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Health & Food



REPORT CONTAINING RESEARCH AND ANALYSIS
ABOUT CURRENT DIETARY TRENDS
WITHIN THE ERASMUS + PROJECT
„vetDIET”

1

„You ARE what you EAT!”



PERFECT PROJECT



„vetDIET” Health & Food

Project Leader: Perfect Project Sp. z o.o. (Poland)

Project Partners:

Profesinio mokymo centras "Zirmunai" (Lithuania)

Daugavpils Tirdzniecības profesionālā vidusskola (Latvia)

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2

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Elements of the report:

1. “Healthy and unhealthy food” – introduction, basic definitions, cooking methods that retain nutrients, main principles of healthy eating on an example Poland, Lithuania and Latvia.
2. “Food trends” in vocational school curricula on an example school from Poland and Latvia.
3. “Food trends” in restaurant menu and generally gastronomy sector on an example companies from Poland, Lithuania and Latvia.
4. Latest trends in healthy food system and people expectations. Dietetic Trends 2020.

3

Report annexes:

1. Photo documentation.
2. Training program in Vilnius "Food and health: the latest trends in nutrition, diet review and new superfoods".
3. Daugavpils menu.



(1)

“Healthy and unhealthy food” – introduction, basic definitions, cooking methods that retain nutrients, main principles of healthy eating on an example Poland, Lithuania and Latvia.



4

Dietology is a science that addresses the basic principles of a healthy diet. It studies a balanced diet, both for healthy and sick people. In addition, this science uses the influence of a modified diet on certain diseases.

Dietary foods are foods that have a specific composition and are appropriate for a specific group of people - with a disability, increased physical activity, pregnant women, infants, etc.

Latvian Cabinet of Ministers, regulation No. 1053, date 16.11.2010: "special Requirements for Dietetic Foods, Dietary Foods Registration Procedures and the National Fee for Registration of Dietary Foods", that entered into force on the 24th of November, provides the definition of dietetic foods: "*Dietary foods are foods that are clearly distinguishable from ordinary foods, are for the particular nutritional purpose and the suitability for sale is indicated.*"

The following types of dietary foods are listed in regulatory enactments regulating the food chain:

- a) infant artificial formulas and infant feeding artificial additional formulas,
- b) processed cereal-based foods and baby foods for infants and children,
- c) energy-reduced foods for weight loss,
- d) dietary foods for people with health problems,
- e) gluten-free foods,
- f) foods for intense muscular effort, especially for athletes,
- g) foods for persons suffering from carbohydrate metabolism disorders (diabetes).

Dietary food consumption is determined by the human physiological need for some specific nutrients, different intakes for a group of consumers who either cannot consume normal food or are recommended to have daily diet changes, explains *the Latvian Food and Veterinary Service*.

Dietary foods do not treat. It can help the body, but it is impossible to substitute food for medicine and treatment of people. What is nutrition for? There are several ways to use this concrete science, for example:

- a) thanks to it, you can regulate and control products that can both harm and strengthen the body, it considers a combination of certain products;
- b) you can set a specific time for the consumption of dishes and their quantity;
- c) with its help, you can find out the exact temperature for cooking certain foods - in addition to choosing foods that can beneficially affect the body, you need to know how to cook them.



Many recommendations of this science promote accelerated weight loss and important body functions and systems improvement. A lot of researchers have repeatedly proved that dietetics has a positive effect on humans. Most of us assume that a healthy diet consists of just tasteless greens and unleavened dishes. In reality, everything is different. The diet could be wide and varied - you can eat anything, but you need to know the measure. Excessive overeating of certain foods can cause various problems in our body.

Rational nutrition - scientifically based nutrition for people. By this we mean a properly organized meal with hygienic rules. Unfortunately, many people do not eat properly, because they do not have the opportunity to take food on time, do not care about the usefulness of food composition. Very often they eat less than necessary, or overeat, abuse alcohol, spicy, salty and fried foods, eat a small amount of fruits and vegetables. Short-term errors in the dietary regimen for healthy people do not lead to the disease, but for ill people they are often the direct cause of disease worsening, the transition of the chronic course of the disease to the acute form. After all, as soon as a person becomes ill, the question arises immediately: is he/she able to eat everything and is it possible to promote recovery by proper food selection? The solution to this issue is the science of nutrition.

Dietary nutrition is a rational diet of a healthy person, based on his/her physiological characteristics, such as age, gender, weight, profession, as well as the time of year and many other factors that determine the metabolic rate of a given person. The main goal of dietary nutrition is to create optimal conditions for a healthy body in order to follow a normal and meaningful life.

Clinical nutrition is the rational nutrition of a sick person, that is an independent medical factor along with medical or physiotherapeutic treatment. The main difference between healthy nutrition and rational nutrition is the need to exclude (or add) certain foods from the daily diet, depending on the disease, as well as the method of cooking.

Modern dietetics uses the latest methods and achievements of medicine, biochemistry, physiology, morphology, where the developed provisions receive practical implementation within the medical complex. The main practical area of dietetics is a dynamic experimental study on animals. The most important issues of modern nutrition are:

- ✓ ensuring a balanced diet and its comprehensive usefulness for the development of various diets;
- ✓ a rational combination of the balanced diet principles with the requirements that must be observed in accordance with the characteristics of the disease;
- ✓ determination of the optimal timing of unbalanced and inferior types of nutrition usage in various diseases;
- ✓ development of nutrition patterns for patients during chemotherapy, radiation therapy, and another special treatment methods;
- ✓ development of patterns relating to the combination of diet with antibacterial and hormonal medicines, as well as another medicines;
- ✓ development of dietary regimes that will reflect the basic people's needs of a certain constitution, profession, with concomitant diseases;
- ✓ prevention of the adverse effects of dietary intake, that is necessary in certain situations.



In order to solve particular problems within dietetics, an important place is placed to the following issues:

- ✓ study of nutritional characteristics within certain combination diseases of the same organ system;
- ✓ study of a short half-starvation regimen usage on the human body with certain diseases;
- ✓ study of food allergens and the prevention of their pathological effects on the human body and the development of nutritional allergies.

The basis of diets creation are physiological processes that occur within the body. The nutrition of a healthy person is characterized by a number of important indicators: food calories content, its chemical composition and nutrition frequency. Each diet is also based on these principles, but to provide a therapeutic effect, it is necessary to be guided to a greater extent by certain principles. Firstly, the caloric content of food plays a very important role; secondly, its chemical composition; thirdly, the various physical properties of food: its volume, consistency, temperature; fourth, the diet has a big influence. As well as taking into account the physiological needs of the body, it is important to know the phase and stage of the disease, as well as the degree of metabolic disorders that have occurred in the body. The optimal ratio of products will be 14% of the daily calorie content (the required amount of energy) is covered by proteins, 30% by fat and 56% by carbohydrates. The construction of a diet without taking into account these requirements not only reduces the effectiveness of other therapeutic roles, but can also lead to the development of additional disorders in the body. Therefore, for a sick person, it is necessary to organize a balanced diet, that includes not only basic nutrients, but also vitamins, liquid, micro and macro elements. To determine the daily calories must be taken into account - age, gender and constitutional features and the regimen that is prescribed for a sick person. The minimum protein content within food should be at least 1 g per 1 kg of body weight. In this case, protein intake should be provided at the expense of animal and vegetable proteins in equal proportions. But there is an exception to the rules - the protein content can be reduced to 30 g per day for renal pathology. Reducing protein to such numbers, it is necessary that most of it must be provided due to the animal component containing the optimal ratio amino acids for the physiological needs of the body. For normal digestion processes, it is necessary to include foods rich in plant fiber, vitamins and mineral salts into the patients' diet. In situations where natural products do not satisfy the body needs for these substances, it is necessary to use their medical substitutes. Including vegetables into the diet, it is very essential to consider the type to which they belong: certain varieties of cabbage contain a moderate amount of table salt, others - a large or small amount, etc. The method of culinary processing of products is of great importance, since the amount of useful substances stored in them depends on it.

Protein is a very important food component, so reducing calories intake in diseases, for example, alimentary obesity, is carried out due to carbohydrates and fats. When prescribing dietary nutrition, a doctor must explain to the patient the essence of this method, its effect on the body. It is necessary to emphasize the importance of every moment and warn about possible complications and consequences if regulations are not followed. It is necessary to talk about the optimal timing of therapeutic diets usage, because many patients, especially those with chronic diseases, are very suspicious and can sit on a



prescribed diet for a long time, being afraid of an exacerbation of the disease. The EU Ministry of Health recommends four meals per day: breakfast at 8-9 a.m., lunch at 13-14 p.m., dinner at 17-18 p.m., night meals at 21:00 p.m. The choice of this time is due to the physiological characteristics of the human body, namely the activity of its enzymatic systems. Caloric intake of meals: breakfast - 30%, lunch - 40%, dinner - 25%, night meals - 5%. It is very good that the last meal would be in 4-5 hours before sleep.

How cooking affects the content of nutrients? Subjecting food to heat treatment reduces the amount of nutrients in food products, but increases the bioavailability of some products. Various cooking techniques such as frying, baking, steam cooking, water cooking, microwave cooking change the content of vitamins and minerals.

Some vitamins and minerals become more stable and absorbable under the influence of temperature, e.g. calcium, and some after the taking it from the tree in the first day volatilize e.g. vitamin C, folic acid, potassium. Even grinding, cutting, peeling affects the content of antioxidants in the product (up to 20-60% loss).

The nutrient content is influenced by many factors, primarily storage time, light availability, humidity, temperature, as well as plant variety. To the perishable, we primarily include vitamin C, which during storage gradually disappears in a given vegetable or fruit. For example, in a study where different varieties of cabbage were stored for 2 months, a significant decrease in vitamin C was observed - from 13% to 53% depending on variety.

It is recognized that orange juice has a large amount of vitamin C, it is packed in a special carton to minimize vitamin loss. However, when it opens, vitamin C will oxidize very quickly. Phenolic compounds, vitamins A and E, B vitamins, some minerals are also unstable. A British study introduced a diet based on raw products to prevent chronic diseases. The study, in which 198 people took part, strictly followed a strict diet. Patients consumed 95% of raw products, especially fruit. People had normal vitamin A levels, while 77% of people had low lycopene levels (an antioxidant found in red fruits and vegetables, e.g. tomatoes). This is because lycopene is more absorbable after heat treatment. Its level increases after cooking for 30 minutes at 85 ° C by up to 35%. In another study, the increase in lycopene when frying tomatoes in olive oil increased by 82%.

During cooking in water, nutrients are flushed out, which is why vegetable soups are considered a source of valuable vitamins. It is important not to defrost vegetables before cooking, but to throw them straight out of the freezer into boiling water. Studies have shown that there is less loss of vitamin then. They also retain better texture and firmness. Cooked food becomes more digestible. For example, egg white after cooking is 180 times more digestible than raw.

Vitamin losses during cooking range from 30% to 50%. After cooking the spinach, 60% vitamin C and 50% flavonoids were extracted from water. When cooking broccoli, a loss of vitamin C was reported from 117.7 / 100 g to 85.6 / 100 g of product. Broccoli lost about 33% of vitamin C and 13% of carotenoids during heat treatment. Broccoli cooked in water for 15 minutes contained about 12 times



less polyphenols compared to the raw material, in addition, they had several times less ability to sweep the radical called DPPH 13. Cooking is the best way to preserve carrot and zucchini carotenoids compared to frying or raw food. Cooking reduced the content of minerals Na, K, P, Zn.

Starting cooking in cold or boiling water also affects the vitamin content. The loss was greater when brussels sprouts were dropped into cold water (38.6% loss of vitamin C) compared to starting to cook brussels sprouts in boiling water (27.6% loss of vitamin C). During cooking in a pressure cooker, vitamin C loss was 31.3%. In another study, vitamin C losses after flooding with cold water were:

- brussels sprouts - 46.4%
- cauliflower - 54.7%
- white cabbage - 60.4%
- string beans - 55.7%
- Potatoes - 49.4%

Vitamin C losses after flooding with boiling water were:

- brussels sprouts - 41.6%
- cauliflower - 40.0%
- white cabbage - 39.9%
- string beans - 39.3%
- potatoes - 28.4%



Baking can take place at 170°C - 250°C. During this operation, pleasant and aromatic sensory features are created, but the food becomes less digestible than with cooking. The study proved that baking is the best form of preparation with the least loss of vitamins and minerals of food compared to cooking, frying, microwave processing. All methods have been shown to contribute to the loss of vitamins A, B1 and D 19.

Depending on the type of potatoes, the loss of vitamin C during baking was from 33.2% to 50.9%. In addition, these losses were smaller than for frying and cooking. The baking length significantly reduces the vitamin C content. After baking at 180°C after 15 minutes, there were no significant differences in vitamin C content, while after 30 minutes it was reduced by 40.9%. In the



process of baking carrots, celery and green beans, the antioxidant potential increased compared to raw vegetables.

Steam cooking seems to be the best way to prepare meals. The nutritional value of a product suffers least. During steam cooking, broccoli lost the smallest amount (0.4 mg / 100 g product) of nutrients compared to frying, cooking, baking. For broccoli, steaming is the best way to keep glucosinolates in them, which inhibit the growth of cancer cells. In the red cabbage test, larger defects were observed when boiling in water (from 16.3 to 40.3%) than when steaming (from 2.1 to 22.7%) 24.

Frying can take place at temperatures:

170 - 220 ° C on a thin layer of fat

160 - 190 ° C on a medium fat layer

130 - 180 ° C immersion frying

220 ° C fat-free frying

Frying is the tastiest method of cooking and also the most unhealthy. Frying requires a large amount of refined fats. In combination with high temperature they become dangerous to health. As in grilling, carcinogenic PAHs are formed during frying. In the study, the frying process increased the antioxidant capacity of carrots, it was almost 3 times larger than in the cooking process. For celery 4 times. Broccoli lost 38% of vitamin C and 28% of carotenoids during frying. Broccoli lost the most minerals when frying compared to other cooking methods. Fried potatoes have significant losses of vitamin C from 55.1% to 78.9% depending on variety.

Grilling has recently become very popular in Polish households. The taste and aroma of grilled meats, vegetables and other products is unique. Grilling seems to be a good way to process food. You don't need fat, just a piece of meat and spices and you can start grilling. During grilling, the product may lose about 40% of nutrients.

An important side effect of grilling is the production of acrylamide on grilled products. It is a carcinogenic substance. It is formed naturally during heat treatment in large quantities, especially during heavy browning - charring. For example, it can contribute to the formation of pedestrian cancer.

Other carcinogens such as polycyclic aromatic hydrocarbons (PAHs) are also formed. However, studies have shown that if we reduce smoking and dripping fat to fire, we can reduce the incidence of PAH by 48-89%.

Due to the short cooking time in the microwave, the nutrient content is higher than when cooking or frying. After 10 minutes, the content of vitamins B1 and B2 practically did not change, while the content of vitamin C decreased, even by 20%. As a result of cooking cauliflower, white cabbage, Brussels sprouts, green beans and potatoes in the microwave, smaller losses (from 8.3% in potatoes to 19.8% in cauliflower) of vitamin C were observed compared to other heat treatment methods. During microwave cooking of broccoli and cauliflower, the losses of phenolic compounds were comparable to those during cooking in water. However, their antioxidant power was greater compared to raw vegetables.



How to keep nutrients in products?

- ! Eat vegetables and fruits seasonally and locally. The shorter the storage time, the lower the loss of vitamins.
- ! Eat products raw or in winter remember the frozen ones. If you produce your own frozen food, you should blanch the product beforehand. It has been proven that such vegetables and fruits retain their antioxidant properties in greater quantity than they are not blanched during storage. Vegetables such as peas, cauliflower, carrots, broccoli and potatoes did not change significantly during the 6- and 12-month storage and in most cases the antioxidant activity was stable at the same level. Another study evaluated the amount of polyphenols in rhubarb. During blanching, the amount of polyphenols increased, while after 10 minutes their content was reduced.
- ! Store tomatoes at room temperature. This optimizes the ripening process and increases the level of lycopene. The effects of light, and above all temperature, have a negative effect on vitamins and other good food ingredients.
- ! Highly processed products are often refined (e.g. oils, sugar, cereal grains), which extends product shelf life. Along with this process, vitamins and minerals effectively disappear. Empty calories remain, with no nutritional value.
- ! Temperature is the main cause of nutrient loss in products. The safest food treatment seems to be steaming in a microwave.
- ! Frying should be limited due to large losses of vitamins, but also dangerous compounds that arise when heating fats. Of course, from time to time you can eat grilled or baked food.
- ! Eat fresh and seasonally!



The rapid processes of industrialization, urbanization and globalization in recent decades have had a major impact on human nutrition. There have been changes in agricultural development strategies, food production, distribution, marketing, and prices. Although the availability and variety of foods have increased, many low-value products have emerged, the consumption of which has been encouraged by aggressive advertising. Consumption of high-energy, low-fat, high-sugar products has increased immensely. Fast food is used for snacks, sweetened drinks too often replace water, while vegetables, fruits and low-processed cereals are underused.

Such dietary changes have contributed to the emergence of obesity, lipid metabolism disorders, arterial hypertension, hyperglycemia, and other risk factors for chronic diseases. Chronic non-communicable diseases are a major public health problem of the 21st century. Another serious health issue in developed, industrialized countries, especially among children and young adults is a growing number of allergic diseases. Food allergies are found in ~ 10% of children and ~ 2% of adults. Allergies



are caused by a variety of substances that are called allergens. Studies have shown that some food processing methods increase the allergenicity of food proteins - for example, cooking peanuts reduces the allergen and roasting increases it. Food processing methods can also impair the nutritional composition of foods. Allergens can be transported from dishes, surfaces, and air. Allergies to wheat and wheat products, milk, nuts and other foods are most common.

Data from a number of years of research show that the nutrition of the majority of the Lithuanian adult population is unbalanced and unfavorable to health: the diet is dominated by excess fat, sugar, insufficient consumption of fruit and vegetables, fish and their products. The diet of most people lacks vit. A, C, D, B2, B12, PP, pantothenic acid, magnesium, calcium, iron, zinc, iodine. One third of individuals eat fresh vegetables only 1-2 times a week (WHO recommends eating them daily during each meal, i.e. 5 times, or 400g / day). On average, a Lithuanian eats only 260 grams of them. Vegetables and fruits have many useful biologically active and fibrous substances and antioxidants. These substances protect a person from cardiovascular diseases (heart attacks and strokes), cancer, obesity, premature aging and other diseases. In addition, the consumption of cereal products (especially whole grain products) is relatively low in Lithuania - only about half of the respondents eat cereal products every day, therefore they receive too little fiber. Whole grain products are almost not consumed at all. Most people use too much salt and increase their risk of hypertension. 54.7% of Lithuania's population are overweight, and mortality from cardiovascular diseases is among the highest in Europe.

The Ministry of Health of the Republic of Lithuania is constantly implementing different measures and taking actions in order to improve the nutrition of the Lithuanian population. Here are some examples of the most important initiatives:

- *A database on food composition and energy* has been created. It collects data on the chemical composition and energy value of food products produced in Lithuania;
- *Healthy eating recommendations* have been developed. These guidelines define the most important principles of a rational diet. They are taken into account when organizing meals for various organisations (e.g. schools, kindergartens, hospitals, etc.);
- *Labelling of foods by Keyhole symbol*. The Keyhole is a food label that identifies healthier food products within a product group. Choosing foods with the Keyhole symbol makes it easier and less time consuming to find healthier products in food stores. Foods labelled with the Keyhole contain less sugars and salt, more fibre and wholegrain and healthier or less fat than food products of the same type not carrying the symbol. The Keyhole system aims to stimulate manufactures to product reformulation and development of healthier products.

The symbol "Keyhole" is a trademark registered in the European Union and authorized by the Swedish National Food Agency (trademark owner) in Lithuania. This symbol has been used since 1989 and is the most widespread in Europe among similar brands. The European Commission considers it to be the most positive and objective. It marks food products in Sweden, Denmark, Norway, Iceland, Macedonia and Lithuania. Foods carrying the Keyhole symbol are not "diet foods" but are intended for everyone who wants to eat a healthy diet.

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- A description of the procedure for organizing the catering for children was introduced, which establishes the mandatory requirements for the supply of health-friendly food to Lithuanian educational institutions;
- Requirements *for maximum levels for trans fatty acids in foodstuffs* were established and entered into force in 2019. The norms also apply to catering meals.
- Mandatory training in the basics of healthy eating for food producers was introduced in 2018. It applies for chefs, cooks, food technologists and other food workers. This will have an impact on improving the quality and health benefits of the food they produce and sell.

Nevertheless, the eating habits and dietetic attitudes of the population are gradually changing.

The main principles of healthy eating in Lithuania, Latvia and Poland are similar to global ones:

! Refusal of added sugar

Many scientists talk about the damage of added sugar to the human body resulting in chronic diseases and long-term consequences. This leads to a popular trend to evaluate the product composition more carefully before buying foods. Large amounts of added sugar can be detected even in seemingly unsweetened products. It is added not only to sweets, but also to products that we do not even suspect that they may be additionally sweetened. Added sugar is plentiful in a variety of soft drinks, sauces, breads, yogurts, canned vegetables, and other seemingly innocent products.

! Foods without artificial additives

Another trend currently gaining popularity in Lithuania is organic, naturally grown food. Organic food contains more healthy substances and there are no unhealthy components that can cause negative reactions in the body. More and more research is revealing that foods with artificial additives cause allergic reactions, obesity, asthma, heart disease and other diseases. Therefore, it is natural for people to turn to health-friendly products which contain much less harmful substances and many more vitamins and minerals.

! Foods with probiotics and prebiotics

Studies show that probiotics are associated with positive effect on immunity and digestive system, slowing down the progression of chronic diseases, absorption of substances necessary for the body and overall improvement of body functions. Thus, people are increasingly trying to include in their diet products that are rich in good bacteria - fermented dairy products, fermented vegetables and even fermented beverages. However, attention should also be paid to prebiotics - substances that are necessary for the reproduction of probiotics. They create a favorable and long-lasting medium for good bacteria in the gut. Onions, oats, leeks, apples, corn, walnuts, red lentils and even dark chocolate are plentiful in prebiotics.

! Refusal of meat and search for substitutes

Switching from animal products to plant-based ones is a popular trend nowadays, although it can require more effort to properly balance the diet. And there are more options than ever, including new-wave vegan foods and meatless meats intended to mimic the real thing.



It is expected that over the next 10 to 20 years, Lithuanian food technologies and agro-innovations will be focusing on the following main challenges:

- healthy, functional and safe food,
- convenient (fast) and healthy food maximally adapted to the dynamic diversity of consumption environment,
- rational processing of food raw materials and search for new nutritional sources.



(2)

“Food trends” in vocational school curricula on an example school from Poland, Lithuania and Latvia.

It is paid a lot of attention concerning healthy lifestyle and diet nutrition within teaching process acquisition at the vocational schools, participating in “vetDIET” project. Below we present different subjects examples within teaching framework:

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Subject – Food Preparation Technology	Theme	Subthemes
1.	The nutrition impact on health.	Basic principles of a healthy diet.
	Chemical composition of the products. Product quality.	Foodstuffs substances classification. Characterization of inorganic substances, their importance for human body.

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		Characterization of organic substances, their importance for human body.
2.	Pre-treatment of vegetables and mushrooms. Fresh vegetables, fresh fruits, berries, nuts, mushrooms, vegetable, fruits and mushroom processing products.	Pre-treatment of vegetables (cabbages, roots, tomatoes, pumpkins, pulses, herbs, dessert vegetables, mushrooms). Preparation of vegetables for stuffing. Exotic fruit and vegetables dishes.
3.	Vegetable dishes and additives. Vegetarian and dietetic nutrition.	Cooked vegetable dishes. Fried vegetable dishes. Stuffed vegetable dishes, fried vegetable dishes. Stewed vegetable dishes. Mushroom dishes. Design of vegetable dishes and selection of utensils for teaching. Vegetarian diet importance. Types of product processing within vegetarian diet. A selection of products for cooking vegetarian food.
4.	Soups.	The importance of soups in the diet. Types of soups and general cooking rules. Clear soups (cabbage, beets, cucumbers, potatoes), recipes, peculiarities of preparation. Milk soups. Cold soups. Sweet soups.
5.	Cereals and their processed products. Groats and pasta dishes and additives.	Characteristics, structure and assortment of grains. Flour, its classification, quality characteristics and storage conditions. Groats, their classification, quality characteristics and storage conditions. Assortment, quality characteristics and storage of pasta. Groats pre-treatment. Types of porridge and their cooking rules, calculation of liquid quantities. Porridge dishes. Pasta dishes and pasta recipes, cooking technology.
6.	Cottage cheese and eggs dishes.	Egg processing. Boiled egg dishes. Fried egg dishes, recipes. Classification of cottage cheese dishes and pre-treatment of cottage cheese. Cooked and steamed cottage cheese dishes (steamed cottage cheese pudding, cottage cheese dumplings). Baked curd dishes.
7.	Fish pre-treatment.	Thawing of frozen fish. Processing of salted fish. Scale fish processing (splitting, filleting). Shellfish processing.

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		Processing of flatfish. Preparation of fish semi-finished products (for cooking, baking). Preparation of fish cutlets and their semi-finished products. Processing of seafood.
8.	Pre-treatment of meat and poultry.	Types of meat pre-treatment. Distribution of livestock carcasses. Semi-finished portions, their culinary usage. Small semi-finished products, their culinary usage. Culinary division of beef carcasses. Large pieces of semi-finished products, their culinary use. Small semi-finished products, their culinary usage. Preparation of natural minced and meatballs and their semi - finished products.
9.	Cold and hot drinks.	Hot and cold drinks (coffee, tea, cocoa), recipes, cooking technology, presentation and quality requirements.

Subject – Public and Human Security	Theme	Subthemes
1.	Health education.	Freedom of choice, health as an individual's choice. Lifestyle and quality of life. Factors that influence health. Healthy lifestyle (eating habits, sport exercises, etc.). Health promotion (at school, at work). Rational usage of medicines. Interaction among physical and psychological health, prevention of psychosomatic diseases. Burnout syndrome and mental overload (including mobbing etc.).

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Vocational school curricula in Lithuania tries to reflect the current changes and trends in the gastronomy sector. However, the update of the training programs and the training process itself is rather slow and insufficient. Lately the following compulsory topics have been included in gastronomy-related VET programmes:

- the importance of organic food and ingredients;
- application of the principles of healthy eating in the preparation of different types of dishes.

In 2017 the training program for Cook (Level 4 EQF) was updated, adding a new optional module "Cooking healthy meals". Please see below for the detailed content of the module:

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Competence		Learning Outcomes	Recommended content
1. Select food products and ingredients		1.1. Understand the principles of healthy eating.	<p>1.1.1. Topic. Main principles of healthy eating.</p> <p>Tasks:</p> <ul style="list-style-type: none"> Describe the basic principles that define a healthy diet. Explain how healthy eating recommendations reflect the healthy eating pyramid. List the basic rules of a healthy diet <p>1.1.2. Topic. Trends in healthy eating according to scientific achievements and discoveries.</p> <p>Tasks:</p> <ul style="list-style-type: none"> Explain what food is most valuable, most beneficial to the human body Indicate the directions of a healthy diet. Find information and prepare a presentation on what foods are consumed taking into account trends in healthy eating in line with scientific achievements and discoveries. To describe the dietary characteristics of individuals who do not tolerate protein gluten. Describe the diet of individuals who are intolerant to lactose Explain the importance of organic food. Describe the food combining principles. Explain the importance of national food in nutrition. <p>1.1.3. Topic. Nutritional peculiarities of raw food eaters, vegans, vegetarians</p> <p>Task:</p> <p>Describe nutritional peculiarities of raw food eaters, vegans, vegetarians.</p>
		1.2. Select food products and ingredients for cooking healthy meals and snacks.	<p>1.2.1. Topic. Selecting necessary products and raw ingredients for cooking healthy meals and snacks</p> <p>Tasks:</p> <ul style="list-style-type: none"> Describe food labeling. List the requirements for food products and raw ingredients. Explain what food products and raw ingredients are used to make healthy meals. Identify food products and raw ingredients used in cooking raw, vegan and vegetarian dishes

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	1.3. Choose appropriate food processing methods and technological processes.	<p>1.3.1. Topic. Consistency of the technological process in the preparation of healthy meals.</p> <p>1.3.2. Topic. Setting up a working place for preparation of healthy meals.</p> <p>1.3.3. Topic. Technology for the preparation of healthy meals and snacks according to trends in healthy eating in line with scientific achievements and discoveries.</p> <p>Tasks:</p> <ul style="list-style-type: none"> Examine and describe the technology of preparing healthy meals and snacks, applied in the context of a healthy diet trends Examine and describe the technology of preparing healthy meals and snacks, applied according to healthy eating directions and according to the types and range of healthy meals. <p>1.3.4. Topic. Food processing methods and their influence on food products.</p> <ul style="list-style-type: none"> Explain new cooking technologies. Apply new cooking technologies to the production of healthy meals.
2. Prepare meals and snacks according to healthy nutrition trends and principles.	2.1. Know the purpose of technological equipment, tools, principles of operation in the preparation of healthy meals and snacks.	2.1.1. Topic. Purpose of equipment, tools, inventory, principles of operation.
	2.2. Know the range of healthy meals and snacks.	2.2.1. Topic. Classification and assortment of healthy meals and snacks.
	2.3. Select technological equipment and tools for preparation of healthy meals and snacks.	<p>2.3.1. Topic. Selection of equipment, tools for the preparation of healthy meals.</p> <p>2.3.1. Topic. Using selected equipment and tools for preparation of healthy meals.</p>
	2.4. Prepare healthy meals and snacks, ensuring food safety in accordance with the rules of good hygiene practice.	<p>2.4.1. Topic. Preparation of healthy meals and snacks.</p> <p>Tasks:</p> <ul style="list-style-type: none"> Use recipes, technology cards, recipe sets. Apply the technology of healthy food production. Demonstrate methods and actions of individual technological processes.
3. Evaluate the quality of the prepared healthy	3.1. Know the quality requirements, storage conditions and sales terms	<p>3.1.1. Topic. Sensory quality indicators of healthy meals and snacks.</p> <p>Tasks:</p>

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meals and snacks and decorate them.	of healthy meals and snacks.	<ul style="list-style-type: none"> Describe the quality indicators of healthy meals and snacks. Describe the microbiological changes that take place during the technological process. Describe the shortcomings of healthy meals and snacks.
	3.2. Decorate healthy meals and snacks.	3.2.1. Topic. Requirements for the serving of healthy meals and snacks. 3.2.2. Topic. Serving of healthy meals and snacks in a plate.

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representing vocational schools in Poland**

In 2019 the training program for Cook we can find many subjects connected fit food trends:

Name of program unit	Topic	Requirements	
		Basics competences:	Additional competences:
Basics of human nutrition	Food breakdown by origin, durability and nutritional value	<ul style="list-style-type: none"> define the concepts of food, food, nutrients, food pyramid, know rules for rational nutrition, classify food according to the content of nutrients, explain the concept of nutrition and its energy. 	<ul style="list-style-type: none"> recognize food according to origin, explain the rules for using the food pyramid, list the consequences of nutrient deficiency in the human diet.
Production process in a catering factory	Characteristics of the production process in the catering factory	<ul style="list-style-type: none"> choose the methods and techniques recommended when preparing dietary dishes, distinguish heat treatment techniques for preparing food, e.g. blanching, cooking, confitting, frying, grilling, braising, baking, steaming, cooking at low temperatures, smoking, use international terminology regarding the technological process, 	<ul style="list-style-type: none"> characterize methods and techniques for preparing dishes and drinks, characterize the changes occurring in food during processing, indicate modern culinary techniques, e.g. sous vide, molecular gastronomy, characterize modern culinary techniques.

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Technologies for preparing food and drinks	Technologies for preparing dietary and vegetarian dishes	<ul style="list-style-type: none"> - distinguish between alternative dietary methods, including gluten-free, lactose-free diets, vegetarianism, veganism, flexitarianism, pescetarianism, - choose raw materials for making dietary and vegetarian dishes, - plan preparing dietary and vegetarian dishes, - choose raw materials for dietary and vegetarian dishes, - replace the raw materials in the recipes of dietary and vegetarian dishes, - choose the technique and method of preparing dietary and vegetarian dishes, - plan a balanced meal and menu according to different diets, - choose machines and devices as well as equipment needed for preparing dietary and vegetarian dishes, - choose equipment and tableware for serving dietary and vegetarian dishes, - recalculate the raw material standard based on recipes of dietary and vegetarian dishes. 	<ul style="list-style-type: none"> - characterize the rules for preparing dietary dishes, e.g. soups, meat, poultry and fish dishes, cereal and flour dishes, sauces, vegetable dishes, spices, - describe the methods and operations used when preparing dietary and vegetarian dishes, - characterize dietary and vegetarian dishes and drinks, - draw up technological diagrams for the production of dietary and vegetarian dishes, - designate CCPs in technological schemes for the production of dietary and vegetarian dishes, - characterize the changes that occur when preparing dietary and vegetarian dishes, - anticipate the risks affecting the quality of ready dietary and vegetarian dishes, - characterize post-production waste when preparing dietary and vegetarian dishes.
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In 2019 the training program for Nutrition and catering services technician we can find many subjects connected fit food trends:

Name of program unit	Topic	Requirements	
		Basics competences:	Additional competences:
Basics of dietetics.	Basic diet. Division, characteristics and use of therapeutic diets	<ul style="list-style-type: none"> – characterize the basic diet used in medicine, – characterize an easily digestible diet, – characterize the diabetic diet. 	<ul style="list-style-type: none"> – plan a basic diet, – plan an easily digestible diet, – plan a diabetic diet.
Eating habits and alternative ways of eating	Eating habits and habits in Poland and in the world	<ul style="list-style-type: none"> – list trends and changes in Polish eating habits, – characterize cultural trends and customs by religious beliefs and ethnicity, – determine the eating habits of other nations. 	<ul style="list-style-type: none"> – determine the impact of diet on health, – determine the impact of religion on the food culture of nations.
	Alternative diets and their impact on health.	<ul style="list-style-type: none"> – provide definitions of vegetarianism, macrobioticism, and alternative nutrition, – distinguish between alternative dietary methods, – indicate the pros and cons of alternative nutrition. 	<ul style="list-style-type: none"> – determine the nutritional value of vegetarian, macrobiotic and alternative diets, – analyze the impact of supplementation on the functioning of the human body, – arrange menus in a vegetarian and macrobiotic diet.
Technologies for preparing food	Technologies for preparing dietary and vegetarian dishes	<ul style="list-style-type: none"> – choose raw materials for making dietary, vegetarian and vegan dishes, – choose the technique and method of preparing dietary, vegetarian and vegan dishes, – choose machines and devices as well as equipment needed for preparing dietary, vegetarian and vegan dishes. 	<ul style="list-style-type: none"> – plan preparing dietary and vegetarian dishes, – anticipate the risks affecting the quality of ready meals, diet, vegetarian and vegan, – choose equipment for serving dietary and vegetarian dishes, – use tableware to serve specific dishes.



		<ul style="list-style-type: none"> – apply hygiene rules for preparing dietary, vegetarian and vegan dishes, – prepare dietary, vegetarian and vegan dishes depending on the exclusion of various raw materials from the diet, using various production methods and techniques, – evaluate organoleptically prepared dietary and vegetarian dishes. 	
Basics of dietary nutrition	Classification and rules for laying therapeutic diets (according to Ciborowska and Rudnicka)	<ul style="list-style-type: none"> – apply the rules for the development of diets: the use and purpose of the diet, diet characteristics, technological notes, recommended products and dishes, diet assumptions, daily food ration expressed in products, example of a diet, – choose products used in dietary nutrition. 	<ul style="list-style-type: none"> – plan meals for chronically ill people (e.g. diabetes, hypertension, renal failure, etc.), – specify methods and techniques for preparing dietetic dishes (e.g. steam and steam cooking, foil baking, etc.), – use information technology when composing diets and calculating the nutritional value.
	Characteristics and use of therapeutic diets. Arranging diets for selected disease entities.	<ul style="list-style-type: none"> – plan the basic diet used in nutrition, – choose dishes and techniques allowed in the basic diet, – plan a rich residual diet, – plan an easily digestible diet, – plan an easily digestible diet with protein restriction, – plan an easily digestible diet with the restriction of substances that 	<ul style="list-style-type: none"> – plan the basic diet used in nutrition, – choose dishes and techniques allowed in the basic diet, – plan a rich residual diet, – plan an easily digestible diet, – plan an easily digestible diet with protein restriction, – plan an easily digestible diet with the restriction of substances that stimulate the secretion of gastric juice,

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		<p>stimulate the secretion of gastric juice,</p> <ul style="list-style-type: none"> – plan a low-energy diet, – plan a diet with a restriction of easily digestible carbohydrates, – plan a diet with a controlled content of fatty acids, – plan a high-protein diet, – plan a low-protein diet, – plan a diet for the prevention and treatment of obesity, – plan a diet for the prevention and treatment of hypertension and cardiovascular disease, – plan a diet for the prevention and treatment of diabetes, – plan an anti-cancer diet, – determine the relationship between nutrition and nutrition-related diseases, – take preventive measures in diseases of the gastrointestinal tract, – identify diets with the type of disease, – know the cooking techniques used in individual diets, – observe the security principles when processing and sending personal data, – develops or applies developed performance standards. 	<ul style="list-style-type: none"> – plan a low-energy diet, – plan a diet with a restriction of easily digestible carbohydrates, – plan a diet with a controlled content of fatty acids, – plan a high-protein diet, – plan a low-protein diet, – plan a diet for the prevention and treatment of obesity, – plan a diet for the prevention and treatment of hypertension and cardiovascular disease, – plan a diet for the prevention and treatment of diabetes, – plan an anti-cancer diet, – determine the relationship between nutrition and nutrition-related diseases, – take preventive measures in diseases of the gastrointestinal tract, – identify diets with the type of disease, – know the cooking techniques used in individual diets, – observe the security principles when processing and sending personal data, – develop or applies developed performance standards.
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(3)

“Food trends” in restaurant menu and generally gastronomy sector on an example companies from Poland, Lithuania and Latvia.



23

Looking at the prevailing food fashions in the Lithuanian restaurants, it is obvious that more and more attention is given to proper values and ethical consumption. The importance of health, well-being and a balanced diet returns to kitchens. The restaurants prepare a variety of healthy meals and foods with as many vitamins as possible. Currently, the trends are gradually changing in favour of local farmers - seasonal, home-grown organic products are returning to fashion.

Food trends in the Lithuanian gastronomy sector:

- ! Vegetarian (vegan) dishes. When serving the food, more space on the plate is given to vegetables next to the meat. Observing Lithuanian tendencies, it is obvious that vegan dishes - from snacks to desserts - are becoming extremely fashionable. In addition, they are not only chosen by vegans – many people are happy to include vegetarian dishes in their diet.
- ! Alternative fast food. More nutritious alternatives to popular but not very healthy dishes, when certain products are replaced with healthier ones, are a recent fashion scream. Cauliflower pizza, zucchini spaghetti, cabbage chips, banana ice cream - these are just a few examples of a healthy fast food.
- ! The most fashionable cuisines - the Middle Eastern and North African. Middle Eastern cuisine delights with dishes such as humus and falafels, and a variety of spices - cumin, coriander, cinnamon, cardamon, while North African cuisine is loved for great-tasting stews, soups and snacks.
- ! Mushrooms. As many and as diverse as possible. In autumn Lithuanians can enjoy their forest wealth of mushrooms, and in other seasons the growing abundance of exotic mushrooms in supermarkets is seen.
- ! Fermented food and beverages. Fermented foods are rich in beneficial probiotics and have been associated with a range of health benefits — from better digestion to stronger immunity. Since 2019 there has been a rise in the consumption of kombucha, kimchi, pickles, cabbage juice, kefir.
- ! Non - alcoholic cocktails/ mocktails. Giving up alcohol is becoming a kind of fashion, so the abundance and importance of non-alcoholic cocktails has continued to grow strongly.
- ! Superfood powders. Superfood powders are the most convenient way to add a large amount of nutrients to things a person eats and drinks on a daily basis. Useful powders such as maca, spirulina, turmeric, can be blended into drinks, soups, baked goods and yogurt.

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- ! *Renaissance* of ice cream. Ice cream is again one of the most fashionable desserts. New shapes and unconventional tastes have come into fashion. Twisted ice cream rolls are very popular as well as vegan ice cream alternatives.
- ! The most fashionable taste is light bitterness. Restaurant chefs are increasingly integrating it into their dishes. Once again dark chocolate is on the top list.

Food trends in the Lithuanian restaurant menu:

- **When the past meets the present.** Historic cuisine comes alive in a number of Lithuanian restaurants, where ancient recipes found in old estates and monasteries are recreated in authentic Renaissance and Baroque meals, formerly accessible only to nobility. The dining experience is often guided by the history of where the ingredients were brought from, how they were grown, processed and paired. (Restaurants: *Ertlio namas* <http://ertlionamas.lt/>, *Lokys* <http://lokys.lt/>, *Monte Pacis* <https://montepacis.lt/restoranas>)
- **Modern interpretation of local culinary tradition.** New Baltic Cuisine brings back local ingredients in new and imaginative forms. Traditionally multi-cultural influences are fused with local produce such as chanterelles, cucumbers, parsley and raspberry, among others. The menu of these restaurants features original interpretations of such Lithuanian everyday dishes as carp, schnitzel, beetroots and potatoes. Mushrooms – the must-have of the ordinary Lithuanian kitchen get into unexpected combinations as in dried boletus ice cream with hazelnut biscuit and fourteen months oak-aged apple vinegar. Seasonality is another key aspect and has been named as one of the most important influences in the forming of the local kitchen. Vegetables and herbs straight from the restaurant's garden or local farm, berries, and mushrooms from the nearby meadows and forests appear on plates in creative combinations. (Restaurants: *Džiaugsmas* <http://www.dziaugsmas.com/>, *Nineteen18* <https://www.nineteen18.lt/>, *Sweet Root* <http://www.sweetroot.lt/>)
- **Multi-cultural cuisine.** Throughout the history Lithuanian cuisine was influenced by French, Italian, Ukrainian and German gastronomic traditions as well as Jewish, tartar and other oriental cultures that reached Lithuania through its ethnic minorities. In local restaurants you can find such ethnic food as Karaite Kybin (pastry stuffed with meat or mushrooms), traditional Litvak kosher food (bagels or chopped herring), Ukrainian borsch and varenyky, Georgian khachapuri, and many more. (Restaurants: *Beigelių krautuvėlė* <https://www.lzb.lt/2016/04/04/kavine-beigeliu-krautuvele/>, *Senoji kibininė* <https://www.kibinas.lt/kontaktai/senoji-kibinine-trakuose-1/>, *Georgian house* <https://www.facebook.com/GeorgianHouseVilnius/>)
- **Hipster-style street food.** Hipster culture has moved dining outdoors and combined it with cultural events, music performances and street art. Every Friday and Saturday during the summer months, *Open Kitchen* food market starts a food art festival – a special place in the capital city Vilnius that offers invigorating music and a variety of food stands offering everything from Lithuanian cuisine, burgers, Korean, Thai, Armenian or Turkish food. The



oldest market in Vilnius, *Halės Turgus*, hosts food counters, cafes, gourmet and local delicacies shops, and cocktail bars, with a DJ playing every night on weekends.

- **Unique craft beer.** During Soviet times, no private breweries were allowed, but local people, isolated from the world, still kept brewing, often semi-legally, using local ingredients and following their centuries-old traditions. Now, local craft beer producers claim that Lithuanian craft beer culture is on the rise. Brewers here are not afraid of experiments with unique ingredients like peas and the implementation of niche or forgotten recipes. The breweries continue to offer new types of beer, often introducing unique twists to the classics, like *Sour Beetroot Ale* while the craft beer pubs such are offering beer tastings where the guests get acquainted with the history and subtleties of the beverage. (Pubs: *Alaus Biblioteka* <http://www.beerlibrary.lt/>, *Šnekutis* <http://jususnektis.lt/>, *Špunka* <https://spunka.lt/>)
- **Variety of local drinks.** Visitors to Lithuania can try local farmer-produced cider, kvass (non-alcoholic, fermented bread drink) and quality fruit and berry wines, made by following traditional recipes. Mead, the oldest Lithuanian drink made from honey and enjoyed by the Grand Dukes, is also reborn. Lithuanian wines can be tried at several local food restaurants, where a sommelier can offer to choose from a list of more than 50 Lithuanian wines. (Restaurants: *Queensberry* <https://www.facebook.com/queensberryrestaurant/>, *Girta Bitė* <https://bestpub.lt/barai/rodyti/143-girta-bite.html>)



The hottest food trends in Latvia:

- ! Snacks made from insects – not only an exotic and ‘hot’ restaurant trend. It is also an option to receive a daily dose of protein.
- ! Neurogastronomy - it turns out that the way we experience the taste of drinks and food depends on the environment – tableware, sound, colours and light.
- ! Restaurants acquiring their own farms and gardens - using fresh, ecologically clean products.
- ! Organic produce mainly from the dairy sector, also honey, herbs, meat.

Every fourth Latvian resident considers reducing the amount of meat in his/her diet or becoming a vegetarian or vegan. For example, <https://www.latvia.travel/en/top/top-6-places-vegetarians>. The largest proportion of vegetarians are in Rīga and Latgale. People replace meat:

- ✓ with fish (87.5%)
- ✓ mushrooms (55%)
- ✓ legumes (51.5%)

Rye bread is very popular in Latvia. At the Aglona Bread museum (<http://www.aglona.travel/ko-apskatities/muzeji/aglonas-maizes-muzejs/>), you will learn all about the

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baking of bread from grain to loaf, and you can make your own loaves, too. You can taste bread and herbal teas. There are theatrical performances related to christenings, weddings, birthdays, etc. Local foods such as dumplings and soups made of dried mushrooms or lake fish are served. The museum sells freshly baked bread, as well as the work of local craftspeople. Latvian cuisine: Lake fish soup, cottage cheese dumplings and other traditional Lettigian dishes. Special food: Soup of dried mushrooms.

The menu at the Restaurant "Plaza"

46 Gimnazijas street, Daugavpils, Latvia

The new menu of the restaurant consists of incredibly delicious dishes that are prepared exclusively from the freshest and most natural products. Dishes from the updated menu are characterized by modest yet exquisite presentation and harmonious combination of flavours.

Appetizers

- a) Warm spinach salad with chicken liver, bacon and pepper.
- b) Tomatoes mix with Mozzarella, rucola and balsamic glaze.

Soups

- c) Cold beet soup.
- d) Cabbage soup with mushrooms.
- e) Mushroom cream soup in a bread pot.

Second courses

- f) Butter-fried catfish with carrot puree, fried legumes and thyme sauce.
- g) Pot beans chicken.
- h) Quail with salted apples and sweet&sour sauce.

Desserts

- i) Curd pancakes in sweet vanilla sauce.
- j) Baked apples with curd, cream, honey and walnuts.
- k) Tasty and healthy herbal teas.

Vegetarian dishes

- l) baked eggplant with turkey peas and yoghurt sauce.
- m) grilled vegetables with onion jam.
- n) pancakes with ham and cheddar cheese.
- o) pancakes with condensed milk and chocolate biscuits.

Robotization, virtualization and algorithmization - these are new trends in gastronomy that are changing the market. It is good to know them to survive on the gastronomy market. New restaurant concepts, innovative models in delivery of food, "fake meat" - this is the concept of existing definitions in gastronomy today.



Here are the new 10 trends in gastronomy on the food delivery market:

! Shared kitchen

The fashion for shared economy is becoming part of everyday life. *Kitchen United* was established in American Pasadena, which creates a network of virtual restaurants available for various brands. Another example is CloudKitchens, whose founder is Travis Kalanick (co-creator of Uber). The idea for such a shared kitchen is simple: different companies can use one kitchen infrastructure, but also technological and marketing support. It's a kind of coworking for restaurants.

! A restaurant that is not there

A virtual restaurant, also called a "ghost restaurant", is a restaurant with no rooms. It has its own brand, kitchen, employs chefs and service (except waiters), but has no physical location. You can try dishes from such a restaurant only when you order food with delivery to your home or office. DoorDash is an example of a company that implements this model. The business concept is currently the market leader in food delivery in the United States. The company overtook GrubHub and Uber Eats in the competition.

! Dynamic prices

The popularizer of this model is *Uber*. Prices for Uber transport vary depending on demand (the more people want to use the service, the higher the price) and supply (the fewer drivers are logged in to the application, the higher the fare). Nick Kokonas, co-creator and CEO of Tock, a platform for booking tables in the best restaurants is one of the precursors of the dynamic price list on the gastronomy market. As he says, the food business is about quality: "What you buy is the most important thing, not the price."

! A robot in the kitchen

Restaurateurs are constantly looking for new ways to attract and retain employees. There is a futuristic solution. Robots prepare food served at Creator Restaurant in San Francisco from start to finish. In Boston, the Spyce restaurant operates in the same model. *Chowbotics* company has created vending machines, where you can buy salads prepared by a robot called Sally. They work well in hospitals, where they are an attractive alternative to vending machines.

! Restaurant without service

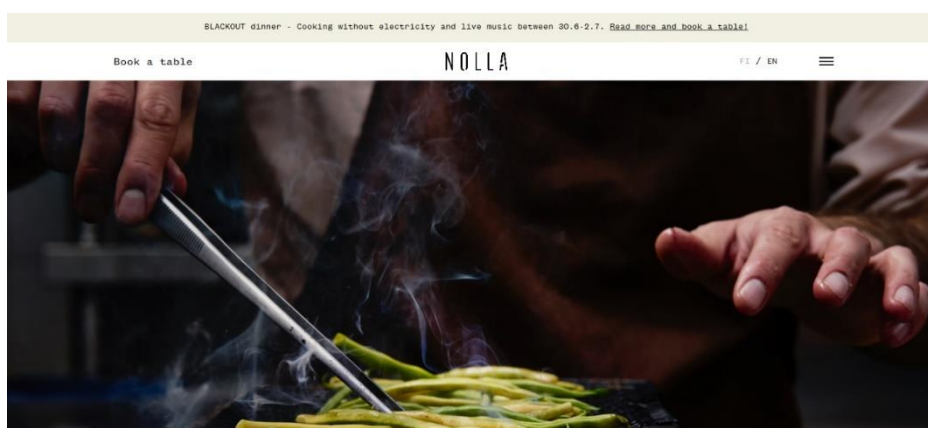
The answer to the challenges of the labor market may be robotization of chefs, but also waiter service. *Eatsa* is a chain of restaurants famous for serving quinoa bowls, through a kind of "food". It looks like this: the customer comes to the restaurant, places an order for a specific dish in an interactive kiosk, pays for it, physical chefs prepare it, put it in a "eat room", the customer receives the order from a designated glass glove box and eats a meal at the table, or takes it from home or office. Berlin *DataKitchen* operates in a similar model, which is supported by a technological giant, SAP. The German restaurant focuses on slow food, and orders are made through an application similar to *PizzaPortal.pl* or *Pyszne.pl*.

! Zero waste

The idea of zero waste involves creating a company that tries not to waste resources. The first restaurants have already been created in the world that operate in accordance with this philosophy. An



example of this type of premises is the Finnish *Nolla*. The name of the restaurant means "zero". The basic rules at the premises are 'refuse, limit, reuse, and ultimately process and compost'. *Nolla* owners work with local suppliers who provide them with products without packaging. If any food remains in the premises, they end up in the composter. *The Nolla* interior was created from recycled items. An example of this type of business from the Polish market is the BP petrol station network. When ordering some types of coffee at Wild Bean Cafe, you can ask for it in a chocolate waffle. After drinking the drink, the wafer can be eaten. This is an option for those who like coffee sweets, and at the same time want to contribute to reducing waste.



! Algorithmization

From large restaurant chains to independent cafes, gastronomy companies collect data and need more and more. These are also new trends in gastronomy. By using algorithms and artificial intelligence, restaurateurs can obtain data on consumption trends and consumer habits. They can extract information and use it to develop new products or change the current offer, as well as create personalized offers for each of their clients. In the food delivery market, algorithms are used to optimize delivery times, transit routes, and plan the work of deliverers.

! Mixed-use

HoReCa has been competing with the e-commerce industry for years. This forces restaurateurs and retailers to look for creative ideas to build added value resulting from a visit to the physical location of a store or restaurant. One of these ideas is to combine different functions in one place. The Brush Barber Shop operates in Łódź. During the day it is a hair salon for men, while at night it turns into a restaurant and cocktail bar. Another example is Umami Burger. On the one hand, it is a global burger chain, and on the other - an entity belonging to the Accor group, one of the largest hotel chains in the world. Over the next seven years, Accor plans to open at least 100 Umami Burger restaurants around the world, located in hotels.

**! "Fake meat" and "no murder meat"**

New trend in gastronomy is also giving up meat consumption and fighting global warming. Plant-based diets will be gaining popularity, and as a result, vegetable dishes in restaurants will become more and more popular. Already today you can choose a place that serves "fake meat" or molecular meat, also called "meat without murder." "Fake meat" is food made from vegetarian ingredients, and sometimes without products of animal origin, such as dairy, which resembles meat in terms of taste, appearance and processing. Many products of this type are based on soy (e.g. tofu, tempeh) or gluten, but also on pea protein. "Fake meat" is, for example, the famous soy chops with a pork flavor.

! Slow death of food courts

The ban on Sunday trading is noticeable in the financial results of food chains that have their points in the food courts of shopping centers. Customers cannot shop on Sunday, so they won't take advantage of the gastronomic offer. Meanwhile, Sundays were usually the days when the turnover of this type of restaurant was the highest. If the profitability of gastronomic premises in shopping centers continues to decline, food courts will either shrink strongly or become an incubator of innovation, where, for example, the first fully robotic gastronomic premises will be created. These types of trends in gastronomy are not just about Poland. In the United States, where Amazon competes with traditional stores, shopping centers are becoming less and less important, as a result of which the profits of fast food chains are significantly falling.

(4)

Latest trends in healthy food system and people expectations.**Dietetic Trends 2020.**Principles of healthy eating according to the Pevzner method.

Famous therapist Manuel Pevzner invented at least 15 different medical diets, called "table":

Table No. 0 This table is used in case of difficulty or inability to eat solid food. Such conditions are observed in the postoperative period in the gastrointestinal tract, with impaired consciousness, for example, in infectious and febrile patients. Table No. 0 consists of a vitamin-rich liquid or semi-liquid food with a small energy value of up to 1000 kcal per day. Its most balanced composition will be 20 g of fats and proteins and about 200 g of carbohydrates. Limit the content of salt. The following products satisfy these requirements: fruit and berry juices with sugar, weak meat broth, jelly, soft-boiled eggs, sugar tea, butter. The intake of fluid should be at least 2 liters per day. This diet is used for 3-5 days.

Table No. 1 This table is recommended to maximize the restriction of mechanical, chemical, and temperature aggression on the stomach. This diet is prescribed for exacerbation of peptic ulcer, bleeding,

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acute gastritis and other diseases that require maximum gastric sparing. Its most balanced composition will be 100 g of fat, 80 g of protein and 200 g of carbohydrates, calorie content - 2000 kcal. Products that meet the requirements of diet No.1a: fruit and berry juices, mucous milk soups, milk, jelly, soft-boiled eggs, omelets, cream, jelly, steam soufflé. The amount of salt is limited to 3 g per day. Food should be taken fractionally (in small portions) 6 times a day for 14 days.

Table No. 1.1 This table is for less severe, in comparison with table No. 1, restrictions on mechanical, chemical and temperature aggression on the stomach. This diet is indicated for a mild exacerbation of peptic ulcer of the stomach or duodenum, at the stage of calming down this process, with chronic gastritis. The energy value of this table is 2600 kcal, it is replenished with 100 g of protein, 100 g of fat and 300 g of carbohydrates. Salt is limited to 8

g per day. The diet of this table is the same as that of table No. 1, but with the addition of steam and meat dishes, soufflé, mashed porridge, wheat crackers up to 100 g per day. Strong tea and coffee must be ruled out.

Table No. 1.2 This diet aims are to moderate gastric gentleness from mechanical, chemical and temperature aggression and it is used for compensated diseases of the stomach and duodenum, as well as in the 3rd decade of the course of treatment of peptic ulcer. Table No. 1.2 is an almost complete diet with a calorie content of 3200 kcal, containing 100 g of protein, 200 g of fat and up to 500 g of carbohydrates. Coarse plant foods, concentrated meat and fish broths, all fried foods, and fresh bread are prohibited. Allowed lean meat, steamed fish, boiled meat and fish, mashed vegetables, milk, omelettes, milk sausages, cottage cheese, stale white bread.

Table No. 2 This table is prescribed during the recovery period after acute colitis, enteritis, enterocolitis, gastritis, as well as chronic gastritis with secretory insufficiency, preserved by secretion. This diet is prescribed in the absence of concomitant diseases of the liver, biliary tract, pancreas. This diet has as its goal a slight restriction of mechanical and chemical irritants that have an irritating effect on the mucous membrane of the gastrointestinal tract. It is not recommended to eat foods that linger in the stomach for a long time.

Table No. 2.1 The effect of this table on the body is to exclude mechanical irritation of the stomach while maintaining chemical irritation to excite the secretory function of the stomach. The diet is prescribed for gastritis with low acidity, in the absence of hydrochloric acid, i.e. with anacid conditions, chronic colitis without exacerbations, as well as with recovery from various diseases. The calorie content of this table is 3000 kcal, includes 100 g of protein, 100 g of fat and 400 g of carbohydrates. Table salt in diet up to 15 g. Products that satisfy the diet: egg dishes, casseroles, cereals, vegetables in the form of mashed potatoes, compotes, mousses, juices, soups from meat and fish broths with vegetables, meat gravy, white stale bread.

Table No. 3 The diet is aimed peristalsis strengthening, has the goal of emptying the intestines with the inclusion of mechanical, physical and temperature stimuli in the diet. This diet is used for constipation, the cause of which is malnutrition, without pronounced signs of intestinal irritation. The calorie content



of this table is 4000 kcal, the daily diet is 110 g of proteins and fats, up to 600 g of carbohydrates. Table salt is used in increased quantity. Hot dishes, jelly and pureed porridge are limited. It is recommended to eat foods rich in fiber: vegetables and fruits, herbs, brown bread, sauerkraut, as well as carbonated drinks, cold soups, hard-boiled eggs.

Table No. 4 A restriction is made in the diet in case of chemical, mechanical and thermal irritations to the intestines. The diet is indicated for bowel diseases occurring with diarrhea: dysentery, gastroenteritis during the exacerbation, chronic colitis in the acute stage. Table No. 4 has a reduced amount of carbohydrates (up to 250 g), proteins (up to 100 g) and fats (up to 70 g) per day, its calorie content is 2000 kcal. From the diet black bread and milk must be excluded. Products used with this diet: mucous soups on water or low-fat broth, cereals on water, steam meat dishes, cottage cheese, black coffee, strong tea, stale white bread, berry juices. This table is scheduled for several days, followed by a transfer to table No. 2 or No. 5.1.

Table No. 4.1 Radically limits the content of the diet of all substances that irritate the intestine and enhance the fermentation processes in it. It is used for any bowel disease that occurs with a predominance of fermentation processes. The calorie content of this table is 1600 kcal, the chemical composition of the diet: 120 g of protein, 50 g of fat, 140 g of carbohydrates. This table is scheduled for several days.

Table No. 4.2 This diet slightly limits the content of mechanical and chemical stimuli of the gastrointestinal receptor apparatus in the diet. This table is used in the period of exacerbation of chronic and acute intestinal diseases, with a combination of intestinal diseases with diseases of the pancreas, stomach, liver and biliary tract. This diet contains medium physiological indicators of basic nutrients. The chemical composition of the table: 100 g of protein, 100 g of fat, 400-450 g of carbohydrates, the total calorie content of the table is 3100 kcal. It is necessary to limit the amount of salt consumed to 8 g per day. The amount of free fluid consumed should be 1.5 liters per day. From the daily diet, it is necessary to exclude all products that stimulate bile secretion, the secretory activity of the stomach and pancreas, enhance putrefactive and fermentation processes in the intestine. All products should be steamed or boiled, vegetables should come in mashed form, fruits - in the form of mashed potatoes. The fractional diet is 6 times per day.

Table No. 4.3 The purpose of this dietary table is the same as that of table No. 4.2 This table is prescribed during the recovery period after acute intestinal diseases as a transitional table to general nutrition, as well as during the period of remission of intestinal diseases, with a combination of intestinal diseases with diseases of the pancreas, stomach, liver and biliary tract. The chemical composition of the table: 110 g of protein, 110 g of fat, 400-450 g of carbohydrates, the total calorie content of the table is 3200 kcal. It is necessary to limit the amount consumed salt up to 8 g per day. The amount of freely consumed fluid should be 1.5 liters per day. The same products are excluded as in diet table No. 4.2 Features of the preparation and consumption of food: steamed, boiled or baked. The fractional diet is 6 times per day.



Table No. 5. The purpose of this table is to unload fat and cholesterol metabolism, sparing liver function, stimulating normal intestine activity. The diet is used for diseases of the liver and biliary tract, “stagnant” liver, chronic colitis with a tendency to constipation, chronic gastritis without sharp violations. In this diet, cholesterol, purine bases and fats are limited. The daily diet includes 100 g of protein, 70 g of fat, 50 g of carbohydrates. From the daily diet, it is necessary to exclude the liver, fried foods, pastries, butter, cream, eggs and legumes. Products that meet the requirements of the diet: dairy and vegetarian soups, low-fat boiled fish and meat dishes, vegetables and fruits, dairy products.

Table No. 5.1 This table is based on the principles of table No. 5 and the exclusion of mechanical irritations of the stomach and intestines. It is used at the stage of exacerbation of liver and biliary tract diseases, with their combination with colitis and gastritis, chronic colitis. Excluded foods containing coarse fiber. All dishes are served in mashed form. Table No. 5.1 is transitional after table No. 4.

Table No. 5.2 Indication for the use of this table is a chronic pancreatitis. This table is characterized by a relatively low calorie content (1800 kcal) due to the sharp restriction of animal proteins, fats and carbohydrates. The chemical composition of the table: 80 g of proteins (of which 25 g of animal protein), 55 g of fat, 200 g of carbohydrates. The daily intake of table salt is 10 g, free fluid - up to 2 liters. From the daily diet, it is necessary to exclude foods that cause flatulence, coarse fiber, as well as foods enhancing the secretion of digestive juices. Food should be steamed or boiled, have a semi-liquid consistency. The diet should be complete in relation to the vitamin and mineral composition.

Table No. 5.3 An indication for the use of this table is the postcholecystectomy syndrome in the acute stage. The chemical composition of the table: 90 g of protein, 60 g of fat, 300 g of carbohydrates, total calorie content - 2100 kcal. Consumption of salt should be limited to 6 g per day.

Table No. 5.4 Indications for use of this table are chronic liver diseases, accompanied by stagnation of bile. The chemical composition of the table: 90 g of protein, 110 g of fat, 350 g of carbohydrates, total calorie content - 2800 kcal. Consumption of salt should be limited to 8 g per day.

Table No. 5.5 Indication for the appointment of this table is dumping syndrome after resection of the stomach for peptic ulcer. The chemical composition of the table: 120 g of protein, 90 g of fat, 400 g of carbohydrates, total calorie content - 2850 kcal. Consumption of salt should be limited to 8 g per day.

Table No. 6 The purpose of this table is to unload purine metabolism and normalize all bowel functions; this diet is used for podagra, uric acid diathesis, oxaluria. The calorie content of this table ranges from 2700 to 3500 kcal, the chemical composition of the diet: 100 g of protein, 110 g of fat, 400 g of carbohydrates. Salt is consumed in a slightly reduced amount. The daily diet should include foods that are poor in purines: vegetables and fruits, honey, milk, eggs, lard, sugar, jam, cereals. It is necessary to apply an increased amount of liquid, it is better if it comes in the form of natural juices.

Table No. 7 The purpose of this table is to maximize kidney sparing, increase urination, unload protein metabolism, anti-inflammatory effect. This is achieved by sharply restricting protein and liquid in food and minimal consumption of salt (0.5 g per day). Allowed products are milk, unsalted butter, cream, sour cream, various cereals and pasta dishes without salt, vegetables and fruits, berries, sugar, saltless

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white bread. Salt, meat and fish of all sorts and species, legumes, extractive substances are excluded. Vitamins must be given in the form of vegetables, herbs, fruits, rosehip infusion, fruit and berry mixtures. Chemical composition: 25 g of protein, 60 g of fat, 350 g carbohydrates, the total calorie content is 2000 kcal. Diet: food should be taken in bed, 4-5 times per day. Liquid (in the form of drinks and liquid dishes) - up to 0.5 liters per day. This diet is prescribed after fasting days for a short time - not more than 10 days. Such a diet is used for acute kidney disease and a severe exacerbation of chronic diseases.

Table No. 7.1 The purpose of this table is to maximize gentle parenchyma of the kidneys, as well as an increase in the amount of urine separated and an anti-inflammatory effect. From table No. 7, it differs only in a small increase in diet and calorie content, which is 2400 kcal. In addition to the products of table No. 7 cereals, boiled lean meat and fish (50 g per day), milk and fruit soups are allowed. The chemical composition of this table: 55 g of protein, 75 g of fat and 400 g of carbohydrates. Amount of free liquid: it is allowed to use up to 0.6 l. Eating up to 5 times per day, optionally in bed. This table is as follows after table number 7. It is prescribed for mild exacerbations of chronic kidney disease and acute nephritis.

Table No. 7.2 Indication for the appointment of this table is a nephrotic syndrome. It is necessary to drastically limit the consumption of salt, protein, exclude products from the diet that irritate the kidneys. It is necessary to include vegetable oils and phosphatides in the diet, which have a lipotropic effect. The chemical composition of the table: 120 g of proteins (of which 50% are proteins of animal origin), 75 g of fats (of which 1/3 are vegetable fats), 450 g of carbohydrates, total calorie content - 2900 kcal. Salt intake it is necessary to limit to 2 g per day, the amount of free fluid consumed - up to 0.7 liters. All daily meals should be prepared without salt, served in boiled form. The diet should be complete in relation to the content of vitamins and mineral salts. The fractional diet is 6 times per day.

Table No. 7.3 It is indicated for terminal conditions of chronic renal failure, i.e. when on hardware treatment (artificial kidney). The chemical composition of the table: 60 g of proteins (of which 75% are proteins of animal origin), 110 g of fat, 450 g of carbohydrates, total calorie content is 3000 kcal. Consumption of salt must be limited to 2 g per day, free fluid - up to 0.7 l, since it is necessary to introduce important amino acids into the body, which are washed out from the body during hemodialysis. Should provide full intake of vitamins. In a daily diet, it is necessary to limit foods high in vegetable protein and foods rich in potassium. All dishes are prepared without salt, served in boiled form. The fractional diet is 6 times per day.

Table number 7.4 Indication for the use of this table is hyperuricemia. In the daily diet, it is necessary to reduce the content of foods rich in sodium. The chemical composition of the table: 70 g of protein, 90 g of fat, 400-450 g of carbohydrates, total calorie content - 2800 kcal. Protein should come mainly (75%) of plant origin. All products are prepared without salt, served in boiled form (possible with subsequent baking). The fractional diet is 6 times a day.

Table No. 7.5 This is the next table after No. 7.1, the purpose of which is to moderate the function of the kidneys, other goals are similar to the previous table. Amount of free liquid: it is allowed to use up to 0.8 l, and the amount of total liquid is up to 1.5 l. This table is a transitional stage to everyday food.



Its calorie content is about 3000 kcal, which comes from 80 g of protein, 100 g of fat and 430 g of carbohydrates. Salt can be given to the patient's hands, at the discretion of the doctor, in an amount of up to 5 g per day for self salting dishes. The same products are given as in table No. 7b, only in slightly larger quantities. This table is indicated for the abatement of acute and exacerbation of chronic processes in the kidneys.

Table No. 8 The purpose of this table is to reduce the amount of fats, carbohydrates, salt, liquid in the diet, due to which the calorie content of food is reduced. The volume of food is supplemented with foods rich in fiber, with a balanced protein content. An indication for the use of this diet is the increased weight of the patient. The calorie content of this table is from 2000 to 2600 kcal (depending on the weight of the patient). Chemical composition: 110 g of protein, 65 g of fat and 300 g of carbohydrates. Allowed foods: brown bread, low-fat cottage cheese, vegetables, fruit with a small amount of carbohydrates, cereals, boiled low-fat varieties of fish and meat, fruit and vegetable soups. Vitamins enter the body along with raw vegetables and fruit.

Table number 8.1. It differs from the previous one in an even greater limitation of calorie content of food. An indication for its use is also obesity, but this table is assigned for a short time. Its calorie content is from 1200 to 1600 kcal, chemical composition: 100 g of protein, 60 g of fat and 120 g of carbohydrates. The same products are used, but in smaller quantities.

Table No. 8.2. Indication for the use of this table is obesity without concomitant diseases of the digestive system and cardiovascular system. It is a more stringent version of diet tables No. 8 and No. 8.1 The chemical composition of the table: 60 g of protein, 30 g of fat, 70 g of carbohydrates, total calorie content - 800 kcal. The amount of table salt in the daily diet is 3 g.

Table No. 9 The purpose of this table is to limit the amount of carbohydrates consumed. This diet is used in the treatment of diseases such as diabetes, joint diseases, a large group of allergic diseases. The calorie content of such a table is 2300 kcal, chemical composition: 120 g of proteins and fats, 250 g of carbohydrates. Frequent meals and, if possible, limitation of physical activity are needed. It is necessary to eat foods with a minimum carbohydrate content: eggs, meat, fish, sour-milk products, vegetables (cabbage, swede), acidic varieties fruit, herbs, buckwheat porridge, animal fats.

Table No. 10 It is a complete diet with limited intake of salt and liquid. This diet has found wide application and is used for diseases of the cardiovascular system in a state of compensation and subcompensation, hypertension, atherosclerosis and kidney disease. It is forbidden to eat fried, salty and spicy food. All food is prepared without salt, salt can be given into the hands of the patient in an amount not exceeding 5 g, the daily fluid intake is limited to 1.5 liters. The calorie content of this table is 3000 kcal, chemical composition: 80 g of protein, 70 g of fat and 400 g of carbohydrates. The products allowed for use: milk, cream, sour cream, boiled meat and fish, vegetables and fruits, inedible flour products, berry and fruit compotes.



Table number 10.1 The purpose of this table is the maximum unloading of the cardiovascular system with its diseases in a state of decompensation. This is achieved by limiting all essential nutrients, extractive substances, salt and increased administration of potassium and calcium. Frequent meals in small doses are needed. The calorie content of this table is about 2000 kcal, chemical composition: 50 g of proteins and fats, 300 g of carbohydrates. Total fluid intake is limited to 1 liter per day. Allowed products: vegetarian soups, cottage cheese, steamed fish and meat, yogurt, mashed vegetables.

Table No. 10.2 Indications for the use of this dietary table are rheumatism with a low degree of activity, which occurs without disturbance of blood circulation, as well as rheumatism in the damping phase. The calorie content of this table is about 2600 kcal, chemical composition: 120 g of proteins (of which 50% are animal proteins), 100 g of fat, 300 g of carbohydrates. The amount of daily intake of table salt is 4 g (in the hands of the patient), free fluid - up to 1.5 liters. In the daily diet, it is necessary to increase the content of proteins of animal origin, to reduce the intake of salt, there should be a full content of vitamins. All daily meals must be prepared without salt, served in boiled form, subsequent baking or roasting is allowed. Vegetables can be given raw. The fractional diet is 6 times per day.

Table No. 10.3 Indications for the use of this table are atherosclerosis of the coronary and cerebral vessels, coronary artery disease, stage II – III arterial hypertension. In the daily diet, it is necessary to limit the intake of fats and table salt, to increase the proportion of plant foods, vitamins and mineral salts. It is very good to add seafood to the diet. All meals of the daily ration should be prepared without salt, served in boiled form, subsequent baking is allowed. The calorie content of this table is about 2300 kcal, chemical composition: 90 g of protein, 70 g of fat, 300 g of carbohydrates (for overweight people). For persons with normal body weight, the calorie content of this table is about 2600 kcal, chemical composition: 100 g of protein, 80 g of fat, 350 g of carbohydrates. The fractional diet is 6 times a day. Table number 10r. The indication for using this table is rheumatoid arthritis. The calorie content of this table is about 2500 kcal, chemical composition: 80 g of protein, 70 g of fat, 350 g of carbohydrates. Salt is given to the patient in the amount of 2 g.

Table No. 10.4 Indication for the use of this table is essential arterial hypertension. The daily diet should contain a small amount of sodium chloride (up to 2 g), an increased level of vitamins (C, groups B, A, PP, etc.), potassium and magnesium salts. Plant foods and seafood should be included in the diet. The calorie content of this table is about 2700 kcal, chemical composition: 100 g of protein, 80 g of fat, 400 g of carbohydrates, salt is excluded.

Table No. 11 The purpose of this table is to strengthen the body defenses during recovery and increase its resistance to acute and chronic infections. It is prescribed for specific and nonspecific diseases: tuberculosis of the bones or lungs, leukemia, low general nutrition. It is necessary to increase the intake of vitamins in the form of vegetables, fruit, rosehip infusion; calcium salts in the form of a variety of dairy products. Salt can be used in the usual amount - up to 15 g per day. Calorie intake of this diet is 4500 kcal, chemical composition: 130 g of protein, 130 g of fat and 550 g of carbohydrates. It is necessary to eat foods in which there is a large amount of all the basic substances in the optimal proportion: meat, eggs, fish, dairy products, vegetables and fruits.



Table No. 12 The purpose of this table is a sedative effect on the central nervous system. It is used for various diseases of the central nervous system, accompanied by its increased excitability. This table can be used when moving food from table No. 10. From the diet, it is necessary to exclude all products with a tonic effect: strong tea and coffee, spices, spicy dishes. Necessary increased intake of vitamins and phosphorus salts. Calorie intake of this diet is 4000 kcal, chemical composition: 110 g of protein and fat, 550 g of carbohydrates. Frequent fractional meals are needed, preferably at certain hours and in a relaxed atmosphere.

Table No. 13 It is prescribed for acute infectious diseases, is needed for sparing the digestive organs, and is aimed at the speedy removal of microbial toxins from the body. This table also stimulates the body defenses. Caloric intake of this diet is about 3000 kcal, chemical composition: 80 g of protein and fat, 400 g of carbohydrates. Frequent fractional meals in small portions are needed. The liquid must be taken in large quantities, it is this that accelerates the elimination of toxins and facilitates the patient's condition. Allowed foods: dairy products, soups and cereals, soft-boiled eggs, fish and meat dishes in a small quantity and chopped form, juices, jelly, stewed fruit, omelets, cheesecakes, stale white bread and crackers. Salt is recommended to be consumed in a slightly reduced amount.

Table No. 14 It is used for phosphaturia, contributing to a shift in acid-base balance towards acidity. The diet includes products mainly meat, rich in acid valencies, the content of calcium salt is limited. It is necessary to reduce the consumption of milk, cottage cheese, cheese, eggs, yogurt, vegetables, fruits and berries. Fluid intake must be increased (at least 3 liters per day). Calorie of this table an average of 3500 kcal, chemical composition: 110 g of protein and fat, 500 g of carbohydrates. The power mode is standard.

Table No. 15 Rational, intended for nutrition of healthy people during recovery from various common diseases. Nutrition is carried out by all products that contain the optimal level of proteins, fats and carbohydrates in a qualitative and quantitative ratio. All products that are selected in accordance with the taste preferences of the person are allowed. The calorie content of this table is 3700 kcal, chemical composition: 110 g of proteins and fats, 550 g of carbohydrates. Three meals per day.

What is common in therapeutic diets by Pevzner?

- ! they all have a purely therapeutic nature,
- ! fatty high-calorie meals are strictly forbidden,
- ! daily calorie intake is close to 2000,
- ! daily food from 4 to 6 times,
- ! alcohol is strictly prohibited,
- ! permissible in the diet of cereals, fruit, vegetables, low-fat broths and soups,
- ! required daily consumption of large quantities of purified drinking water, from 2 to 2.5 liters,

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- ! training a person to healthy eating,
- ! average duration – a week,
- ! their best feature is their ability to simultaneously recover and lose weight.

Hypoallergenic diet. Indication for her appointment is food allergy. The duration of her appointment is up to 10 days. This diet is physiologically complete, chemically sparing, with the restriction of salt intake to 7 g per day. In the presence of edema, it is necessary to limit the intake of free fluid. It is necessary to exclude all food allergens: meat and fish products, citrus fruits, red fruits, chocolate, coffee, salted and smoked products, mayonnaise, ketchup, honey. It is necessary to limit juices, eggs, chicken, cheese, sugar and jam, taking into account individual intolerance. Culinary processing: all dishes should be boiled, with a three-time change of the broth when cooking meat, fish, chicken, without salt. Calorie intake of this diet is 2800 kcal, chemical composition: 90 g of protein, 80 g of fat and 400 g of carbohydrates. The fractional diet is 6 times per day.

Food allergies are often discovered over time. It is important to distinguish allergies from intolerances. Allergies are caused by a hypersensitivity of the immune system to the production of antibodies. Although intolerance has similar symptoms, it does not cause the immune system to respond. The cause of intolerance may be, for example, a lack of enzymes, as in the case of milk sugar (lactose) intolerance. Foods such as milk, eggs (mostly egg white), fish, crustaceans (molluscs, shrimps, crayfish), meat, legumes (peanuts, soy, peas, beans), crude oil, cereals (white wheat flour, corn), oat flakes, millet, rye, barley, buckwheat), other crops (celery, parsley, carrots, tomatoes, cabbage, potatoes), coffee, fruits and berries (apples, peaches, hazelnuts, pears, apricots, plums, cherries, raspberries, strawberries, quince), spices, preserved and pickled products, alcohol. Allergy is also caused by preservatives and colorings used in foods, such as:

- a) Preservative - E - 220 - 227, E - 210 - 219, E - 249 - 252
- b) Antioxidant - E - 321
- c) Coloring agents - E - 102, E - 122, E - 123, E - 124, E - 127, E - 151
- d) Flavorings - B - 550 - 553

The diet must contain sufficient amounts of protein, fat, carbohydrates, water, minerals, vitamins, ballast (fiber), etc. To absorb all these valuable substances, it is advisable to use a variety of products as none of them individually contains all the necessary components. For example, potatoes and oranges contain vitamin C but not iron and vitamin B12. Cheese provides calcium and vitamin B12 intake but does not contain vitamin C. Whole grain products contain iron but do not contain vitamin C. To provide the body with all the nutrients and other essential nutrients it is necessary to create a healthy diet using the diet pyramid. Healthy menus are based on the product groups at the bottom of the diet pyramid: cereals, fruit and vegetables.

Allergy is a weaker or stronger reaction of our immune system to a substance. Substances that can cause an allergic reaction are called allergens. Food allergy is a growing issue in different countries. In medicine, depending on the reaction mechanism, it is talked about "real" allergies and intolerances.



A "real" allergy is a pathological (inadequate) reaction of the human immune system to certain food ingredients. The immune system can "respond" immediately after a few minutes to a few hours after using the product, and symptoms may only appear after 24 hours and beyond.

Food intolerance is not linked to immune mechanisms, such as the reaction to milk sugar (lactose), etc., but in this case it also detects adverse effects on consumer health. Cases where the body may respond inadequately to certain food additives have been described: natural dyes, sulphites, sodium glutamate. *According to the World Allergy Organization (WAO)*, around 2% of adults and 8% of children under the age of 3 have a food allergy. Thus, there is a group of consumers to whom certain foods can be harmful to health and even to life.

According to the book authors Daiga Kunkulberga, Valdis Segliņš, year 2010, "Maizes ražošanas tehnoloģija - Bread production technology", one of the most common causes of food allergies for children today is wheat or wheat protein. An allergic reaction can occur not only by eating wheat-containing products but also by inhaling wheat dust.

List of products containing wheat:

- wheat flakes or flour,
- wheat bran,
- semolina,
- whole grain flour,
- bulgur,
- durum wheat,
- malt,
- wheat starch,
- cous-cous.

Products that may contain wheat:

- bread (white bread, sweet and sour bread),
- confectionery (biscuits, cakes, pastries, pies, waffles, dried bread, cakes),
- breadcrumbs,
- pancakes,
- lavash,
- crackers,
- many breakfast cereals,
- pasta,
- pizza.

Ingredients which may be labeled as containing wheat:

- gluten (vital gluten),
- gelatinized starch,
- hydrolyzed vegetable protein,
- wheat bran,
- wheat germ,



- vegetable gum
- vegetable starch.

While studying what types everyday products can contain wheat protein, the question arises - what to eat and how to replace wheat? There is a wide variety of products that can be a great substitute for such common wheat and white flour, such as rice, rye, barley, oats, corn and almond flour. It is true, changing the menu and habits will take time and some effort.

If wheat is the cause of allergic reactions, the consumption of wheat and any white flour products should be avoided. Wheat may be replaced by rice, oats, rye and buckwheat. If wheat is the cause of allergic reactions, the consumption of wheat and any white flour products should be avoided. Wheat may be replaced by rice, oats, rye and buckwheat.

The hypoallergenic diet consists of dishes presented on the following week menu:

First day

For breakfast, it is useful for children and adults to serve herculean porridge with the addition of fruit, with allowed hypoallergenic rules, tea.

For lunchtime, the menu includes soup with cabbage, cooked beef fillet, apple jelly.

For dinner, rice porridge, a meatball cooked by steam, kefir 0-1%.

Second day

The first meal is a cheese sandwich, yogurt without additives, tea.

Lunch - lean soup, compote.

For dinner, the menu consists of boiled potatoes, beef goulash, fruits.

Third day

Breakfast - pasta, tea, fruit.

For lunch - served soup made of vegetables and meat, compote.

In the evening you can eat boiled fish, fruits, drink tea.

Fourth day

For breakfast, cereal porridge, fruit salad, tea.

The lunch menu consists of borsch on a broth cooked from vegetables, a patty steamed cutlet and stewed fruit.

For dinner, you can serve porridge with meat, vegetable stew, tea.

Fifth day

Breakfast - millet porridge, tea.

At lunchtime, the menu offers a vegetable soup and beef, fruits, kefir.

In the evening - porridge with meat, vegetables, jelly.

Sixth day

For breakfast you can eat a boiled meat sandwich, fruits, tea.

For lunchtime - meat soup, fruit, and compote are served.

For dinner, the menu includes porridge, chopped cabbage salad with herbs, kefir.



Seventh day

The first meal of the menu for a child and an adult consists of casseroles with cottage cheese or fresh cottage cheese with sour cream according to taste preferences, tea.

For lunch, you can eat lean soup, a meatball cooked on steam, stewed fruits.

In the evening, the menu includes porridge, boiled meat, fruits, yogurt without additives.

Recipes for a hypoallergenic diet

Baked apples

- green apple,
- 200g of cottage cheese,
- sugar to taste.

Grind the flesh of the apple, removing the core in advance. The shape of the apple must be saved. Combine with cottage cheese and sugar. Place the apple-curd mixture in the apple remaining after cutting the pulp and core. Bake in the oven at 180 degrees, 20 minutes.

For dinner, a hypoallergenic soup recipe:

Hypoallergenic soup

- cauliflower 0.3 kg;
- hercules 50 g;
- water 1 l;
- two quail eggs;
- diluted milk mixture 100 g;
- butter.

Boil cauliflower, wipe the vegetable until mashed. Cook the oatmeal for 10 minutes in the vegetable broth. Pour into mashed cabbage, two eggs. The diluted mixture and butter are added after boiling. As the main dish of the general non-specific hypoallergenic menu, it is useful to eat turkey meat with buckwheat. The recipe consists of products in proportion, based on personal preferences:

Buckwheat turkey

- turkey fillet,
- buckwheat,
- onion.

Leave buckwheat in boiling water for an hour. Boil the turkey fillet, fry the prepared meat with onions. Combine buckwheat with meat mixture.

Vegetable casserole

- potatoes 3-4 pcs.,
- broccoli 300g,
- cheese.

The volumes of the components of the recipe can be changed according to taste preferences. Thinly chopped potatoes at the bottom of the dish, broccoli for the next layer, sprinkle with cheese. Bake in the oven at 180 degrees, 40 minutes. For dessert, as part of a diet hypoallergenic method, you can try a diet cake recipe.



Latest trends in healthy food system and Dietetic Trends for 2020:

! Plant-based foods

Fruits, vegetables, grains and derived products can be excellent sources of minerals, vitamins and fibre and have usually a favourable 'nutrient:energy ratio'. Furthermore, plant foods are also a rich source of phytochemicals such as polyphenols, carotenoids and betalains, with potential health benefits for humans. Many epidemiological studies have made a direct link between the consumption of plant foods and health. Human intervention studies have also shown that higher intake/consumption of plant foods can reduce the incidence of the metabolic syndrome and other chronic diseases, especially in population at risk like obese people. In addition to its health benefits, plant foods are also used as functional ingredients in food applications such as antioxidants, antimicrobials, natural colorants and improving sensory and textural properties.

! Microbiome diet

Recent scientific researches have proved the existing interactions between nutrition and the gut microbiome. Maintaining the right balance of friendly and unfriendly bacteria in your gut microbiome can help improve digestion, reduce inflammation, decrease anxiety, and even improve brain function and mood. Thus, people are increasingly trying to include in their diet products that are rich in good bacteria - fermented dairy products, fermented vegetables and even fermented beverages. However, attention should also be paid to prebiotics - substances that are necessary for the reproduction of probiotics. They create a favorable and long-lasting medium for good bacteria in the gut. Onions, oats, leeks, apples, corn, walnuts, red lentils and even dark chocolate are plentiful in prebiotics.

! Choosing healthy fats

The reputation of fat has changed dramatically in recent years. For decades, many people have opted for "low-fat" products to avoid the risk of weight gain or heart disease. As nutrition science advances, we become more aware of the role that specific fats play in our health. The body needs a certain amount of fat from the diet to aid hormone function, memory, and the absorption of specific nutrients. Including healthful fats in a meal also creates a sense of fullness, slows down the digestion of carbohydrates, and adds flavor to food. The most healthful fats are monounsaturated and polyunsaturated fats, which include omega-3 and omega-6 fatty acids. These types of fat are mainly found in avocado, fatty fish, nuts, seeds, olive oil, etc. On the other hand, the saturated fats and trans fats are still associated with heart diseases, so care should be taken when choosing a fashionable ketogenic diet. Interestingly, recent evidence suggests that milk fat, which is predominantly saturated, may not contribute to cardiovascular disease due to the unique mixture of nutrients in the milk matrix.

! Zero-waste cooking

One of the biggest trends that will define how consumers will eat and shop is the zero-waste movement. Not only are people becoming more aware of the danger of single-use items, but avoiding



purchasing foods that have wasteful packaging is also becoming more popular. People are also trying to avoid food waste by making use of food before it spoils. Just as customers are buying reusable produce bags and skipping items that are packaged in plastic, restaurants are opting for zero-waste cooking. It is a big focus in restaurants at the moment. Examples of how to prevent waste include:

- using smaller plates at buffets.
- serving smaller portions.
- purchasing smaller quantities more frequently.
- properly storing and measuring temperatures for foods that spoil quickly.
- crafting menus to utilize as much of your ingredients as possible.

42

Some examples of crafted menus might include using bones or scraps from vegetables (e.g., skins and stems) to create broths for soups. Orange and lemon rinds can be used in cocktails. Coffee grounds can be used to flavor ice cream. Some restaurants have created root-to-stem initiatives for vegetables to drastically reduce food scraps. For example, beet greens or carrot tops can be used to make a pesto sauce. Potato skins can be fried and served over other dishes.

! Farm-to-table movement

This movement of buying produce and meat grown in the same region as you is becoming increasingly widespread among restaurants and individual consumers alike. People are usually motivated to these direct relationships by the quality and freshness of the food they get from the farms—items will often be delivered directly to the restaurant or market within hours of being harvested—as well as the ability to get specialty items that not that many people in their area grow.

In order for produce to fully develop all of its vitamins and minerals, as well as its peak flavor, it needs time to completely ripen. This is done best on its stem or stalk. Industrial farmers tend to pick produce prematurely so it hasn't passed its expiration date before it gets to its consumer. Buying local ensures that your produce has had ample time to mature, as it does not have far to travel. Moreover, the environmental impact is much less.

The farm-to-table movement focuses on the use of organic, local products rather than imported or processed ingredients. Its core values centre on sustainability and people's well being, with tangible results for the consumer, community and environment.

! Seasonal cooking

Cooking from seasonal ingredients realates a lot to the farm-to-table movement. These days, it is almost impossible to talk about inspired cooking without talking about seasonality. Freshly picked fruits and vegetables taste better and have more nutrients than ones that have been stored for weeks or months. Even in the dead of winter when there is no fresh seasonal food available locally, but like the generations before, people would switch to summer crops that were pickled or canned in preparation for the winter and to vegetables stored in a root cellar.

! A year of gadgets

For many years, watches and wristbands measuring activity were associated with professional athletes and competitive sports. With the launch of smartwatches from leading electronic brands (Apple, Samsung, Huawei, others), it turned out that having a watch that can do much more than show the time



becomes comfortable and affordable. One of the functions most sought after by consumers who increasingly value being "fit" is measuring activity at various levels - an ordinary pedometer, heart rate, sleep monitor or accurate exercise measurement using GPS. Currently, from month to month, more and more people are becoming convinced of this type of gadgets - and it seems that in one form or another they will enter the everyday life of a wide range of consumers.

! Low Fodmap

Patients' conviction is growing that their digestive system problems and malaise related to nutrition may not result from imaginary intolerance (gluten, lactose, fructose - put in anything, elimination diets have been in retreat for healthy people for a long time). In contrast, there is a growing awareness of the existence of nutrition styles that can be helpful in such cases. Hence the rapid increase in interest in the Low Fodmap diet, which many specialists point to as model for people with irritable bowel syndrome, diagnosed in an ever-growing group of people.

! Twilight of the ketogenic diet

Her career turns out to be short, and interest in her in the West is already decreasing dramatically, and if there are no significant studies on it that will support her scientific basis, then in 2020 we can observe her slow retreat in Poland.

CONCLUSIONS



This report is a summary of experiences and good practices collected by three Partners of "vetDIET" project realized within Erasmus + Program from Latvia, Lithuania and Poland.

As a conclusions for our report we would like to underline that it is extremely important to raise public awareness of social and climate change issues that balanced food production and climate policy is a chance for development.

Within our project we would like to show practices for learners, teaching staff and company employees how to save resources, reduce energy consumption and waste, to choose sustainable food production. Plan-based diet, vegan and vegetarian food, meat consumption reduction is no more a trend, but rather a real obligation to save Earth. People eat about 230 million tons of meat a year, twice as much as 30 years ago.

The results of many studies showed that if most people were vegetarians or vegans would reduce 70-80% of greenhouse gas emissions and land use and 50% of water consumption.

„vetDIET” Health & Food

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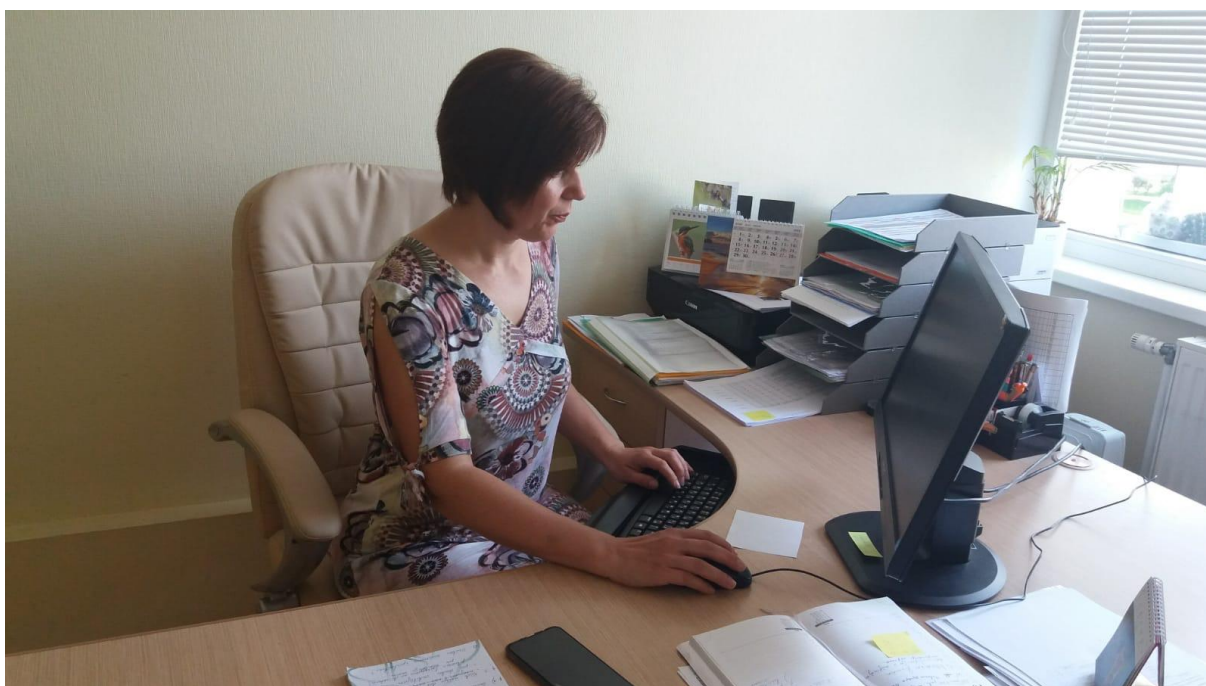
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Report annexes:

1. Photo documentation.



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45



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46



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