents. Data on the frequency of consumption of eggs are presented in the form of a graph (Fig. 4).

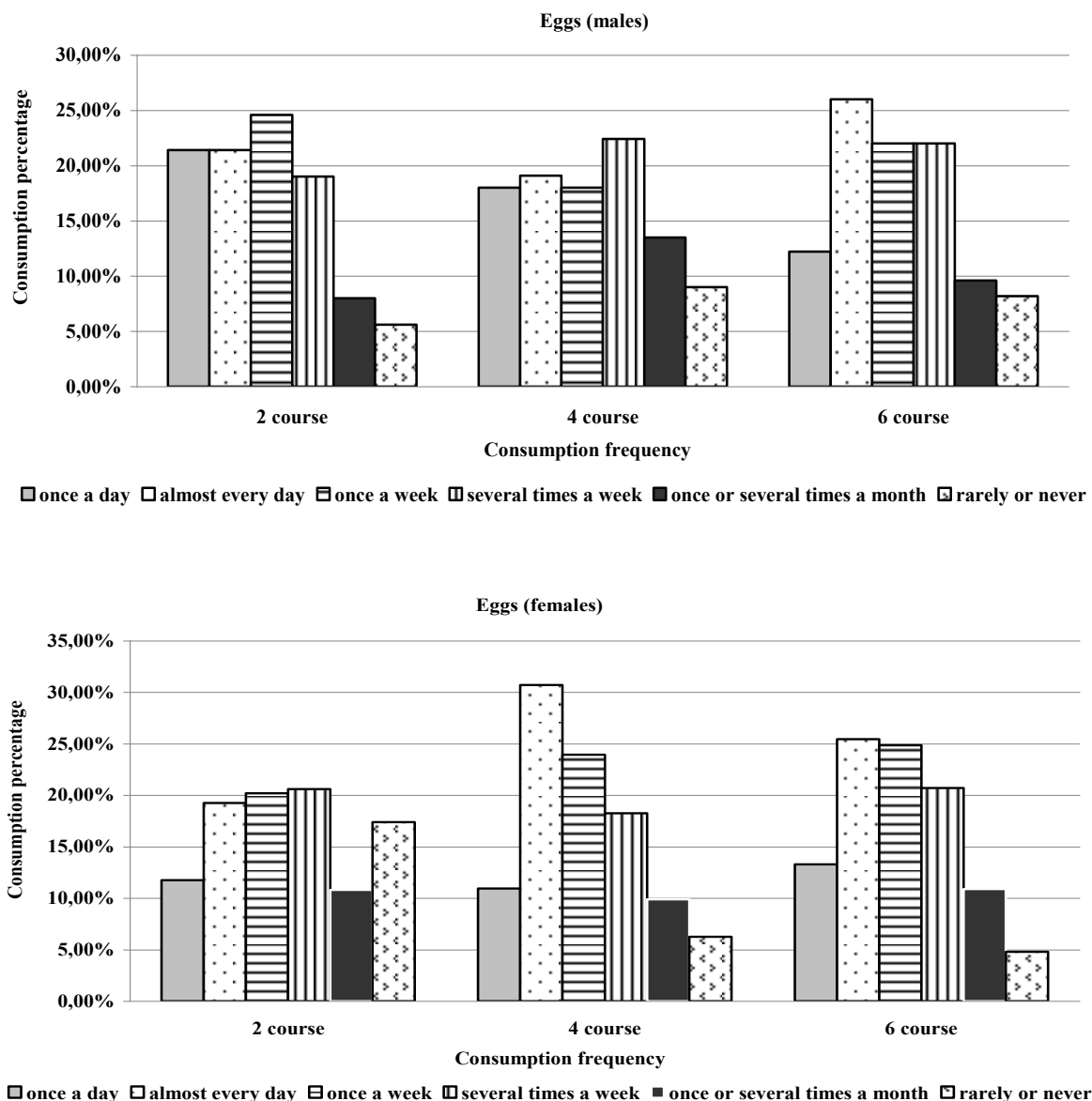


Fig. 4. Frequency of egg consumption by medical students

When assessing the frequency of consumption of butter and lard, it was found that 16.7% and 22.25% of male-respondents, respectively of the 2nd course and 6.6% and 13.2% of female-respondents, respectively of the 2nd course consume them once daily or almost every day; once a week or several times a week - 15.0% and 25.4% of the male respondents and 22.5% and 18.3% of female-respondents; once or several times a month, rarely or never - 14.3% and 6.35% of male-respondents and 10.3% and 29.1% of female-respondents; daily or almost every day - 18.0% and 22.4% of male-respondents, respectively of the 4th course and 5.7% and 6.7% of female-respondents, respectively of the 4th course; once a week or several times a week - 21.35% and

16.85% of male-respondents and 10.4% and 28.7% of female-respondents; once or several times a month, rarely or never - 13.5% and 7.9% of male-respondents and 25.5% and 23.0% of female-respondents; daily or almost every day - 17.8% and 27.5%, respectively of male-respondents of the 6th course and 10.3% and 29.0% of female-respondents, respectively of the 6th course; once a week or several times a week - 15.0% and 16.4% of male-respondents and 16.36% and 19.4% of female-respondents; once or several times a month, rarely or never - 12.3% and 11% of male-respondents and 10.3% and 15% of female-respondents. Data on the frequency of consumption of butter and lard are presented in the form of a graph (Fig. 5).

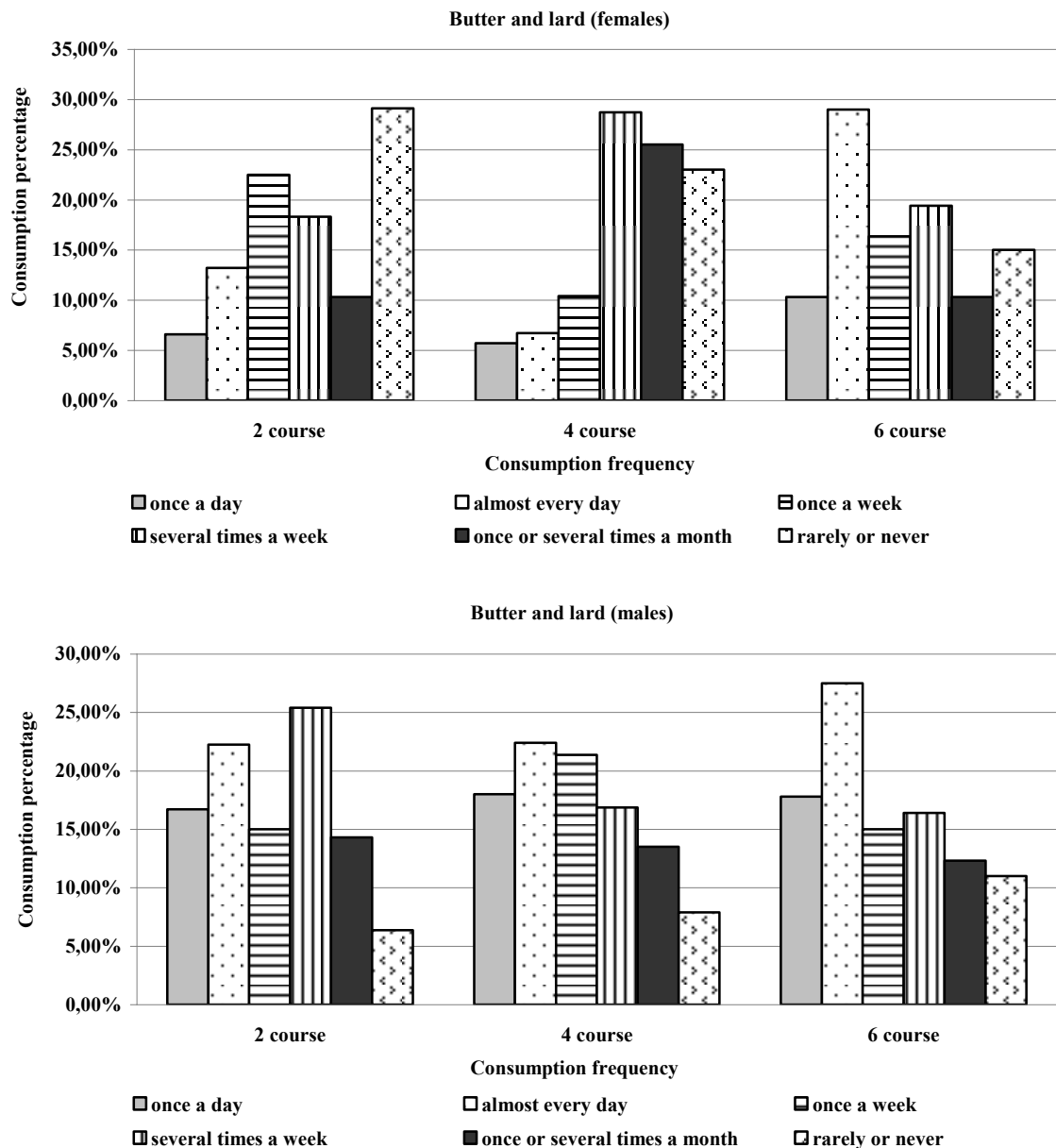


Fig. 5. Frequency of consumption of fat-containing products by medical students

CONCLUSIONS

1. The obtained results make it possible to conclude that more than 2/3 of diet of medical students does not meet the national recommendations on nutrition of the population by the frequency of consumption of food products of animal origin [12, 13]. Less than a third of respondents, regardless of gender or course of study, include meat and meat products, milk and dairy products in their diet once a day or almost every day. Less than 1/5 of

respondents include fish and seafood, eggs and fat-containing products daily.

2. The current situation may lead to the emergence of polynutrient deficiencies of nutrients of animal origin and hereafter – to nutritional diseases, which confirms the need for targeted correction of diet of medical students according to the frequency of consumption of food of animal origin.

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