

NUTRITION OF STUDENTS' YOUTH NOWADAYS AND ITS CORRECTION WAYS

DOI: 10.36740/WLek202205117

Sergii T. Omelchuk¹, Liubov B. Yeltsova¹, Ivan P. Kozyarin², Vasyl D. Aleksiiichuk¹, Olexandra P. Ivahno², Irina O. Galan¹, Yevhen N. Anisimov¹

¹ BOGOMOLETS NATIONAL MEDICAL UNIVERSITY, KYIV, UKRAINE

² SHUPYK NATIONAL HEALTHCARE UNIVERSITY OF UKRAINE, KYIV, UKRAINE

ABSTRACT

The aim: Assessment of students' youth' nutrition by components introduction of nutrition correction methods.

Materials and methods: The following methods have been used in the study: analytical, questionnaire method (the authors composed a questionnaire chart for complex assessment of life style components), statistical (the data received statistical analysis by the licensed in Ukraine software IBM SPSS Statistics Base v.22, with academic lifetime license).

Results: The authors have found that medical students' nutrition style can be characterized as unbalanced and polydeficient. The detected non-observance of the nutritional regimen and real students' youth nutrition justify implementation of preventive measures, aimed at decreasing risks of the alimentary and alimentary-dependent diseases.

Conclusions: The paper contains recommendations on the main ways of the students' youth nutrition regimens correction.

KEY WORDS: nutrition regimen, medical students, alimentary diseases

Wiad Lek. 2022;75(5 p1):1147-1151

INTRODUCTION

Since the 90's of previous century till present time we have observed destructing changes in Ukraine, both in the population structure and size. The last criterion, in any country, is a factor which significantly affects further development of the society, being considered as a basis of economic, social, political, cultural, spiritual and intellectual progress [1, 2].

Especially worrisome is the health condition of working population, among which the largest group is represented with intellectual workers, whose activity is related to high nervous and emotional tension and considerable hypokinesia.

The conducted studies have shown that nutrition of this group is characterized by excessive energy value, is unbalanced by basic nutritional substances and deficient related to certain essential nutrients (poly-unsaturated fatty acids, retinol, ascorbic acid, sulphur-containing amino acids, etc.), with severe violations of the nutrition regimen (excessive supper food consumption, starting working day skipping the breakfast, etc.). Such nutrition leads to considerable occurrence of overweight and obesity (till 36%), as well as high incidence of cardiovascular and gastrointestinal diseases, diabetes mellitus and malignancies [3, 4].

The intellectual workers' group includes young students, for whom rational nutrition is a key factor of their health, necessary for managing the huge intellectual, psycho-emotional and physical loads. Unfortunately, not all students know about problems related to irregular and irrational nutrition, and so they miss the opportunity to prevent the

diseases, which doesn't promote healthy nutrition among the population [5, 6]. Even nowadays the physicians still lack in their practice effective assessment measures which would provide for information about students' nutrition, lifestyle, harmful habits and nutrition status. So, the problem is still relevant nowadays.

It is worth mentioning that numerous studies of students' morbidity related to irrational nutrition have been held in Ukraine recently. The general level of the gastrointestinal morbidity among the students equals 1614.4 cases per 100,000 people, which greatly exceeds the pathology values in general population over 18 years old (1149.7 cases per 100,000 people.) [7]. Most often, the students are diagnosed with gastritis and duodenitis. The morbidity of these diseases is 477.0 cases per 100,000 students, and the occurrence is 2954.6 cases per 100,000 people, with 148.3 and 2453.3 cases detected among the adults, respectively [8, 9].

The study of the cardiovascular diseases morbidity of the students-future technicians and economists [7] showed that in 2010-2015 the pathology morbidity increased in students of both specialties by 22.9%, in future economists – by 67.5%, and the endocrine diseases, respectively, – by 46.1% and 89.8%. The results confirm that these characteristics depend on the university profile as well as the students' awareness about healthy lifestyle and main risk factors of chronic non-infectious diseases [7, 9].

Of great significance are the long-term students' cross-specialty group studies of their awareness about healthy lifestyle and main non-infectious diseases risks, firstly nutritional

ones, conducted by specialists of the Institute of Public Health after O.M. Marzeev affiliated to National Academy of Medical Sciences of Ukraine, under supervision of academician A.M. Serdiuk. The study analyzed the data of the Kyiv National Trade-Economical university (KNTEU) and Sumy State Pedagogical university (SSPU) students [9].

The scientists state that the curricula of higher educational institutions contain significant differences in teaching the health-maintaining courses. Most higher educational institutions, the educational profile of which is unrelated to human health, don't approve such courses in the curriculum. This results in low level of awareness by most students about the non-infectious diseases risks, particularly about the irrational nutrition [9].

The study, conducted with the Vinnytsa National Medical university students, showed continuous increase in gastrointestinal diseases: gastritis, gastroduodenitis, pancreatitis, stomach ulcer, complaints of heartburn and flatulence [10-12].

So, the obtained data evidence about considerable problems of the students' nutrition, which makes potential risks for polynutrient deficiencies, and, consequently, alimentary-dependent diseases. Though, complex studies of justification of the youth nutrition correction related only to some aspects of the problem. Regarding all this, the study was aimed at:

Hygienic assessment of real students' nutrition and justification of correction of the basic essential nutrients' deficiency for prevention of the alimentary and alimentary-dependent diseases among the students.

THE AIM

Assessment of students' youth' nutrition by components introduction of nutrition correction methods.

MATERIALS AND METHODS

The following methods have been used in the study: analytical, questionnaire method (the authors composed a questionnaire chart for complex assessment of life style components), statistical (the data received statistical analysis by the licensed in Ukraine software IBM SPSS Statistics Base v.22, with academic lifetime license).

The questionnaire chart was published in professional edition: <http://medpers.dsma.dp.ua/issues/2017/N3/104-112.pdf>. E-chart: <https://docs.google.com/forms/d/e/1FAIpQLSevB1JT-sK-PdpD8vHk2zBbVz-wPP3Ub-Je1pynL3pDCpu5oHQ/viewform>

The study design is: cross-section blinded study. The survey was carried out from January till March 2017. The manifestations of nutritional deficiency in student's body are most expressed during this period (winter-spring). The survey was conducted by pre-trained interviewers (education period was 2 weeks).

The study includes medical students of the 2nd, 4th and 6th study years of Bogomolets National Medical University affiliated to the Ministry of Health of Ukraine.

A total sample is 5000 students, with 858 respondents questioned. Random sample choice principle was applied. All students had equal chances of being chosen. The representative sample included male and female medical students, aged 18-25 years old.

The questioning was anonymous, which didn't affect psychological, procedural and financial characteristics of the respondents, thus preventing the questioning bias. The questioning was held upon the previous informed consent of all respondents.

RESULTS

The students' morbidity has increased by 25% for the last 10 years (State Committee of statistics, 2018). The causes of this include insufficient adaptation of the first university study years, hypodynamics, psycho-emotional exertion, harmful habits and irrational nutrition.

The nutrition of medical students has recently been emphasized, as these students make a separate category of students related to the human welfare. They should consider the matter deeper, preventing its manifestations and promoting healthy nutrition among working people [6].

The study estimated real nutrition of medical students and introduced correction of the essential nutrients content in the dietary regimen of students. The study was held under the supervision of professor S.T. Omelchuk in Bogomolets National Medical University [3-5, 13-18].

The authors composed a questionnaire chart for assessment of various population group nutrition, including the students' youth [13]. It was used and evaluated by the specialists of leading institutions of nutritional hygiene, gastroenterology and dietology. The expert evaluation of the questionnaire chart made by appropriate specialists confirmed its universal character as for the primary information collection.

Overall, 858 Bogomolets National Medical University students (570 females and 288 males) of the 2nd, 4th and 6th study years were questioned about their nutritional regimen and nutritional ratio, frequency of consumption of basic food product groups (11 groups), daily and weekly consumption of basic food product groups (20 groups), in order to justify the recommendations on preventing the alimentary-dependent diseases [3, 4, 13-18].

The study results reflect gaps in the nutritional regimen: food courses number, neglecting basic meal courses, inappropriate intervals between meals, speed of food consumption and distribution of the consumed food volume according to the meals. The authors established that only 14.6% of men and 15.1% of women consume four meals daily. About 43.7% of men and 45.8% of women neglect breakfast, and, generally, 85.5% don't keep to the optimum interval periods between the main meals. For only 31.0% of men and 28.6% of women dinner is the basic meal, while for 32.0% of men and 25.0% of women supper is the main meal of the day. Most men and women consume food in public restaurants and cafes. According to the obtained results of the disturbed food regimens, the authors composed the ways and methods of their correction [4, 5].

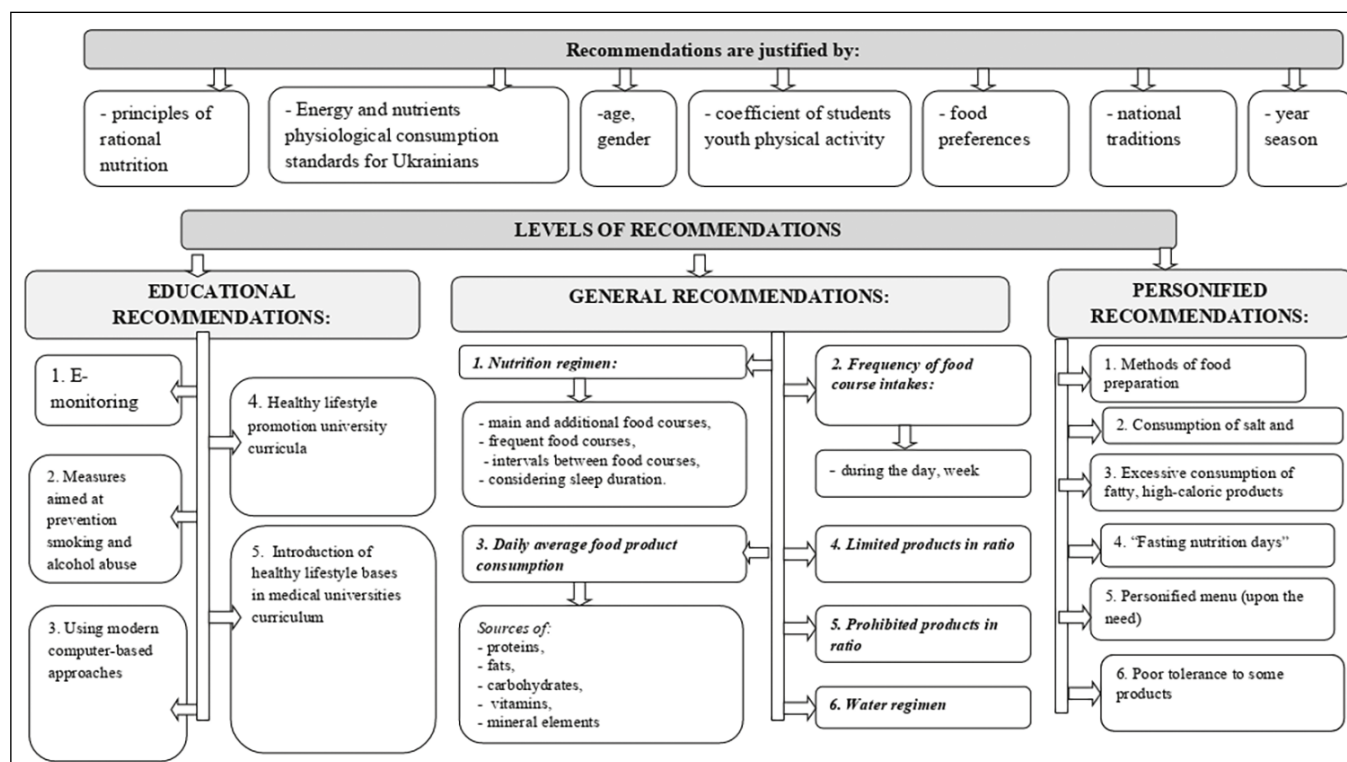


Fig. 1. Recommendations on main ways of correcting the students youth nutritional regimens

In general, more than 2/3 of the medical students' ratios by their consumption of animal origin food go contrary with the national recommendations on people nutrition. Less than 30% of respondents, regardless of their gender and study year, include in their ratio meat and meat products, milk and milk products once a day or almost every day. Less than 20% respondents include in the ratio fish and seafood, eggs and fat-containing products. A third of the respondents don't consume milk, 1/5 of the respondents consume 250-400ml of milk. A half of the junior students, regardless of gender, don't include in their ratio sour milk products. One fifth of junior and middle-course students consume daily 250-400ml of sour milk products, regardless of gender, and 1/3 of the 6th year female students and 1/5 male students of the same age [14-16].

About 1/3 of junior males and half of junior female students don't consume pork; 1/3 of all respondents consume 100-250grams of it. A half of the respondents don't consume the beef. About 1/5 of males and 1/3 of females, regardless of the study year, consume daily 100-250 grams of beef [14, 16].

A half of all respondents consume poultry (chicken), 100-250gr daily. One-fourth of junior male students, one-sixth of senior male students and one-tenth of female students don't consume poultry. More than one third of all respondents consume sausage and smoked sausage, about 100 g a day. One third of men and half of women, regardless of the study year, do not consume sausage [14, 16].

A half of respondents do not consume sea-fish and river-fish. Only one-fifth of males and one fourth of females, regardless of the study years consume 100-200g of sea-fish

daily. About 70% of all respondents refused seafood, regardless of gender and study year. The analysis of interview data showed that more than one third of the respondents include one or two eggs in their daily ratio. Only one tenth of respondents don't consume eggs at all [14, 15, 16].

According to the study, 70% of student ratios by their plant origin product content are inappropriate to the national recommendations. Only one third of female respondents and 15% - 25% of male respondents consume vegetables daily. From 17% of female students (the 2nd study year) till 25% (6th study year), and a third of male students, regardless of the study year, consume potatoes daily. Up to 40% of male respondents and 31% of female respondents consume fruit daily [3, 5, 17].

The study reveals that 50% of the student ratios, by food assortment and daily average fruit and vegetable consumption, don't correspond to the national recommendations on nutrition. Ten percent of all respondents refuse vegetables and fruit [3, 5, 17].

Up to 40% of male and 30% of female respondents consume bread and bread products daily. Every day up to 30% of male and 15-19% of female respondents consume cereals and pasta products. A third of male and 10-2% of female respondents consume sweets (sugar, jams, honey) daily [5, 18].

A half of all respondents add daily to their ratio up to 100g of confectioneries, and one-third consumes 100-200g of the product. A half of senior students and 1/3 of senior students add sugar into the ratio, up to 25g daily. Mostly middle year students and senior students consume more than 100g of sugar daily [5, 18].

DISCUSSION

The study revealed that the real nutrition of students is ill-balanced, characterized by nutrients polydeficiency, it needs correction and introduction of preventive measures to decrease the risk of alimentary and alimentary-dependent diseases. Similar results have been obtained in other European universities [19, 20].

The described diet with deficient animal products may lead to protein deficiency and thus increase the risks of protein-deficiency diseases.

The ratios of the questioned students are rich in carbohydrates, which may lead to overweight, insulin-resistance, and further – diabetes mellitus.

Nowadays, some high school curricula include the course “Nutrition science” promoting healthy lifestyle.

CONCLUSIONS

The conducted studies helped to justify basic methods of the students’ nutritional regimen correction as for the essential nutrients content [5]. General recommendations on correcting the lifestyle, nutritional regimen, frequency of certain food groups’ consumption during the day and week, daily average consumption of food products with essential nutrients as well as correction of certain food products consumption and strict water regimen should be emphasized [5]. The advice on personified menu composition should be based on rational nutrition principles, considering the Ukrainian population physiological needs in basic food substances and energy [21], according to the gender, age, body mass, physical activity coefficient, food preferences, national, family and individual traditions as well as the seasonal food consumption (fig. 1).

The key aspects of recommendations on the lifestyle and nutrition of the students’ youth should be not only general, but personified. Introduction of such recommendations into the students’ life, firstly, life of medical students, will help to shape their health-maintaining skills, behavior and competences, which are an essential part of their professional knowledge and will be used in the further medical practice.

REFERENCES

- Ivahnko A.P., Kozyarin I.P., Omelchuk S.T. Suchasni metodychni pidkhody do normuvannia kharchuvannia dytiachoho naselennia v Ukraini. [Modern methodological approaches to the regulation of nutrition of the children's population in Ukraine]. *Hygiene of populated places*. 2018;68:184–189. doi: 10.32402/hygiene2018.68.184. (In Ukrainian).
- Loban G.A., Zachepylo S.V., Kovalenko N.P. et al. Formuvannia zdorovoho sposobu zhyttia studentiv yak zaporuka suspilnoho ta ekonomichnoho rozvytku derzhavy. [A healthy lifestyle students as pledge of social and economic development of the state]. *Actual Problems of the Modern Medicine*. 2015;2(15):30–32. (In Ukrainian).
- Yeltsova L.B., Omelchuk S.T., Aleksiiichuk V.D. et al. Profilaktyka hipovitaminoziv ta hipomikroelementoziv u studentskoi molodi. [Prevention of hypovitaminosis and hypomicroelementosis in student youth]. *Environment & Health*. 2018;4(89):53–57. doi: 10.32402/dovkil2018.04.053. (In Ukrainian).
- Yeltsova L.B. Hihienichna otsinka rezhymu kharchuvannia studentiv-medykiv ta obgruntuvannia shliakhiv yoho korektsii. [Hygienic assessment of the diet of medical students and justification of ways of its correction]. *Nutrition Problems*. 2017;1(46):17–21. (In Ukrainian).
- Yeltsova L.B. Scientific justification of ways of the essential nutrients deficiency in the student youth diet correction: dissertation abstract for acquiring the degree of Candidate of medical sciences. 2021;23.
- Linnik S. Stratehiia V00Z «Zdorovia – 2020» yak zasib pryskorennia prohresu v dosiahnenni maksimalnoho potentsialu u sferi okhorony zdorovia naselennia. [Strategy of the WHO “Health – 2020” as a method of forcing the progress of reaching maximum potential within the healthcare]. *State and Society*. 2016,195p. (In Ukrainian).
- Tserkovna E., Barybina L., Filenko L. et al. Analiz struktury zakhvoriuvanosti studentiv riznoprofilnykh vyshiv dlia poshuku shliakhiv u optymizatsii fizychnoho vykhovannia. [Analysis of the structure of the incidence of students from various universities for search for ways to optimize of physical education]. *Sport science of Ukraine*. 2017;2(78):47–56. (In Ukrainian).
- Adamovych I.V., Vovk K.V., Litvin O.I. et al. Analiz zakhvoriuvanosti khvorob orhaniv travlennia u studentskii populiatsii ta profilaktychni zakhody yikh podolannia. [Incidence study of gastrointestinal diseases in students and guidelines for their prevention]. *Actual Problems of the Modern Medicine*. 2018;3(63):5–9. (In Ukrainian).
- Serdiuk A.M., Gulich M.P., Petrenko O.D. et al. Otsinka obiznanosti ta usvidomlennia studentskoiu moloddu roli kharchuvannia u rozvytku neinfektsiinykh zakhvoriuvan. [Assessing the awareness and consciousness of young students about the role of nutrition in the development of non-infectious diseases]. *Environment&Health*. 2019;2:27–31. doi: 10.32402/dovkil2019.02.027. (In Ukrainian).
- Korol’ova N.D., Chorna V.V., Gumenyuk N.I. et al. Vplyv na zdorovia studentiv–medykyv yizhi shvydkoho pryhotuvannia. [Fast food effect on health of medical students]. *Scientific proceedings of KMAPE after P.L. Shchupik*. 2019;33:151–155. (In Ukrainian).
- Gulich M.P. Ratsionalne kharchuvannia ta zdorovy sposib zhyttia – osnovni chynnyky zberezhenia zdorovia naselennia. [Rational nutrition and healthy lifestyle – basic factors of preserving population health]. *Problems of ageing and longevity*. 2011, 132p. (In Ukrainian).
- Peresichna S., Kravchenko I. Orhanizatsiia kharchuvannia studentiv. [Managing nutrition of students]. *Goods and markets*. 2010, 130p. (In Ukrainian).
- Yeltsova L.B., Omelchuk S.T. Obhruntuvannia shliakhiv udoskonalennia anketno-opytualnoho metodu otsinky faktychnoho kharchuvannia naselennia. [Substantiation of ways to improve the questionnaire method for assessing the actual nutrition of the population]. *Medicni perspektivi*. 2017;22(3):104–12. doi: 10.26641/2307-0404.2017.3.111935. (In Ukrainian).
- Yeltsova L.B., Omelchuk S.T., Petrosian A.A. Hyhyenycheskaia otsenka chastoty potreblennia produktov pytannia zhyvotnoho proyskhozhdennia v ratsyone studentov–medykov y obosnovanye putei ykh korektsyy. [Hygienic assessment of frequency of consuming food products of animal origin in the diet of medical students and rationale of ways of its correction]. *Medicni perspektivi*. 2019;24(2):73–82. doi: 10.26641/2307-0404.2019.2.170155. (In Ukrainian).
- Yeltsova L.B., Omelchuk S.T., Petrosian A.A. Otsinka serednodobovoho spozhyvannia molochnykh ta kyslomolochnykh produktiv kharchuvannia u ratsioni studentskoi molodi. [Estimation of average daily consumption of dairy and sour milk products in the diet of student youth]. *Actual Problems of the Modern Medicine*. 2018, 19p. doi: 10.31718/2077-1096.18.4.13. (In Ukrainian).

16. Yeltsova L.B., Omelchuk S.T. Otsinka serednodobovoho spozhyvannia produktiv kharchuvannia tvarynnoho pokhodzhennia u ratsioni studentskoi molodi. [Estimation of average daily consumption of food products of animal origin in the diet of student youth]. Problemy viiskovoi okhorony zdorovia. Zbirnyk naukovykh prats Ukrainskoi viiskovo-medychnoi akademii. 2018, 257. (In Ukrainian).
17. Yeltsova L., Omelchuk S. Otsinka serednodobovoho spozhyvannia ovochiv ta fruktiv u ratsioni studentskoi molodi. [Evaluation of daily fruit and vegetable consumption by students' youth]. One Health and Nutrition Problems of Ukraine. 2018;2(49):46–54. doi:10.33273/2663-9726-2018-49-2-46-54. (In Ukrainian).
18. Yeltsova L.B. Monitorynh serednodobovoho spozhyvannia khlিবnykh, krupianykh ta makaronnykh vyrobiv u ratsioni studentskoi molodi. [Monitoring of average daily consumption of bread, cereals and macaroni products in the diet of student youth]. IX International Scientific and Practical Conference "International Trends in Science and Technology". Warsaw; 2019, 16p.
19. Hilger J., Loerbroks A., Diehl K. Eating behaviour of university students in Germany: Dietary intake, barriers to healthy eating and changes in eating behaviour since the time of matriculation. Appetite. 2017;109:100-107.
20. Tanton J., Dodd L.J., Woodfield L., Mabhalala M. Eating Behaviours of British University Students: A Cluster Analysis on a Neglected Issue. Adv Prev Med. 2015; 8 p. doi: 10.1155/2015/639239.
21. The Law of Ukraine "On approval of Normal Levels of Physiological Needs of Population of Ukraine in Principal Nutrients and Energy". Ministry of Health of Ukraine. Official Publ. Kyiv: Ministry of Justice of Ukraine. 2017.

The study was conducted at the Bogomolets National Medical University, being a part of the research "Vitamin content in food products of the 2nd physical activity group people" (2017-2021, № state registration №0104U003205).

ORCID and contributionship:

Sergii T. Omelchuk: 0000-0003-3678-4241^{A-F}
 Liubov B. Yeltsova: 0000-0003-1745-5207^{A-E}
 Ivan P. Kozyarin: 0000-0002-9873-8227^{D-F}
 Vasyl D. Aleksiiichuk: 0000-0002-1700-6391^{B, C, E}
 Olexandra P. Ivahno: 0000-0001-6525-3947^{E, F}
 Irina O. Galan: 0000-0002-3769-5964^{E, F}
 Yevhen N. Anisimov: 0000-0001-6822-5212^E

Conflict of interest:

The Authors declare no conflict of interest.

CORRESPONDING AUTHOR

Sergii T. Omelchuk

Bogomolets National Medical University
 34 Peremogy av., 03057 Kyiv, Ukraine
 tel: +380444544961
 e-mail: md.omelchuk@ukr.net

Received: 14.10.2021

Accepted: 06.04.2022

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article