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Nutrition in Relation to General and Oral Health - An Interdisciplinary Approach

9-11 May 2019, Târgu Mureş

BOOK OF ABSTRACTS

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“Nutrition in Relation to General and Oral Health - An Interdisciplinary Approach”

9-11 May 2019, Târgu Mureş

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MALNUTRITION IN THE REPUBLIC OF MOLDOVA

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Background: The Republic of Moldova faces the double burden of malnutrition. 6% of children up to 5 years of age have retarded asthma, conditioned by chronic energy shortages, and a fifth of the children suffer from anemia. Half of the adult population is overweight or obese. One in three Moldovan children suffers from iodine deficiency. About two-thirds of the apparently healthy 40-year-old population has high blood pressure and elevated cholesterol levels. Because of specific nutritional related disorders appeared worldwide in the last decades, there is a need for a considerable change in global society to maintain and improve health based on proper diet information.

Material and methods: Our study was conducted based on the analysis of results of multi-indicator random surveys in nests conducted in the Republic of Moldova in 2018.

Results: Poor nutrition and associated lifestyle risk factors are responsible for the annual loss of 50% of healthy female years and 35% for men in our country, also unhealthy nutrition and lack of physical activity are among the main causes of non-communicable diseases, such as cardiovascular disease, hypertension, type 2 diabetes, stroke, some cancers, musculoskeletal disorders, and some mental illness. Recent studies showed that more than half of our population had an unbalanced diet, with too few fruits, vegetables and fish, and too many foods rich in sugar, salt, and saturated fats.

Conclusions: It is needed to eat a variate menu, and basic foods in order for the body to extract the necessary proteins, carbohydrates, fats, fibers, vitamins, or phytonutrients, and for that we need more proper national specific programs to manage the situation.

Keywords: malnutrition, non-communicable diseases, carbohydrates, vitamins

ROLE OF VITAMINS AND MINERALS IN PREVENTION AND MANAGEMENT OF TYPE 2 DIABETES MELLITUS

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Background: The aim of the study was to measure and determine the level of the vitamins and minerals which have an important role in the metabolism of glucose, to prevent diabetes mellitus among individuals at risk.

Material and methods: The measurement of minerals and vitamins was done with Quantum Resonant Magnetic Analyzer, by processing serological data from 40 medical students in the first year, and included the following dietary supplements: vitamins (A,B,C,D,E,K), magnesium, potassium, chromium, zinc, copper, iron.

Results: The average age of the students was 19±0.5, and 60% were women. Regarding the body mass index, 12.5% were overweight and also 12.5% were underweight. Vitamin B has quite a low rate: B1-vit (60%), B3-vit (52,5%), B6-vit (20%), B9-vit (17.5%), B12-vit (30%). Vitamin C was significantly low in our sample, out of which 15% has an ideal reference. Vitamin A has low levels at 55% of our students, vitamin E at 57.5%, vitamin D at 47.5% and vitamin K was in normal range. The following minerals had low levels in the subjects registered: iron was low at 82.5% of them, potassium at 70%, magnesium at 57.5%, zinc at 55%, copper at 55%, and only chromium was found in a normal levels.

Conclusions: The data we assembled could give more information to medical specialists in further therapeutic possibilities and in screening tests, and also in reaching and keeping the optimal degree of the concentration of vitamins and minerals in the human body.

Keywords: type 2 diabetes mellitus, vitamins, minerals

SOCIO-ECONOMIC AND CULTURAL INFLUENCE ON FOOD INTAKE

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Background: Nutrition is an individual choice but conditioned by the social context, health or illness, physical activity, access to care and information, and funding system. The main goal was to assess food behavior according to the social and cultural profile, to identify food behavior at risk, with the purpose of implementing prevention methods by including nutritional knowledge in health education campaigns.

Material and methods: We performed a study based on the assessment of lifestyle and nutrition, which consisted in a questionnaire of 26 questions, applied online, to a group of 821 adults, in Romania, in 2018.

Results: The results revealed that socio-economic status is a contributing factor in food choices, people with low socio-economic status opted for low-price food. Social influence has a big impact on the food intake, especially on the group under 18 compared to other age groups, who perceive meals as opportunities for relaxation and socialization in a higher percentage (62.5%).

Conclusions: Improving eating behavior is based on changes in the psycho-social, economic and cultural characteristics of individuals, starting with educational interventions.

Keywords: food intake, socio-economic status, food price, health

EVALUATION OF CHILDREN'S NUTRITIONAL STATUS DURING THE EDUCATIONAL PROGRAM AND INFLUENCES ON PHYSICAL DEVELOPMENT

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Background: In Romanian kindergartens, the law ask to provide for a menu that covers 75% of the daily pre-school nutrition needs. Throughout the program, children receive two main meals (breakfast and lunch) plus two snacks.

Material and methods: This retrospective observational study was performed on a sample of 180 healthy children without acute or chronic diseases, enrolled in 6 kindergartens. Analysis of the physical development was done based on the latest biannual measurements of weight and height. For the evaluation of the menus we used the kitchen menus sheets for a period of 30 days, according to the recommendations issued by the Ministry of Health.

Results: The calories intake of children were exceeded for 90% of period involved, also the amount of fat was exceeded in 80%, carbohydrates in 90% and proteins in 70% of cases. There was a significant association between excessive fat levels and increased calorie intake ($p < 0.01$) but was not associated with protein/ carbohydrate levels ($p < 0.12$ / $p < 0.08$). The incorrect distribution of food have influenced the anthropometric data of preschoolers analyzed, with 9% obesity.

Conclusion: In our sample, the kindergarten's menus exceeds the caloric and macronutrients needs for preschoolers, which is one of the significant factors related to the unequal growth of the analyzed groups and risk for obesity.

Keywords: kindergarten, body mass index, physical development

ROMANIAN'S HABITS TOWARDS HEALTHY DIET

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Background: Nutrition is an important factor in promoting and maintaining good health throughout life. The main purpose of this survey was to assess the lifestyle and eating habits of a group of 821 people from Romania, in order to determine how certain types of diets and foods, influence health and determine the occurrence of certain chronic diseases.

Material and methods: We performed a survey based on a questionnaire of 26 questions, applied online, to a group of 821 Romanian adults, in 2018.

Results: This study revealed that there are some differences in eating habits between gender and different age groups, urban areas and level of education. Regarding to age of people surveyed in this study, it follows that adolescents are the ones who adopt the least healthy diet and the frequency of adopting a healthy diet increases with age. Women are the ones who are better informed and have a higher interest in adopting a balanced diet compared to men.

Conclusions: Considering the major importance of diet and lifestyle in maintaining of good health, it is necessary to inform the population about the importance of adopting it, especially among young people.

Keywords: health, nutrition, chronic diseases

AGE RELATED DIFFERENCES REGARDING BODY COMPOSITION IN OBESE PATIENTS

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Background: The aim of this study was to identify the differences regarding body composition in obese patients according to their age.

Material and method: We performed a prospective study on a sample of obese patients in whom we determined, analyzed and compared the body composition. The first group comprised 67 obese children admitted in a pediatrics clinic for different pathologies, and between November 2017 – February 2019, while group 2 included 80 obese adults that presented in a medical office for health between January

2017–February 2019. For the assessment of body composition, we used a body analyzer with electric bioimpedance, medically accredited. For both groups, we recorded weight, height, the fat percentage and mass, muscle percentage and mass, total water percentage and mass, lean tissue mass, body mass index (BMI), but also visceral fat and metabolic age for the adult group.

Results: The children's age ranged between 5 and 17 years, of whom 65.67% were males. The adult's age ranged between 18 and 70 years, of whom 73,26% females. The fat percentage reported to BMI increases with age, while the lean tissue mass decreases with age. Obesity affect mostly boys during childhood, while in adults it is more frequent in females.

Conclusions: Anthropometric measurements highlight the fact that the human phenotype is constantly evolving. The contemporary adult is taller, has a higher body mass index and higher fat mass percent. The precise and accurate body composition measurements are important for determining the prevalence of obesity and identifying necessary nutritional treatment interventions.

Keywords: obesity, child, adult, body composition

LINKS BETWEEN OBESITY, SELENIUM SUPPLEMENTATION, AND TITRE OF THYROID PEROXIDASE ANTIBODIES

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Background: Our aim was to evaluate the influence of administration of selenium supplements over a period of 6 months on the evolution of titers of anti-thyroid peroxidase antibodies (TPOAb) in patients with chronic thyroiditis Hashimoto from Tarnaveni, Mures County.

Methods: There were prospectively monitored 109 patients who addressed the Endocrinology Cabinet at the "Dr. Gheorghe Marinescu" Tarnaveni, diagnosed for the first time with chronic autoimmune thyroiditis, with or without impairment of thyroid hormone status.

Results: Our study showed that selenium supplementation over a 6-month period resulted in a significant decrease in serum levels of anti-thyroid peroxidase antibodies. The titer of TPOAb at 6 months of selenium supplementation, decreased to 85.3% of the investigated patients, with 26.31% of the initial value. Also, the titer of anti-thyroid peroxidase antibodies is higher in patients with vitamin D deficiency or deficiency and a body mass index equivalent to overweight or obesity. Selenium, an essential nutrient for humans, is not found in sufficient quantities in the soil of Romania, with insufficient food intake. Life style has changed, stress has increased, especially emotionally, and sedentary has become a defining feature of modern society, all of which lead to weight gain.

Conclusions: This paper demonstrates the effectiveness of administering selenium supplements at a dose of 200 micrograms per day for 6 months in patients affected by autoimmune chronic thyroiditis in order to maintain a balance of autoimmune thyroid disease.

Keywords: obesity, anti-thyroid-peroxidase antibodies, selenium, autoimmune thyroiditis

VITAMIN D AND OBESITY IN PATIENTS WITH CRONIC AUTOIMMUNE TYROIDITIS

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Background: Assessing vitamin D status in patients with chronic autoimmune thyroiditis, and establishing correlations between obesity, vitamin D levels and anti-thyroid-peroxidase antibody titers.

Material and methods: There were studied 109 patients registered at the Endocrinology Cabinet of the Municipal Hospital "Dr. Gheorghe Marinescu" Tarnaveni, diagnosed for the first time with chronic autoimmune thyroiditis, with normal thyroid status, with or without obesity.

Results: Our study enrolled patients ranging between 18 to 87 years of age (one third of them under 50 years old), and 91 of whom were women (83.48%); 66.97% had overweight or obesity. Titer of anti-thyroid-peroxidase antibodies showed significantly higher levels in patients with low vitamin D. In the studied group, vitamin D deficiency occurs in 50.4%, and vitamin D deficiency occurs in 38.2% of the investigated patients. Anti-thyroid peroxidase antibody titers were higher in older patients. Also, as patients have a BMI closer to obesity, the deficiency of vitamin D was increasing.

Conclusions: Based on our observations, vitamin D status correlates negatively with anti-thyroid peroxidase antibody levels, body mass index and age of patients.

Keywords: vitamin D, obesity, anti-thyroid peroxidase antibodies, chronic autoimmune thyroiditis

QUANTITATIVE AND QUALITATIVE MENU ANALYSIS OF PUBLIC KINDERGARTENS FROM REȘIȚA, ROMANIA

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Aim: The aim of the research is to evaluate the menu from two kindergartens according to legal recommendations.

Material and methods: A retrospective study was developed during February 2018, in Caraș-Severin, Reșița. The menu analysis was made based on daily food papers issued by educational institutions.

Results: As a result of the analysis we have made, we found that there is a considerable difference between the two kindergarten and what the Romanian Ministry of Health says. In G1 case it was registered a medium caloric value of 1320 kcal (± 661.8) and in the G2 case, 1556 kcal (± 340.7). Taking into consideration our data, between the 2 kindergartens there are some significant differences ($p=0.0115$). The caloric excess is bigger in G2 case being registered a difference of 25.23% than the recommendation.

Conclusions: Neither the kindergarten from the city outskirts nor the one from the center don't respect the legal recommendation. It is needed a specialized nutrition intervention.

Keywords: kindergarten, legal recommendations, nutrition intervention

COMPLEMENTARY FEEDING - A PRACTICAL APPROACH IN PRIMARY CARE

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Background: Child nutrition in the first year of life is crucial to the child's growth and development. We aimed to analyze the impact of workshops organized by family doctors on the topic of complementary feeding.

Materials and methods: This is a retrospective study conducted during a 10 year period (2010-2019). We studied a total of 221 patients (age up to 1 year-old) divided into 2 groups: the first one, with 84 children whose parents attended the workshops, and the second group, with 137 children, with parents who didn't attend the workshops. All the children were surveyed, assessing the following health parameters: the presence of anemia, dyspepsia and rickets. The workshop invitations were made through direct contact, online and media. The statistical analysis was performed using the Chi-square test.

Results: After analyzing the two lots, we recorded an incidence of 11.90% for anemia, 16.66% for dyspepsia and 4.76% for rickets in the in the workshop-group, compared to 27.73% incidence of anemia, 35.03% for dyspepsia and 7.29% for rickets in the second group. We found a significantly lower incidence of anemia ($p = 0.0055$) and dyspepsia ($p = 0.0031$) in the first batch and statistically insignificant differences ($p = 0.4522$) between the two groups regarding rickets.

Conclusions: Alongside conventional parenting methods on this subject, workshops on complementary feeding are an effective method of correct implementation in a family doctor's practice. The collaboration between family doctors to increase parental participation in such health education activities should be helpful.

Keywords: complementary feeding, anemia, children

CARDIOVASCULAR AND MACULAR DEGENERATION INVOLVEMENT IN CELIAC DISEASE

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Background: Celiac disease, coronary artery diseases and macular degeneration are diseases with common classification in inflammation, hence their disease modules overlap. The aim of this review is to explore the evidence about the association among celiac disease (CD), cardiovascular (CV) diseases, and macular degeneration (MD).

Material and methods: A systematic literature search was conducted using PubMed for the association among CD, CV and MD.

Results: Published studies on the link between cardiovascular conditions and CD began in the late 1960's, consisting of a few studies each year, and was followed by a substantial increase beginning about the year 2000. Many of the published studies are either articles (including

cohort and case control studies) or case studies. Cardiomyopathy, thrombosis, thromboembolism, ischemic heart disease, stroke, and arrhythmia are the most frequently documented cardiovascular condition observed in conjunction with CD, and seems to mostly or completely resolve with appropriate treatment, including a gluten-free diet. An association has been reported between celiac disease and ophthalmic manifestations. Studies have shown the role of nutritionists in the recommendations of dietary supplements such as vitamin C (500 mg), vitamin E (400 IU), zinc (80 mg), copper (2 mg), lutein (10 mg), zeaxanthin (2 mg), omega-3 fatty acids (1g) and Gluten-Digesting Enzymes supplements.

Conclusions: Celiac disease has intestinal and extra-intestinal manifestations, caused by immune alterations or by nutrient malabsorption. An increasing number of theoretical studies have modelled diseases on dynamic networks describing the disease network between CD, CV and MD.

Keywords: celiac disease, dietary supplements, coronary diseases

PREVALENCE OF MALNUTRITION USING THE CONTROLLING NUTRITIONAL STATUS (CONUT) SCORE AND ASSOCIATION WITH BIOCHEMICAL PARAMETERS IN HEMODIALYSIS PATIENTS

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Background: One of the most important complication in hemodialysis patients is malnutrition. Its occurrence is associated with an increased risk of mortality and morbidity. Our aim was to determine the nutritional status and prevalence of malnutrition and its predictors among hemodialysis patients using the CONUT score.

Materials and methods: A total of 131 hemodialysis patients were recruited for this study and assessed for nutritional status. In addition to the CONUT score, we also calculated PNI and GNRI scores. The biochemical and anthropometric parameters including BMI, albumin, complete blood count, urea and creatinine were also measured. The patients were divided in two groups depending on the CONUT score, as follows: group 1-CONUT score<3 points (normal to mildly impaired nutritional status) and group 2-CONUT score≥3 points (moderate to severe malnutrition). **Results:** Of the 131 patients men predominated 79 (60.30%), and the total group had a mean age of 60.26±13.78 years. PNI index in group 1 was 46.73±4.99 and in group 2, 36.53±6.48 (p<0.0001) and GNRI index in group 1 was 100.43±4.88 and in group 2 84.21±7.49 (p<0.0001). Also, serum albumin was significantly lower in group 2-2.90±0.43 compared to group 1-3.96±0.31 (p<0.0001). There were no statistical differences between the two groups regarding age, gender, urea, creatinine, lymphocytes. The overall hospitalization period was 6.93±3.81 days in group 1 vs.10.45±6.81 days in group 2 (p=0.001).

Conclusions: According to the high prevalence of malnutrition in hemodialysis patients, the periodic assessment of nutritional status is essential in the attempt to reduce the risk of morbidity and mortality.

Keywords: malnutrition, CONUT score, hemodialysis, nutritional status

COMPARATIVE EVALUATION OF NUTRITIONAL CHARACTERISTICS IN A GROUP OF PATIENTS WITH CHRONIC HEART FAILURE FROM RURAL AND URBAN RESIDENCY

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Background: Globally, cardiovascular disease is still the first cause of death, and it is well documented that cardiovascular risk factors are influenced by nutrition. The objective of this study was the comparative assessment of nutritional characteristics in a group of patients with chronic heart failure from rural and urban areas.

Material and methods: For this study, the final group of 178 patients with cardiac heart failure was divided into two comparison groups according to the residence environment. Group 1 (n=82) rural patients, and group 2 (n=96) patients with urban residency.

Results: The mean age of the total population was 70.2±9.45 years, and 51.68% males. Patients from urban areas had a higher Body Mass Index compared to rural patients (28.09±4.95 vs. 27.57±4.8, p=0.32). Most smokers were identified in the urban group (58.33%) than rural areas (41.46%), p=0.02. Also, patients in the urban area had a more frequent history of myocardial infarction than in rural patients (69.79% vs. 56.09%, p=0.04). Hepatic enzymes (GOT, GPT) and triglycerides (p=0.006) were significantly higher in patients in the urban area (p=0.05).

Conclusions: The comparative analysis between rural and urban environment has highlighted the need for nutritional intervention to improve the lifestyle of patients with heart failure, with emphasis on stopping smoking, avoiding fat consumption and sugary products.

Keywords: nutritional factors, area of residence, heart failure

IDENTIFYING NUTRITIONAL AND LIFESTYLE RISK FACTORS AMONG ARMENIAN AND ROMANIAN POPULATION

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Background: Our aim was to identify the risk factors related to nutrition behavior and lifestyle among the population of Armenia and Romania, two geographically and socio-cultural different countries.

Materials and methods: We made a cross-sectional research based on data obtained from an online questionnaire filled in by a sample of Armenia's and Romanian's population. The questionnaire was made out of 78 items with reference to the nutrition characteristics and lifestyle in both countries. Data evaluation has been processed with GraphPad Prism 6.0 software.

Results: The questionnaires have been completed by 192 people in Armenia, aged between 14 and 67 years old, from which 30.72% were women, most of them coming from an urban area (97.4%). 88.2% had a university level of education and prefer salty and seasoned food. The frequency of smokers was 16.5% and 22.4% considered they have a stressful life. The Romanian group included 136 persons, aged between 14-73 years old, from which 78.67% were women, 77.94% were from urban environment and 80.88% were graduated from university. 53.86% confirmed the preferences for salt, and 50.74% consumes irritating spices; here breakfast is consumed daily by 59.5% of people, 27,21 were smokers and stress level was higher than Armenian's (21.21%).

Conclusions: The prevention of noncommunicable chronic diseases can be done by a healthy diet, physical activity, weight control, adaptation to social psychological stress, enough sleep, quitting smoking as well as adherence and compliance to medical act, and is needed in both countries.

Keywords: Armenia, Romania, nutrition, lifestyle, risk factor

DETERMINATION OF PERSONALITY TRAITS IN CONNECTION TO LIPIDIC PROFILE

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Background: Cardiovascular disorders are the main cause of mortality in developed countries and the coronary disease is considered the main cause of mortality in Europe and USA. A few psycho-behavioral characteristics are correlated with positive dislipidemia and the emergence of the cardiovascular diseases. Unhealthy levels of blood lipids are among the risk factors for coronary disease, and the investigation of this, personality traits and lipidic profile can be a target for prevention itself.

Material and method: In our study, 10 patients belonging to different social and educational classes, with heterogeneous socio-economic status, but having a medical history of cardiovascular diseases, also dislipidemia, were faced to take a test for determine their personality. NEO-FFI with 60 items is a tool, which classified the subject reported to: way of thinking, feelings and behavior along the five major areas (neuroticism, extraversion, openness, palatableness, consciousness). Each of the five fields is represented by the specific scales to measure the subject personality.

Results: Subjects whad between 40 and 70 years old, lived in urban areas, and 60% were women. The hostility, impulsivity and their kind of recklessness are linked, in a positive way, with unhealthy lipidic profile, and the facts responsible for self-control and discipline were correlated negative.

Conclusions: Recent results seem to show a possible link between personality traits and certain choices in everyday life, including diet, which may lead to demaging the lipidic profile and increase the risk for heart disease.

Keywords: personality, cardiovascular diseases, dislipidemia.

CAN WE IDENTIFY MULTI-FACTORIAL CONNECTIONS IN THE PATHOGENESIS OF CANCER?

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Background: According to the Globocan2018 report, in Romania 83,461 new cases of cancer were diagnosed and 50,902 deaths were reported due to this complex disease. Human psihoneuroimunologia and psihooncologie, along with the "medicine of lifestyle" may represent a part of a huge system, which stand at the beginning, then at the development of human cancer. We tried to identify the multiple connections regarding the risk for cancer by questioning recently diagnosed patients, over the age of 18 years, both women and men.

Material and method: We used two types of instruments: 1) the NEO-FFI with 60 items, measuring the personality, especially the five major areas (neuroticism, extraversion, openness, palatableness, consciousness); 2) a Food frequency questionnaire to identify the dietary habits, frequency of consumption for 167 kind of food, drinks and supplements, the index of physical activity as well as the level of education according to ISCED.

Results: We can say that life style, stress, depression and certain personality traits does not constitute a condition “-sine qua non-” for cancer, but seem to have the potential to encourage its development. The three psychosocial factors may represent additional information, according to the medical statistics and genetic information, as part of a complex system, multi-factorial, which may lead to the diagnosis.

Conclusions: It would be wrong to consider personality traits, the influence of lifestyle as the only reasons for cancerous disease, but just as wrong will be disregarding these possibilities, especially the implications due to hormonal field, immunodeficiency, epigenetics, at the beginning/development of cancer.

Keywords: lifestyle, cancer, epigenetics, diet

STATISTICAL CORRELATION BETWEEN LIFESTYLE, BIOLOGICAL AND HEMODYNAMIC STATUS AND THE RISK FOR CARDIOVASCULAR DISEASE IN PEOPLE OVER 50 YEARS OLD

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Background: Our aim was to establish the correlation between sociodemographic profile, lifestyle and health status of a Romanian adult sample, in order to evaluate the risk for cardiovascular diseases.

Materials and methods: Our study was based on a cross-sectional randomized household survey done in 2015 on a group of 108 subjects, with different pathologies, from who consented to answer to a specific questionnaire regarding their lifestyle and health status. Data were processed using Medcalc statistic soft.

Results: On this study we followed the correlations between 5 serological parameters linked to cardiovascular pathology, along with personal data. The age-cholesterol correlation was negative for 51 participants (47.22%), with a value of -0.1422 ($p < 0.31$). The age-systolic blood pressure correlation was positive at 67 participants (62.03%), by 0.15 (and significance level of 0.21). Both these groups had each at least 3 items related to risk lifestyle behaviors registered (diet rich in saturated fats and calories, smoking, stress, or sedentarism), which emphasize the risk to develop a cardiovascular disease.

Conclusions: Based on our results we can conclude that community education and early screening are important for prevention of chronic diseases and for a healthier lifestyle.

Keywords: lifestyle, cholesterol, cardiovascular pathology, diet

EVALUATION OF LIQUID INTAKE AND LIFESTYLE HABITS IN MURES STUDENTS

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Background: Our aim was to evaluate the habits and lifestyles of students attending the Targu Mures city university, covering the details of fluid intake, for finding out how healthy their lifestyle is.

Methods: We conducted a survey based on a questionnaire from 17 questions that were filled out by 150 students from our university, focusing on different liquid consumptions. Under laboratory conditions were measured the pH and iodine concentration of some of the most consumed liquids. Measurements were carried out with Orion pH- and iodometer equipped with selective electrodes. The iodine content of the liquids was measured at 25 °C after 2 minutes of stabilization.

Results: The survey found that 75% of students consumed enough fluids daily. The amount of consumed liquids was mainly noncarbonated water (89%), tap water (26%), carbonated water (27%), juice (21%), and consumption of carbonated soft drinks (13%). The pH of carbonated soft drinks ranged from 3.61 to 4.38. For canned fruit juices, the pH varied between 3.95 and 4.59, with detectable iodine content ranging from 2.75 to 7.69 µg/l. Among weekly carbonated soft drink consumers was more frequently detected an iron deficiency, urinary tract infection, obesity and bone fracture. 86% of active athletes consume enough fluid, and they consume mainly non-carbonated water.

Conclusions: Students who regularly exercise pay more attention to the proper quantity and quality of fluid intake. Regular consumers of carbonated soft drinks are more predisposed to overweight, bone fractures, iron deficiency and urinary tract infections.

Keywords: liquid intake, drinks, pH, iodine

DIETARY PROTEIN INTAKE IN PATIENTS WITH RENAL RISK FACTORS – A LOCAL TOUCH

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Background: Diabetes and high blood pressure are the two leading risk factors of kidney disease and can cause permanent damage to the kidneys. Protein intake can increase creatinine in patients with normal renal function, but the effects of high protein intake on normal kidney function are unclear. This study wanted to examine the association between dietary protein intake and eGFR in patients with diabetes and high blood pressure.

Material and methods: Our target population was a group of 24 patients admitted to the Herghelia Lifestyle Center, with type 2 diabetes and high blood pressure. For each patient we performed anamnesis and protein intake estimation through a food frequency questionnaire. The eGFR was calculated using MDRD - Equation. For statistical analysis we used Epi Info7 and GraphPad.

Results: The subjects health condition was: 15 (62.5%) were hypertensive, 1 (4.16%) had type 2 diabetes and 8 (33.33%) had both diseases. The medium eGFR (ml/min/1.73m²) was 83.91 in hypertensive patients, 56.5 in diabetic patient, 96.63 in patients suffering of both diseases. The association between protein-rich food intake and renal risk factors was not statistically significant (p=0.9961).

Conclusion: Although the eGFR values are within normal limits no matter if the patients eat frequently protein-rich food or they do not eat at all, the results show that a daily protein intake from meat is associated with the same eGFR but other protein-rich food intake are associated with a higher eGFR in the risk-group.

Keywords: protein, eGFR, kidney, diabetes, diet

CORRELATIONS BETWEEN MICROBIOTA, DIET AND MOOD – NEW ASPECTS

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Background: The latest studies are focused on the direct relationships between brain, spinal cord and digestive organs. The notion and image of nutrients occurs in cerebral cortex, from which information is relayed electrochemically to the limbic system, which regulates emotions and key physiological functions such as hunger, thirst, temperature, heart rate, and blood pressure. Within the limbic system there is a pea-sized collection of tissues known as the hypothalamus, which integrates the activities of the mind with the biology of the body and plays a big role in eating psychology. Diet can change microbiota composition followed even by mood changes. The purpose of this study was to track the emotional changes of people based on the foods they usually consume.

Material and method: Our study was based on the analysis of scientific literature available on Pub Med, related to intestinal microbiota interrelation with neural cells. We have studied six of most strong evidenced surveys, done in the last 3 years, upon 883 people, from EU, which have adopted a diet based on vegetables, fresh, and whole grains type of foods, and answered to questionnaires applied before and after the diet changes.

Results: Results showed that the patients had a positive feed-back with significant emotional and behavioral changes after diet changes: for people with anger and nervousness crises, frequency of episodes decreased, also patients with generalized anxieties opened up a lot, increased their circle of friends, wandered more much in nature and have hobbies they feared at first. Proper diet, daily exercise, and personalized monitoring can help to improve patients mood and reduce the risk of chronic diseases as well.

Conclusions: Processed and admixed foods in high amounts, can harm the entire body, and brain as well, characterized by panic attacks, fear, or unjustified appetites. A proper diet, daily exercise, and a personalized treatment and monitoring can help to reduce the risk of chronic diseases and to improve patients mood as well.

Keywords: nutrition, psychiatric disorders, food additives, microbiota

FAVORABLE FACTORS OF ENTEROCOLITIS CAUSED BY CLOSTRIDIUM DIFFICILE

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Background: Clostridium difficile is the most common cause of diarrhea acquired in hospitals in patients who are treated with antibiotics, and is one of the most serious intestinal disorders.

Material and method: A case-control study was conducted upon 254 people aged 12-98 years old, hospitalized at hospital of infectious diseases in Braşov, Romania, during the period 2014-2018, who had a diagnosis of Enterocolitis discharge through Clostridium difficile, to test the hypothesis that there is a link between the hospital environment, long-term antibiotic treatment (patients over 60 years old), and Clostridium difficile infection.

Results: The evolution of the cases depended on these factors mentioned before, the results obtained confirming the hypothesis, since 100 persons (40%) of the subjects over 60 years had antibiotic treatment prior to diagnosis and 52 of them (20%) had hospitalizations. This infection showed an increased risk of recurrence, as well as a severity and incidence of growth in recent years.

Conclusion: The risk of developing the disease should also be considered in patients who do not have typical risk factors due to the mechanism of transmission (fecal-oral), hospital isolation, disinfection and hand hygiene, with a key role in preventing the transmission of this bacterium.

Keywords: Clostridium difficile, diarrhea, hospitalization, antibiotics

BIOCHEMICAL MECHANISMS OF WEIGHT LOSS-DIETS

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Background: The goal of this paper is to review current literature on different nutritional strategies within the context of weight loss management, taking into consideration the importance of understanding biochemical mechanisms and their consequences on human metabolism.

Material and method: We evaluated studies and reviews published over the last 5 years, about most popular diets followed among young people in Romania, including Dukan, Rina and Dissociated Diet.

Results: In summary, our results suggest there are several biochemical explanations which confirm that a short-term success in weight loss may turn into long-term failure. Other important explanation takes into account a genetic susceptibility to weight gain.

Conclusion: Following a short or a long term diet, may lead to a significant body weight loss. The challenge is to develop future strategies to support individuals to ensure sustainable outcomes.

Keywords: weight regain, carbohydrate restriction, fatty liver, diabetes, insulin

ASSESSMENT OF FEED FEES AND STATISTICS OF LIFE IN PATIENTS WITH IMPORTANT IMMUNODEFICIENCY SYNDROME

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Background: Our aim was to evaluate the nutritional habits and lifestyle profile of a group of patients with immunodeficiency syndrome.

Material and method: We investigated the food consumption and lifestyle in 63 patients (34 women, and 29 men from which 4 male children, with ages between 9 and 42 years old), hospitalized and kept under surveillance at Infectious Diseases Clinic from Targu Mures county, by conducting a descriptive clinical study over 7-month period in 2018. The evaluation was based on a questionnaire with 51 questions, focused on daily dietary habits and lifestyle.

Results: Our data proved that fresh fruits were consumed the least, and fresh vegetables, nuts and fish meat, only in proportion of 7%. Animal and vegetal fat, white bread, cheese, and energy drinks were consumed frequently (by 71.1% of them) ($p < 0,001$). Fast-food products were consumed in proportion of 56.8%, and at least 2 or 3 times a month ($p < 0,001$). Alcohol and tobacco consumption registered also: 47.6% of patients were drinking occasionally alcohol ($p < 0,001$), 7.9% of them were smoking 15 cigarettes a day, and 27% of them were smoking more than 6-10 cigarettes a day ($p < 0,001$).

Conclusion: The trial proved that seropositive patients, doesn't have healthy nutritional habits and they are not respecting specialist's recommendations. Therefore, is needed a stronger collaboration between infectious diseases specialists, family doctors and dietitians, to monitor patients and improve their life quality.

Keywords: eating habits, lifestyle, immunodeficiency syndrome

EVALUATION OF CONSUMPTION OF ENERGY DRINKS AND PROCESSED FOOD BY MURES YOUNG ADULTS

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Background: In the last years we found out an increased consumption of energy drinks by young adults, with high risk for health status in association with diets full of processed products, low interest to read food labels, no daily exercise and lack of stress management.

Material and methods: Our study was focused on a group of 188 young people, aged from 16 to 21 years old, from Targu Mures high schools and universities, that were analyzed using a lifestyle questionnaire that gathered data about their diet composition, frequency and quantity of energy drinks used weekly, knowledge about attitudes upon nutrition and reading food labels.

Results: In our group, 46 subjects (52.27%) have been recorded to use energy drinks (from which half are consuming daily), while 42 others (47.19%) never consume it; also 56 subjects (63.63%) were not interested in food additives marked on labels and never care about consuming them, while 32 (36.36%) are reading food labels and are avoiding consumption of highly processed foods. 44% of them are associating sweet and energy drinks with processed and junk foods, daily.

Conclusion: More information about the negative effects of metabolic toxins from multiple food sources is needed in order to raise awareness concerning the health status of young adults.

Keywords: diet, food labels, metabolic toxins, energy drinks

LOW-GRADE SYSTEMIC INFLAMMATION AND OBESITY

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Background: The aim of this study was to assess the role of neutrophil/lymphocyte (NLR) and platelet/lymphocyte ratios (PLR) in diagnosing obesity-related systemic inflammation.

Material and method: We performed a prospective study on children admitted in the Pediatrics Clinic I from Targu Mures between November 2017 and February 2019. The study comprised 164 children with 5 and 18 years old, who were divided depending on body mass index (BMI) into 2 groups: group 1 (77 overweight and obese children with BMI \geq P85), and group 2 (87 children with normal BMI). All patients underwent clinical exam and laboratory parameters. The NLR and PLR were calculated from the complete cellular blood count by dividing neutrophils to lymphocytes and platelets to lymphocytes, respectively.

Results: Our results pointed out that leukocytes, lymphocytes, erythrocytes, platelets and transaminases were significantly higher in overweight/obese group ($p=0.0379/ p=0.0002/ p=0.0003/p=0.0006/ p=0.0332/ p<0.0001$). Regarding neutrophils, hemoglobin, albumin, total proteins and glycaemia, we found no significant differences between the two groups included in our study ($p>0.05$). Moreover, NLR and PLR presented no significant differences between overweight/obese and normal weight children ($p=0.4674/p=0.9973$).

Conclusions: Low-grade systemic inflammation is well-documented to be associated with obesity. Our findings revealed that leukocytes, lymphocytes, erythrocytes and platelets are significantly higher in overweight/obese children. Nevertheless, we found no significant differences in terms of NLR and PLR between overweight/obese and normal weight children. The diagnosis of obesity-related systemic inflammation is of major importance in children in order to prevent long-term associated complications.

Keywords: obesity, systemic inflammation, inflammatory biomarkers, diet

EVALUATION OF KNOWLEDGE OF MURES COUNTY POPULATION REGARDING NITRITE AND NITRATE CONTENT OF FOOD PRODUCTS

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Background: We wanted to evaluate the opinion and knowledge of the population of Targu Mures county regarding the nitrites and nitrates content of food products and frequency of consumption of these products.

Material and method: We conceived a food frequency questionnaire and collected information from the 179 community citizens. The questionnaire included data about socio-economic situation, anthropometric status, facts about nitrite and nitrate composition of food, also food infos about additives, food quality and food label.

Results: 65% of respondents said there was not enough food quality control on the food market, which could be seen as alarming. 76% respondents showed a high level of knowledge when asked why additives were added to food, and confirmed the statements about addi-

tives that work to maintain food quality and the existence of a list of additives whose use is allowed. 72% of respondents knew that a better appearance and a pleasant taste of some food is obtained by using food additives.

Conclusion: Our findings show that people with fundamental knowledge of food quality and food additives have been more conscious in choosing foods that they prefer to eat than other respondents, representing the average young consumers. Consumers who have less knowledge of food quality, food additives and nutrition may have difficulty understanding the role of additives and food safety.

Keywords: nitrites, nitrates, nutrition, food label

INFLUENCE OF NUTRITIONAL STATUS ON CLINICAL EVOLUTION IN A GROUP OF PATIENTS WITH MYOCARDIAL INFARCTION

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Background: This study aimed to identify and evaluate the impact of a modified nutritional status determined by the PNI index on clinical development, laboratory analysis, inflammatory status, and general hospitalization period in a group of patients with acute myocardial infarction.

Material and method: This observational study included 99 patients diagnosed with acute myocardial infarction. The information collected from the hospital sheets were: socio-demographic and anthropometric indicators, cardiovascular risk factors, laboratory biochemical data, serum albumin value, inflammatory status indicators, and total hospitalization days.

Results: There were no statistically significant differences between two PNI groups related to BMI ($p=0.54$), smoker status ($p=0.77$), diabetes mellitus ($p=0.71$), and previous myocardial infarction ($p=0.72$). Undernourished patients have higher blood pressure than patients with adequate nutritional status (89.79% vs 72%, $p=0.02$) and patients with normal nutritional status presents more frequently dyslipidemia to malnourished patients, the difference being significant (50% vs 20.40%, $p=0.002$). Results show the presence of systemic inflammation in patients with malnutrition both on day 1 post myocardial infarction ($p<0.0001$) and over a 5 day period. Also, the hsCRP value from day 1 to day 5 recorded an increase in both groups, the increase in the value being significantly exacerbated in group 2 ($p=0.0004$).

Conclusions: Patients with modified nutritional status required a significantly longer hospitalization period than patients who had a normal nutritional status and also nutritionally deficient patients have significantly lower total lymphocyte counts, reflecting low immunity, exhibiting high hsCRP values, an indicator for an exacerbated inflammatory condition.

Keywords: prognosis, myocardial infarction, nutritional status, inflammatory status, pni index

PRESCHOOL CHILDREN NUTRITION BETWEEN WISHES, NEEDS AND RECOMMENDATIONS

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Background: To analyze and identify the nutritional needs of preschool children in Mures kindergartens, in relation to national/ international recommendations and family food habits.

Material and methods: We applied a specific questionnaire to 100 parents of children from two kindergarten in Targu Mures city, asking about child's favorite foods and three menus to include these foods (breakfast, lunch, snack), and the food balance of the menu provided by that prolonged program kindergarten.

Results: Children's favorite foods were: bread and pastry products 92%, dairy 72%, meat 69%, vegetables 51%, fruits 51%, potatoes 44%, eggs 34%, fish 14%, beans and peas 7%, vegetable and fats 4%. The analysis of home menus revealed the presence of food groups daily menus, as follows: bread and pastry 97.67%, vegetables 78.67%, fruits 55.33%, dairy 52%, sugar 41.67%, potatoes 39.33%, animal fat 25.33%, vegetable fat 24.67%, eggs 21.67%, fish 5.67%, beans/peas 5.67%, walnuts/seeds 1.33%; associations not recommended in 32% of the daily meals, non-recommended foods 24%. Comparative analysis of food balance in two kindergartens, showed a significant difference and a positive correlation in achieving the nutritional objectives recommended by the Ministry of Health for the one who benefited from the nutritional intervention ($p<0.0001$, $r=0.71$). Referring to international recommendations, however, we see an increased caloric, protein, sugars and lipids intake.

Conclusions: There is a need for specialized intervention in children's nutrition, a consequent nutritional education for children, their families and kindergarten's staff, a nutrition guide and a specific cook book for kindergarten's kitchen.

Keywords: preschool children, kindergarten, menu, nutrition

THE RELATIONSHIP BETWEEN WAIST CIRCUMFERENCE AND INSULIN RESISTANCE IN THE NON-OBESE YOUNG POPULATION

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Background: To assess the prevalence of insulin resistance in young non-obese people from Bucharest.

Material and methods: We conducted a cross-sectional study in a 93 Bucharest medical student’s community. The full medical history was recorded and anthropometric measures (including waist circumference-WC), fasting glycemia and insulinemia were measured. The insulin resistance was assessed using HOMA index and the 2.6 threshold of HOMA-IR was considered for the analysis.

Results: We had 68.81% females, the median age was 24 years, and 7.4% were overweight (more frequent in men - 13.8% compared to women - 4.7%). Despite the small proportion of overweight women, all 3 had WC above 80 cm and 23 showed WC above the threshold value. A single normal-weight man showed WC above the normal threshold value. A high linear correlation coefficient was seen between BMI and WC ($r_2=0.82$ in men and $r_2= 0.69$ in women). HOMA-IR distribution was asymmetrical with a median value of 1.12. From the total number of persons investigated, only 9 (9.4%), 3 women and 6 men, had values above the 2.6 threshold, accounting for 4.7% and, respectively, 18.8% of the subjects. Significant differences were observed by gender, the average HOMA-IR for men being higher compared to women (Man Whitney U-test, $p=0.011$). At whole group level, simple regression between HOMA-IR and WC was significant ($p<0.05$).

Conclusion: Through the correlation between HOMA-IR and WC, our results underline that even in young people with normal waist circumference, it is necessary to adopt a healthy lifestyle in order to prevent metabolic consequences.

Keywords: insulin resistance, obesity, waist circumference

ASSESSING THE ROMANIANS’ KNOWLEDGE AND ATTITUDES TOWARDS GLUTEN-FREE PRODUCTS

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Background: Celiac disease is a chronic intestinal disorder caused by gluten intolerance. This condition can occur at any time during the course of their life, being conditioned by the ingestion of high-gluten-containing foods.

Materials and methods: Between May and September 2018, we have conducted an online questionnaire asking 122 adult people, ranged from 6 to 62 years of age, from several regions of the country, about their attitude and knowledge about gluten-free products.

Results: There has been a population trend to consume gluten-free food products in Romania in the last years, especially urban and female populations, but not due to the existence of a disease that would direct the patient to this type of diet. The results showed that in most cases the gluten free diet is to get rid of the extra pounds that many people think it is, this resulting in complications such as iron deficiency. Medical experts note that more and more people are opting for such a diet, which often leads to complications such as iron deficiency, vitamin B12 deficiency, calcium deficiency in the body, magnesium or zinc, or vitamin D. Except these we have an important frequency of celiac disease patients that don’t have enough information and acces to these food products.

Conclusions: We need to plan a national protocol for management of this disease and to emphasize the quality of nutrition information among population, done by Dietitians.

Keywords: gluten free, celiac disease, diet

EVALUATION OF ANTHROPOMETRIC INDICES IN A GROUP OF CHILDREN WITH PHENYLKETONURIA

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Background: Phenylketonuria (PKU) is a metabolic disorder that can lead, among others, to developmental disorders and neuro-psychic retardation; the main therapeutic measure is low-protein diet. The aim of the paper was to evaluate anthropometric indices in a group of patients with PKU.

Material and methods: We performed a retrospective observational clinical study, including patients with PKU from our casuistry, assessed in the Pediatric Clinic Department of the Emergency Clinical County Hospital Targu-Mures, in hospitalization or ambulatory. The study included

10 patients, from infant-age, up to 7 years-old, who had between one and seven presentations in the last five years, with the assessment of weight(W), height(H), and calculation of Body Mass Index(BMI) and Weight-for-Height(WFA). The values were interpreted as standard deviations(DS) using GrowthAnalyser-software and statistically processed (Microsoft Excel).

Results: A total of 39 presentations were analyzed. The Birth-weight was normal for all patients. BMI was between -4.08 and 3.36DS; BMI between 1.5-2 SDD (overweight) was observed in 3 situations (7.69% of the presentations) and over 2.5DS (obesity) in 15.6%(4 presentations). The weight was between -3.89-6.65DS, with values below -2DS in 17.94% of presentations(7), defining the underweight. WFH was between -3-4.5SD, with low values at 7.69% of the presentations(3), defining acute malnutrition. The height was between -3.29-1.66DS; values below -2DS were in 15.38% of presentations(6), defining chronic malnutrition.

Conclusions: All types of nutritional disturbances can occur in children with PKU, predominantly the deficiency ones.

Keywords: Phenylketonuria, anthropometric indices, malnutrition

ROLE OF MULTIDISCIPLINARY TEAM IN THE MANAGEMENT OF DIGESTIVE PATHOLOGIES

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Background: Both for prophylaxis and treatment of gastrointestinal tract it is very important that the patient knows who to turn to receive the right recommendations. According to literature studies, the association of doctors with specialized dietitians, nurses and even pharmacists can create a more dedicated team with a collective expertise to support patients with pathological digestive tract created. This study follows the compliance of family doctors with regard to the formation of a multidisciplinary team, dietician-trained physician in the management of digestive pathologies.

Material and method: This work was carried out through an observational study made at the Medic.ro conference, in 2018, in Targu Mures city, organized by National Society of Family Medicine and MedicHub. Within this, we asked for a questionnaire to be completed by all participants. The sample consisted of 76 family doctors from Mures County (78.95% women). Data obtained were centralized and statistically interpreted regarding the attitude of the family doctors towards the possibility to enter into partnerships with dietitians in order to counsel people with digestive pathologies.

Results: 64.29% of physicians considered that the most competent person to provide nutritional counseling to patients with digestive pathologies is the qualified dietitian. 67.38% of the surveyed doctors claimed that the dietitian through dietary counseling plays a very important role in patient's life with digestive pathology.

Conclusion: The family doctors were open to the multidisciplinary team, physician-dietician and to future collaboration with a qualified dietitian to provide counseling to their patients.

Keywords: multidisciplinary team, dietitian, family doctor, digestive pathology

RELATIONSHIP BETWEEN FREQUENCY OF CANNED FISH CONSUMPTION IN MURES COUNTY TEENAGERS

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Background: The aim of this paper was to establish the correlation between the frequency of consumption of canned fish in preadolescents.

Material and method. The target population was a total of 104 students aged 11-16 years old, from Targu Mures city Middle School „Emil Drăgan”, between December 2016 and February 2017. It was a retrospective study, based on a questionnaire filled in by the pupils either at school or at home with parents.

Results: From the total candidates 71% were consuming canned fish at least one per week, and 30% preferred Tuna canned products. In terms of frequency, 53% of respondents were consuming 2-3 cans per week.

Conclusion: Among young people the consumption of tuna is increasing, although the consumption of fish is important due to the nutrients it holds, it should not be ignored that the consumption over the limit of 2-3 canned Tuna fish / week, can become a hazard due to the heavy metal content found in some canned foods on the market.

Keywords: heavy metals, teenagers, fish, consumption

STUDY ON FOOD BEHAVIOR AND LIFESTYLE OF ATHEROSCLEROSIC PATIENTS

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Background: This study has been realized in order to evaluate the eating behavior and the lifestyle of the atherosclerotic patients hospitalized in 2017.

Material and method: To achieve the assessment of eating behavior and lifestyle of the patients, the sample containing 40 persons completed a questionnaire which included 71 question regarding food preferences, physical activity, stress level, the presence of other pathologies, smoking and alcohol habits, and also the degree of awareness of the nutrition significance and a healthy lifestyle.

Results: 28.9% of patients were overweight, 23.7% suffered from first degree obesity, 13.2% with grade II and 7.9% with third degree obesity. 42.9% were inactive, 25.7% were moderately active, 22.9% were daily active, and the latter ranked as very active patients only to 8.6%. As for one from the protective factors, the benefits of a daily fruit-rich diet, high water content, vitamins, antioxidants and dietary fiber consumption, only a third use to have daily at least a portion of fruit daily, while 33.3% has 3 portions/ week and the other 33.3% only very rare.

Conclusions: To a large extent, the conclusions are worrying because the patients are at risk from nutritional point of view, without enough protective factors in eating habits, but also from the point of view of physical inactivity and the presence of stress.

Keywords: atherosclerosis, food behavior, cardiovascular risk factors, lifestyle, physical activity, stress.

ASSESSMENT OF RELATIONSHIP BETWEEN DIET AND RISK OF OBESITY, AT A SAMPLE OF MEDICAL STUDENTS FROM TARGU MURES

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Background: The frequency of obesity has increased in the last years due to high consumption of menus rich in calories, to eating disorders, a chaotic lifestyle, sedentariness, psychological and environmental factors from early age. We pursued the frequency of lifestyle risk factors registered in a sample of medical students from Targu Mures university.

Material and methods: We conducted an epidemiological observational study during March 2018, on a sample of 58 students from Mures universities, who agreed to fill in a lifestyle and food frequency type questionnaire. Data were statistically evaluated by GraphPad software.

Results: We found out that 36.20% of our students eat fast food and 32.75% food processed food daily, 70.69% consumes daily coffee more than 3 cups, 43.30% consumes sweets weekly in excess, 46.55% consumes sausages at least once a week, 60% do not consume 2 liters of liquids daily, 25.9% are described to be sedentary, and 37.9% have a low level of physical activity, also on a scale from 1 to 10: 56.90% of them have an increased level of stress.

Conclusion: In our study a considerable part of students have an unhealthy diet, are sedentary, prefer the excess calories and alcohol, are stressed and have an increased risk of obesity, therefore it is necessary to be a better education in schools and more efficient personalized interventions with youth communities to reduce the risk for obesity.

Keywords: diet, lifestyle, obesity, risk factors

FOOD - THE ETIOLOGICAL FACTOR OF OBESITY IN CHILDREN

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Background: The aim of the paper was to study the nutritional factors involved in the occurrence of obesity among children. We investigated the intake of nutritional factors in the menus of 163 children and links to obesity.

Material and method: We performed a prospective observational study between September 2017 and January 2019, including 163 children (between 1 and 18 years old) hospitalized at the Pediatric Clinic I of the Clinical County Hospital Targu Mures.

Results: Boiled potatoes are consumed daily by obese children (27.3%) compared to the control group (11.6%), and 11.6% of normal weight children rarely consume potatoes ($p=0.001$). Consumption 3-4 times per week of horns/ infant cloths was increased among obese children (24.7%) compared to normal children (10.5%) ($p<0,017$), and half of the normal weight patients rarely use brioches/ ointments against the obese (23.4%) ($p<0,001$). Frequency of 2-3 servings a day of white bread predominates in both groups (28%), and about 5.2% of obese children eat 4-5 servings of bread per day ($p=<0,001$). Consumption at least twice a week up to daily consumption is higher among obese children compared to standard ones for the following foods: fried potatoes, melted cheese, chips, snacks, donuts, bacon, cream and margarine, butter and eggs, with a statistically significant difference.

Conclusion: Obese children consume more unhealthy foods (sweets, fats, sweetened drinks) than normal babies, which leads to an overweight with obesity.

Keywords: children; obesity, food.

LIPID PROFILE IN PATIENTS WITH HYPERTRIGLICERIDEMIC PANCREATITIS

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Background: The aim of the paper was to study the biological factors involved in the occurrence of hypertriglyceridemic pancreatitis disease.

Material and methods: We carried out an observational study, between November 2018 and March 2019, at the Emergency Clinical County Hospital Targu Mures, upon 80 subjects (out of which 53 males), aged between 23-90 years old, diagnosed with pancreatitis and kept under the supervision of the Department of Gastroenterology. Data collected from medical records were: total cholesterol, triglycerides, direct and total bilirubin, amylase and transaminases. Statistical analysis of the data was done using the Graph Pad Prism 7.0 software, using a confidence interval of 95%.

Results: Our statistical analysis revealed an increased percentage of serum fats, triglycerides being increased to 70% ($p < 0.001$) among subjects, with a statistically significant difference, and 65% had total cholesterol within the normal range. Serum amylase was increased by 81% ($p < 0.001$) and the ratio of direct bilirubin to total bilirubin was increased in 59% of the subjects studied ($p < 0.001$) resulting in statistically significant differences.

Conclusions: In patients with hypertriglyceridemic type pancreatitis, the inappropriate increase in biological values was significantly associated with hypertriglyceridemia and hypercholesterolemia. For all parameters analyzed, no significant differences were observed between the two sexes, the risks and correlations being similar.

Keywords: pancreatitis, serum fats, bilirubin, serum amylase

ASSESSMENT OF CONSUMPTION OF FOODS CONTAINING FOOD ADDITIVES IN A LOT OF YOUNG PEOPLE FROM TARGU MURES

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Background: The aim of this paper was to evaluate the food behavior of young people from Mures county, focusing on eating foods containing additives and their knowledge on food additives in the view of preparing an interventional health education plan to prevent chronic diseases.

Material and method: We developed a food frequency questionnaire containing 49 questions that focused on personal data, food behaviors, types of foods and beverages containing food additives consumed and frequency of consumption, attitudes and knowledge that young people have on food additives. Questionnaires were applied to a group of 125 students from Targu Mures universities.

Results: Almost 1 in ten (9.72%) students associate amounts above the permissible limits in all products with additives on a daily intake, with risk of excess in time; 20% of respondents associated the consumption of carbonated drinks, noncarbonated drinks, instant teas and energizers. A share of 20.59% took no breakfast, and 25% consumed at breakfast just coffee or latte, the rest preferred a hearty breakfast. 65% of young people frequently prefer and consume chips and fast food, 55.94% of girls and especially urban youth. The frequency of consumption of sweets indicates that the share of girls who eat sweets every day is lower (10.69%) than boys (20.43%).

Conclusion: Sweets and chips are the most commonly consumed by young people in Mures county, also products with most additives inside, along with carbonated drinks.

Keywords: additives, student, dietary, intake

SOURCES OF INFORMATION CONCERNING HEALTHY DIET

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Background: Over time, the Romanian people have undergone various lifestyle changes adapted to food availability, sources of information and social status. The main purpose in this study was to evaluate the most widely used sources of information as regards to a healthy diet, in order to establish the perception of individuals about their trust in sources of information and their efficiency.

Material and methods: We performed a study based on the assessment of lifestyle and food behavior, which consisted in a questionnaire of 26 questions, applied online, to a group of 821 adults, in Romania, in 2018.

Results: We explored the potential benefit to the Romanian population, segmented by age, gender, background, graduate level and current professional activity, in determining the main sources for nutritional information and the level of trust in these sources. According to this study, the most used sources of information by Romanians in the increasing order of frequency were: radio (14.6%), medical field (16.9%), school (21.8%), family and friends (29.5%), TV (30.8%), magazines, books, newspapers (34.6%), internet (47.5%).

Conclusion: Dietitians should promote healthy diet through adequate sources of information, using eLearning methods, aimed to target groups.

Keywords: sources of information, healthy diet, lifestyle

FOOD CONSUMPTION AND IT'S IMPACT ON HEALTH IN A COMMUNITY FROM TARGU MURES

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Background: Fried food consumption increases the risk of prostate cancer, according to cancer screening studies. The main purpose of this paper was to evaluate the knowledge and eating habits of a group of people from Targu Mures city.

Material and method: Descriptive study conducted on a sample of 63 people from Targu Mures city, aged between 18 and 50 years, between January 2018 – April 2018. The methodology was based on a questionnaire linked to demographic data, estimation of fat consumption in their diet about food fats and fried foods risks, frequency of consumption of fast food, and also the type of fat used in frying.

Results: In our sample 61.9% were females and 90.5% had urban residency. A share of 76.2% of investigated subjects were concerned with their lifestyle and poor diet, while 23.8% do not pay attention to their health. Most commonly consumed fried foods were vegetables (potatoes, onions, eggplants) for 46% of them, meat (pork, fish, beef, chicken) for 73%, fried eggs were consumed by 34.9% of respondents, and 48% said they do not eat fried food. Most interviewers did not know the calorie content of their menus, thus some people were aware of increased caloric intake by eating fried foods but doing nothing.

Conclusion: It is needed to emphasize the level of education and proper information in Mures communities about the risk of improper food in order to prevent chronic diseases.

Keywords: health, lifestyle, fried foods, calories

CHANGES IN ESSENTIAL NUTRIENTS AND TRACE ELEMENTS LEVELS CAUSED BY MEAT-FREE DIET

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Background: Vegetarianism by definition is a diet without meat, but it can also be considered as a way of life, which alongside health concerns takes into consideration the preservation of nature and wild life and also animal rights. Nowadays the social attitude towards the vegetarianist way of life is divisive. Our objective was to assess some vitamins and minerals levels (B12 vitamin, D3 vitamin, Iron, Calcium) of young adults between 18 and 23 years old, that followed diets which exclude meat, in order to better understand its effects upon human body.

Methods: We used Quantum Resonance Magnetic Analyzer (2017) for measuring the levels of the elements in the subjects blood.

Results: Iron levels were normal in 35.09% of them, a slight decrease appeared in 48.71% and a serious decrease in 36%. D3 vitamin deficit appeared at 48.71% but only one person had a serious deficit. B12 vitamin was in 23.07% lower than normal and it affects 9 persons, and at 2 persons with serious deficit. Calcium levels were normal at 87.18% of the students.

Conclusion: The key action to keep people healthy is to ensure a quality nutrition, meaning an adequate vitamin, mineral and trace elements substitution to those who adopt a meat-free diet.

Keywords: meat-free diet, nutrients, calcium, vitamin B12

CULINAROMATHERAPY - GO MULTISENSORY → GO INTERNATIONAL

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Background: CULINAROMatherapy is the art and science of nutrition, dietetics and gastronomy combined with beauty, fragrance and healthy lifestyle for creating innovative individualized treatments.

Materials and methods: This concept was initially introduced in 2015 during the consultations with the specialists of Transylvanian clusters GT&TLS, both for the design and implementation of two interconnected projects, named CULINAROMatherapy and GO Multisensory.

Results: In our vision, we combine the exquisite complexity of a Chef's masterpiece, which is highly sought after in the HoReCa field, with the principles of a balanced, unique and well-studied composition of a therapeutic meal, which usually lacks savor and aesthetics. Thus, CULINAROMatherapy represents an open invitation to innovate, create, play and discover how to blend beauty and multisensory with healing active ingredients such as essential oils, spices, Ayurvedic and Chinese plants, etc. Isolated examples of such foods already exist and starting from here, we send out this call for this need to collaborate and share knowledge locally, nationally as well as internationally in order to implement this concept not only as limited experiments, but also as a healthy way of living, well established and accessible in people's lives.

Conclusion: We want to sensitize people as well as specialists connected to nutrition about the importance to address food from a multi-disciplinary approach. It can become a therapeutic work of art through its ability to touch our senses to their deepest levels and through its capacity to heal our body and our soul.

Keywords: aromatherapy, nutrition, ayurvedic, plants

EDUCATION FOR HEALTH AND PREVENTION IN DENTAL MEDICINE

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Background: Education for health and prevention in dental medicine has an important role nowadays. Health promotion activities are carried out through partnerships between gymnasium and high school institutions. These activities are better to be realized by physicians and dentists from different areas. Their goal is to increase the level of medical education among the young population.

Material and methods: The activities took place in the classroom in a 40 minute period and were called "Dentistry lesson". As communication methods we used verbal and demonstrative methods. Questions were asked on the meaning of the audience. We used also questions to fix the knowledge taught. The demonstrators used were: air flow, drawings, tooth brush, models, orthodontic appliances.

Results: Participants received information about age-specific dental disorders, dentist behavior, healthy eating, brushing technique. The feedback from the groups trained was positive and the interest growing from year to year.

Conclusion: The high degree of impairment for the young population through dental orthodontic disorders makes prevention a necessity. Health education means awareness and correction of health-damaging practices with an effect on the harmonious development of the body.

Keywords: nutrition, education for health, harmonious development.

THE IMPORTANCE OF LIFESTYLE IN PREVENTING IATROGENIC DISORDERS OF SEXUAL DYNAMICS

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Background: It is known that cardiovascular pathology is the main morbidity in the world, all of this data leads us to think of increasing the incidence of male iatrogenic sexual dyskinesia.

Material and method: For this study we analyzed the comorbidities of the 1,804 patients who presented for the sexual dynamics disorders that we examined at the Targu Mures Clinic in December 2006-December 2018. The data collected were statistically processed and analyzed from the point of view of the necessity and importance of nutrition counseling and influencing lifestyle.

Results: The age of the patients ranges from 17 to 84 years, and the breakdown of patients over 10 years of age showed an almost uniform distribution between 20 and 60 years, with 88.36% of patients present age range. Of the 1804 patients, only 8.31% suffered from psycho-

genic sexual dysfunction, in other cases the lesion substrate was evident. 29.21% of the patients were under hypotensive treatment, and 370 patients, ie 20.51%, had diabetes. Dyslipidemia was present as comorbidity in 35.25% of cases, and in three quarters of these, the condition was detected due to presentation for sexual dysfunction.

Conclusions: The three comorbidities highlighted in patients with sexual dysfunction can be implicated directly in the mechanism of the lesional substrate responsible for erectile dysfunction. In this context, nutritional counseling and lifestyle change is not only important for controlling blood pressure, dyslipidemia, and blood glucose, but also for preventing the appearance of gender issues.

Keywords: sexual dynamics disorders, dietitian, nutritional counseling, diabetes, dyslipidemia

GENETIC TESTS – CAN CHANGE YOUR WHOLE LIFE!

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Background: Do you have weight, cholesterol, cardiac problems? You didn't sleep well? Do you exercises, but you can not lose weight? Do you have fragile bones? Do you eat without being hungry? Are you curious about your genetic luggage? Our health is the result of action between genes and certain factors associated with our lifestyle. The test is performed once in a lifetime!

Material and methods: The test is completely noninvasive, a buccal smear has to be collected. The Laboratory of Molecular Genetics will extract DNA, analyze the exact sequence of specific genes to identify errors or changes to code reading. We are working through PCR, the Sanger method, in Italy.

Results: The test analyzes 35 genes: metabolism of carbohydrates, lipids, caffeine, alcohol, detox and oxidative stress, inflammation, vitamin B and D metabolism, salt and nickel sensibility, gluten, lactase intolerance, sleep and food behavior, large RDA, physical activity, dyslipidemia and diabetes, Alzheimer and cognitive decline.

Conclusions: Our hereditary dowry can't be changed, but we can change our lifestyle. Since the code was deciphered, we can interfere with the predisposition to certain pathological conditions by preventing their expression. In addition to interpreting the results, you also receive a guide and a genetic diet, which will significantly reduce the risk of disease and keep the body healthy.

Keywords: genetic, diet, metabolism, inflammation, intolerance, diabetes, Alzheimer, detox

ASSESSMENT OF VITAMINS, AMINOACIDS, MINERALS AND FATTY ACIDS LEVELS AT MURES MEDICAL STUDENTS

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Background: Vitamins are organic molecules that are essential for an organism in order to function properly. Our organism cannot synthesize sufficiently these vitamins, therefore we must obtain them through diet. Our aim was to measure the vitamins, aminoacids, fatty acids and minerals levels at Mures medical students.

Material and methods: We measured the serological levels of 10 vitamins (e.g. A, B₆, B₃, C), 10 aminoacids (e.g. Tryptophan, Leucine, Histidine), 19 minerals (e.g. Fe, Zn, K, Mg) and 4 fatty acids (e.g. Linoleic acid, Arachidonic acid) using the 2017 Quantum Resonant Magnetic Analyzer Machine to measure the elements serological levels.

Results: All of the students had a lack of one or more of these essential molecules. There was a significant deficiency at vitamin C, the majority was very low with 49%, 35% low; other vitamin deficiency was present at B₁, E, A and B₃ (<50%), but the vitamin B₆ at 80% was normal. Among aminoacids, Tryptophan (at 59%) and Lysine (44%) had low levels. For minerals, significant differences were registered for Iron (at 18% of subjects), and Zn (at 44%). The lowest level of fatty acid was Linoleic (at 21%) and Arachidonic acid (at 23% of participants).

Conclusion: The assessment revealed that the majority of the examined students have some kind of essential molecule deficiency that needs to be treated early on to avoid physiological changes and irreversible damage in their organism.

Keywords: vitamins, aminoacids, minerals, fatty acids

LIFESTYLE CANCER RISK PROFILE FOR ROMANIAN POPULATION AND PERSONALIZED MANAGEMENT OUTCOMES

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Background: In 2018, the Romanian Incidence of all Cancers at both sexes, Age-standardised incidence rates, and Number of Cancer deaths were concerningly increasing, as in European Union. Our aim was to create the risk profile for Cancer in our country, and to find the best screening, protocols for treatment, and community interventions of this disease, especially related to lifestyle and diet aspects.

Material and method: We made a systematic review regarding screening programs, treatment and palliative management, and community interventions, made in the last ten years in EU and the outcomes to be followed. Data can be collected from lifestyle validated questionnaires applied in randomized householding survey, along with clinical data from General Practitioners and Specialist medical files, in order to create a basic risk profile and than to recommend the specific score for early cancer detection.

Results: The frequency of new cancer cases in 2018, for both sexes and all ages, was 13.6% for Lung Cancer, 13.3% for Colorectum, and 11.5% for Breast cancer; Lung cancer remains the most common cause of cancer mortality, and was the third cause of death, followed by lower respiratory infections, hypertensive heart disease and cardiomyopathy. All these diseases are related to lifestyle behavior and diet characteristics, also personalized interventions are in present the keywords for better results.

Conclusion: We need to create a team based management starting with an efficient screening, personalized lifestyle profile evaluation, and proper intervention among communities at risk, for improvement of Romanian national Cancer screening programs.

Keywords: cancer, screening, diet, lifestyle

MONITORING THE RISK FOR OBESITY AT MURES COUNTY STUDENTS

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Background: The aim of this study was to monitor the obesogenic risk factors prevalence in a sample of teenagers from Mures county, in order to plan local educational prevention programs.

Material and method: In 2018, a cross-sectional study was carried out, based on a lifestyle questionnaire, filled in by a sample of 453 students from the 9th to the 12th grades, from two Mures county High Schools (Targu Mures and Tarnaveni).

Results: The high consumption of fast-food, chips, sweets and sweetened beverages are habits with a high frequency in overweight and obese students. Teenagers chose to consume alcohol, tobacco, coffee and energizers in high quantities, especially the older ones, despite their negative effects. In our group those with normal Body Mass Index were consuming less than 1 sweet beverage per day, while overweight ones had a high frequency of sweets, chips and alcohol consumption weekly. We observed that students with a Body Mass Index within normal limits are interested to take part in extracurricular sport activities and spend, on average, less time in front of TV, unlike the underweight students that are eager to participate in school sport activities; the proportion of overweight and obese students that spend more than 4 hours in front of the computer was higher than at normal teenagers.

Conclusion: Involvement of health promoters in school campaigns is extremely important for sustaining a healthy lifestyle and avoiding long-term chronic consequences.

Keywords: diet, obesity, risk factors, lifestyle

OBESITY, A RISK FACTOR HANDLED BY THE MULTI-DISCIPLINARY TEAM FOR THE MANAGEMENT OF CARDIOVASCULAR DISEASES

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Background: Romania occupies the first place in Europe, regarding the mortality prevalence caused by cardiovascular diseases (60%). Vascular conditions are more frequent in subjects who surpass the optimal Body Mass Index. This study follows the decreasing of cardiovascular risk in obese patients and of complications in patients with cardiovascular diseases who have obesity as comorbidity.

Material and method: The study was realized through a survey done during post-graduate courses for General Practitioners entitled „The increment of efficiency in dealing with the obese patient” and „Cardiovascular pathology manageable through diet” organized by our university and Mures county General Practitioner’s Association. The subjects were 114 family physicians from Mures county, both from urban and rural backgrounds. A questionnaire pre and post-course was the method of evaluation through which we followed the assimilation of information and the compliance regarding the collaboration between General Practitioners and Dietitians.

Results: 73.33% of Family Doctors considered post-course that nutritional counseling outcomes in the management of cardiovascular diseases are very useful, 57.64% thought it is useful also in obesity management, also the receptivity of patients to advices offered by Dietitian would reach 100% for cardiovascular pathology and 98.82% in obesity cases. 96.66% of GPs considered very good the possibility of collaborating with Dietitians for cardiovascular diseases and 88.23% for obesity cases.

Conclusions: The high receptivity of Family Doctors for collaboration with Dietitians is of great importance for management of lifestyle risks and for increasing the quality of life for the patients with cardiovascular diseases.

Keywords: dietitian, general practitioners, nutritional counseling

CLINICAL SITUATION OF THE FIRST MOLAR PERMANENT ON A LOT OF CHILDREN WITH DISABILITIES

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Background: Our aim was to determine the prevalence of carious lesions and dental demineralization, a permanent primal molar, in a group of 45 pre-school children and schools with various forms of physical / mental disabilities, from Mures county.

Material and methods: Examining a course in educational centers using artificial light (frontal lantern) sterile oral spatula and disposable gloves. To determine the health status, we used the CAO indicator and checked the presence or absence of enamel demineralisation.

Results: In the arcades have been recorded a number of 227 permanent permanent molars. Of these, 33.6% had untreated caries, 3.3% obturation and 26% demineralizations. A 9.9% has already been extracted. The percentage of integers received was 5.2%. The preponderance of advanced carious lesions, the small number of obturations and the sealing absence, show a lack of interest in the health of these children, poor food and sanitary education in this field.

Conclusions: Oral health and its relationship to total health underscores the need for preventive dental care. It is imperative to target funds for the implementation and development of national oral and nutritional health programs for children with special needs.

Keywords: molar, nutrition, caries, demineralization

MARAMURES STUDENT’S KNOWLEDGE AND ATTITUDES TOWARDS HAZARDS PRODUCED BY FOOD ADDITIVES

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Background: The probability of young people adopting unhealthy behaviors and not respecting lifestyle recommendations is increased when they are stressed, which is a common event during high school. Most of young people choose to eat processed foods, that is easily accessible, ready for serving and very tasty, devoid of vitamins, fiber and minerals and rich in calories, in the form of fat and sugar, and over 2500 food additives that are added to food to improve its taste, texture and shelf life.

Material and methods: This study was conducted on 349 high school students, aged between 13 and 19 years old, in Maramures county, with 61% (213) girls. The participants responded to an online questionnaire that seeks to find out more about lifestyle and nutrition as well as the level of information on healthy eating, in order to complete an educational project.

Results: 53.6% do not know what the food additives are, 49.9% do not avoid tempting meals like sweets, fats, fast food, chips and energy drinks, 37.5% eat every day sweets and 41.5% drink sweet beverages, 80.2% consider that at school they do not receive enough information about a healthy lifestyle, 53.6% did not receive instructions reading food labels and 73.4% think more information on healthy eating is needed.

Conclusion: Toxicological risks caused by the daily intake of additives should cause concern among the population, which must be informed and advised to limit unnecessary food additives and to consume a diet rich in essential nutrients.

Keywords: food additives, nutrition, life style, education

ASSESSMENT OF BREASTFEEDING AND STAGES OF COMPLEMENTARY FOOD IN TODDLERS

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Background: The purpose of this study was to assess the eating habits of toddlers hospitalized at the Pediatric ward at the Clinical County Hospital from Targu Mures city. We investigated breastfeeding habits and food consumption during diversification.

Material and method: We performed an observational clinical study between November 2018 and March 2019, regarding the 101 patients admitted at Targu Mures Emergency Hospital, aged from 0 to 3 years old. These patients were evaluated by a nutritional anamnesis based on a questionnaire of 35 specific questions.

Results: With regard to breastfeeding, the statistical analysis revealed that 81.8% were breastfed at least once in the breast ($p < 0,001$). Exclusive breastfeeding was at 46.3%, and the rest was supplemented with milk. Only 34.4% ($p < 0,001$) respected nutritional recommendations and were breastfed exclusively until the minimum age of 6 months. Of those who received milk supplement: 89.1% were breast-fed with milk formula; and 3.6% received whole milk powder, cow's milk or a combination of infant formula and cow's milk ($p < 0,001$). From those 67% who started diversification half started at 6 months of age ($p < 0,001$), 31.3% started before, and 18.8% started after 6 months ($p < 0,001$). Diversification began with the following foods: 65.6% vegetables, 14.8% fruit puree, 10.2% fruit juice, 6.6% yogurt from trade, 1,6% gluten-free cereals and 1,8% gluten grains.

Conclusion: It is necessary to inform and educate mothers both during pregnancy and after birth by specialists and nutritionists about breastfeeding and the stages of correct diversification.

Keywords: children, breastfeeding, complementary food

HOW CAN YOU INFLUENCE YOUR EATING HABITS BY PROVIDING MINIMAL INFORMATION TO MIDDLE SCHOOL CHILDREN?

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Background: The aim of the paper was to highlight the importance of intervention in middle school students with information that can help them to adopt a healthy lifestyle.

Material and method: We conducted a descriptive study at 117 secondary school students from "Nicolae Iorga" General School, in Bacau city. We taught an hour of education for healthy nutrition and at the end of the lesson, the students completed a questionnaire consisting of 50 questions about the lifestyle they adopted and the steps that they are going to take in order to reach a healthy lifestyle.

Results: 64.8% considered that they do not receive enough information at school about diet, and 79.1% wanted to receive more information. The training had a good impact on them, 95.6% believing that it helped to become aware of certain negative parts of their eating habits, like: 58.2% will do more sport, moderate consumption of sweets has become a priority for 61.5% of them, and 39.6% will avoid consuming sweet drinks and fast-food. Students have become aware of the importance of the vegetables and fruits consumed in a raw state.

Conclusions: In the last decade we register high frequency of obesity, unhealthy eating habits and a disorganized lifestyle among young people, therefore is very important to implement nutritional interventions in schools both for children and their parents.

Keywords: nutritional education, lifestyle, eating habits, children

HOW CAN A VEGAN DIET INFLUENCE THE ORAL HEALTH

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Background: The aim of this survey was to estimate the effect of a strict vegan diet on the oral health of consumers.

Material and methods: The research for biomedical literature on vegan diet implications in oral pathologies, as well as the consequences of a low pH saliva, were conducted in PubMed databases.

Results: According to a preliminary study, which evaluated subjects who have followed a vegan diet for a minimum of 18 months and compared them with a control group of individuals following a Mediterranean diet, all vegan subjects appeared to show a decreased salivary pH value. Oral changes such as dental demineralization, white spots and lesions invisible to the naked eye may also occur. From another three strong studies, it was showed that low salivary pH often leads to dysbiosis and associated risks of gingivitis, caries and fungal infection. A

recent study stated that saliva obtained from vegetarians showed a reduced inhibitory effect on growth of *Staphylococcus aureus*, *Klebsiella oxytoca*, *Pseudomonas aeruginosa* and *Escherichia coli* as compared to those obtained from the non-vegetarian subjects.

Conclusion: The presented data suggest that strict vegan diet can have a risk for oral pathologies, if not managed properly.

Keywords: vegan diet, oral pathologies, salivary ph

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