



MEAT IN HUMAN NUTRITION

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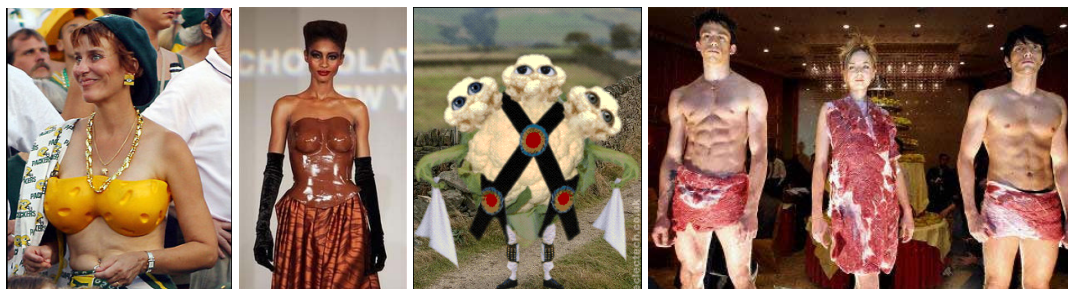
ABSTRACT

Food has been one of the basis of existence of *Homo sapiens* from the moment our species appeared on the face of the earth. Primitive man gathered leaves, roots, grubs, eggs of birds as well as pieces of raw meat left behind by bigger and stronger animals. The discovery of fire proved to be a major step in the way people lived and ate. The necessity of having the diet of meat and vegetables was discovered in the ancient times. The acquisition of the ability to hunt and later grow vegetables and rare animals was a crucial point in the further development of man. The consumption of meat was one of the factors that differentiated the society of antiquity. Cultural and religious aspects have played a major role in the processing of meat products and their consumption. In different cultures pigs, cows, horses, poultry, dogs, camels, deer, cats or rats can be accepted or not as providers of meat. From the beginning of 19th century a human being has had more and more meat products at his disposal. Consequently, the food pyramid has appeared which classifies products of animal origin and points to the frequency of their consumption. In the 90s of the 20th century dangerous diseases spread, BSE, which caused Creutzfeldt-Jacob disease in humans and later bird flue, which have caused changes in meat consumption. In many developed countries meat containing little fat and low in cholesterol has become popular. At the same time when the pace of modern life is increasing *fast food* businesses have prospered considerably.

The first mention of meat in the diet of our society dates back to the beginning of our statehood. In the 9 and 10th centuries meat was in plenty. People preferred pork, at the same time the pouring of fat, mainly melted lard on top of meat was considered to be healthy. Besides, meat was salted, smoked and dried. Bona Sforza can be credited with the introduction of vegetables into our fatty, meat diet. The reign of kings from the Saxon dynasty in Poland was a period of excessive drinking and eating. The 18 and 19th centuries brought about enormous social changes in our country. The bigos, borsch, dumplings, roulades became immensely popular. After World War II meat in Poland became a kind of food of political importance. Instead of buying meat and its rational use in a diet, people were forced to acquire it at all costs. Fortunately nowadays, we have plenty of meat and meat products. Meat will surely remain the main ingredient in our diet. We might witness the progressing animal husbandry as well as the increase in organically grown foods. With the acquiescence of the society, we will also experience considerable changes in the rearing of farm animals which, in all likelihood, may be subjected to genetic engineering. Subsequently, there will be more demand for convenience food and nutraceuticals. The EU having taken into consideration the preservation of cultural identity, including culinary preferences has introduced the system of protecting regional and traditional dishes. Three categories have come into existence: Protected designations of origin, Protected geographical indication, Traditional Speciality Guaranteed. In Poland, in accordance with the law the special list of Traditional Polish Dishes has been made. Upon recapitulation, it must be stated that in meat consumption the instructions of Prof. S. Berger should be seriously considered. A diet needs to be connected with the following features: Variety, Moderation, Temperance, Balance, Regularity of having meals, Exercising, Smiling. Reduction of stress level and Moderate Consumption of certain drinks in a Good company can only be added to this list.

Key words: meat, nutrition, tradition, consumption.

Meat, like other kinds of food, e.g. cheese, chocolate or vegetables, can have various uses.



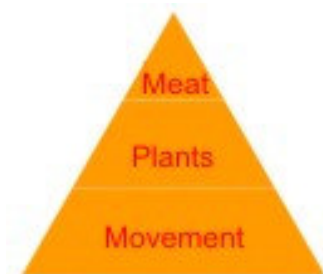
These products can be used as food or as elements of artistic composition. This study presents a historical overview of meat as a component of the human diet.

MEAT IN DIET SINCE THE DAWN OF TIME TILL TODAY

Food has been, and still is, one of the foundations of human life. The empty stomach becomes the driving force for a human being. Esau sold his birthright for a meal of lentils, and famine in Ireland caused great emigration, as result of which more inhabitants of the Emerald Island left for the USA than remained in their home country [7].



Problems connected with meat in the human diet date back to the time when *Homo sapiens* first appeared on the earth. Humans were the first creatures whose alimentary canals were shaped in such a way that they could digest food of both plant and animal origin. Primitive people conducted a nomadic life, wandering in the search of food. Initially, they gathered leaves, roots, sprouts and fruit. As regards animal products, they made use of insects, caterpillars and bird eggs, and only after that, pieces of raw meat left by larger and stronger predatory animals. Some of these habits can still be found in the world today. Australian Aborigines gorge on *witjuti* caterpillars, living on rubber trees. Lovers from the Ethiopian tribe of Nuers feed each other on lice taken out alive from their hair. Honeycombs with living bee larvae are considered a delicacy by Ethiopians [2, 7].



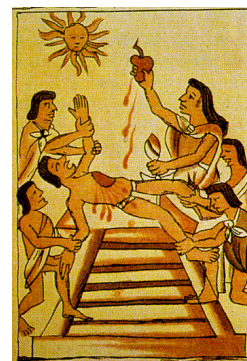
The above information could be used to create a nutrition pyramid, with the movement at the base and animal-origin products, particularly meat, on the top of it.

On a further stage of development, the man mastered the skill of producing tools and as a result of that, he became a hunter. This brought about significant changes in eating habits and provided the foundation for meat processing. In the hunting culture, men frequently compensated themselves for the energy used on hunting by eating the partially processed stomach contents of killed animals [2, 7, 13].

The habit of hanging meat for softening soon became popular. Some cultures practiced burying it in the earth instead, in order to cause appropriate changes. Some tribes travelling on horseback used a meat processing method consisting of heating and pressing pieces of meat in horse sweat during long rides. Laurens van der Post reports that in the mid-1900s, during his travels through Ethiopia, he was frequently invited to eat a large piece of raw, warm meat, dripping with blood, which was passed hand to hand, which each participant of the feast grasped it with their teeth and cut off an appropriate bite with a sharp knife [2, 7, 13].

An important role can be ascribed to the habit of eating human meat. Cannibalism, described, e.g. by a ship's doctor of Christopher Columbus, has a cultural and even religious background. Some tribes valued the

characteristic taste and flavour of human meat. Others believed that the best tomb for a human being would be the stomach of the members of his tribe. Sometimes cannibalism resulted from necessity. The latest reported case occurred in 1972, when a plane with a rugby team crashed in the Andes. Those who survived and were saved had fed on the meat of those who had died. Cannibals and non-cannibals both agree that this way of feeding influences the eater. The non-cannibals believe that it depraves, and cannibals believe that it allows one to improve oneself [2, 7, 13].



A large breakthrough in human life and feeding resulted from the discovery of fire. According to some legends, this is a secret stolen from the Olympus. According to



others, it was brought out from the heart of the rock which was hit by the hunter's arrow. Dakota Indians believe that fire was brought out from the earth by the claws of the Jaguar God. Fire brought about the limitation of nomadic life. Tribes gathered around the fire, which provided warmth and protection against wild animals and presented an opportunity to change the way of preparing meat meals. In *Odyssey*, a method of roasting heifer leg is described, which consisted of wrapping it in fat and sprinkling it with red wine, during a feast prepared by Nestor in honour of Athena. The first way of "cooking" consisted in placing pieces of meat on a stone warmed by the fire. Homer, in the *Odyssey*, was the first to describe fried blood sausage, which can be regarded as first type of cured meat [2, 7, 13].

Throughout history, man has consumed and continues to consume the meat of various animals, frequently preparing it with great reverence and even with rituals. For example, the South American Ogallala tribe consumes puppies - killed and prepared following an ancient ritual. Killing a dog is



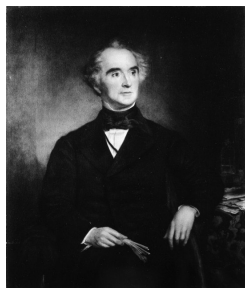
preceded by laments over the loss of a close friend, and its meat is treated as spiritual nourishment. In Fiji, people cannot eat animals which are their totems. Soldiers from Madagascar cannot eat hedgehogs, since in this way they could become infected with cowardice. People from the Abangbe tribe forbid their children to eat meat and eggs, fearing that they will not be able to speak. The Shona tribe of Rhodesia do not eat eggs or meat of the nightjar bird, believing that they can cause sleepiness. An English paediatric manual in 1928 recommended that children below seven should not be given any meat, as they would not be able to digest it [2, 7, 13].



Unfortunately, man does not possess an intuitive ability to select food. Meat does not provide all nutrients, especially vitamins, for the body. A person consuming a diet consisting of meat, caviar, smoked salmon and quality alcohol would not live long, due to the deficiency of vitamin C. The necessity of enriching the meat diet with vegetables was discovered far back in ancient times. Pythagoras, as one of the first followers of vegetarianism, treated meat consumption (following his belief in the transmigration of souls) as cannibalism. Excessive consumption leading to gluttony was a sign of wealth. Fasts were supposed to be and still are a counterweight to gluttony in some cultures. There is a widespread opinion that they have a favourable effect on human health. Proponents of this type of eating habit refer to the life of the men in the period of gathering and



hunting, in which times of meat abundance intermingled with periods of famine and undernourishment. This was supposed to shape the genotype of our species [2, 7, 13].



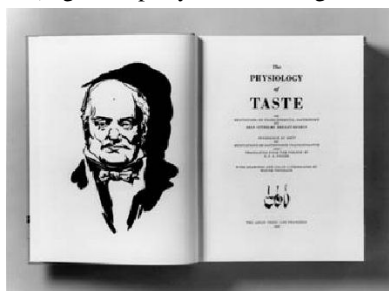
Justus von Liebig, a researcher from the 19th century (1803 - 1873), believed that meat contains nutrients of plants, stored in a concentrated form. Dr J. H. Salisbury, in his book published in 1888 and entitled *The relation of alimentation and disease*, wrote that the man had teeth and stomach adapted to grinding and digesting meat. He suggested that lean beef should be ground down, formed into cutlets and grilled. Such a product was called Salisbury steak. It was undoubtedly a prototype of the

hamburger, which soon became widespread around the world [2, 7, 13].

An important stage in the history of the man was the acquisition of hunting skills and, later, of plant cultivation and animal breeding. Efficient hunting ensured the abundance of food. In a legend of Opajo tribe, a female character cries: "I wish I were a jaguar daughter. I would have the meat I liked". The meat of breeding animals intended for roasting was hung for three days to become tender. Sometimes fruit was used for the same purpose. Until today, in many places of the world, reindeer meat is served with raspberries, wild boar with plums, and hare with juniper berries [2, 7, 13].



Since ancient times, meat consumption has been a factor differentiating the society and creating a measure of social position. When meat began to be roasted in fire, eating became a pleasure and evoked the temptation of gluttony. A great appetite raised the esteem of others. People excuse themselves, saying that "gluttony can be a sin, but it is not a crime". Ancient chronicles contain legendary records of gluttony. Asurnasirpal II (883 - 859 BC), gave a party for 70,000 guests. It lasted for 10 days. They were served 1,000 oxen, 14,000 sheep, 1,000 lambs 20,000 pigeons, 10,000 fish, 10,000 desert rats and 10,000 eggs. Roman emperor Maximinus Thrax, living in the period 172-238, drank an amphora of wine and ate forty to sixty pounds of meat each day. Luis XIV ate so much during his own wedding feast that he was not able to fulfil his marital duties. Anthelme Brillat-Savarin justifies gluttony with the statement that *The Creator by commanding a man to eat in order to live provided him with an appetite as an incentive, and with pleasure as a reward*. Legendary musician Duke Ellington "liked to eat until it hurt" [2, 7, 13].



Cultural and religious considerations have always played, and still play, a significant role in the preparation and consumption of meat products. A product regarded as a delicacy in one cultural group can be considered as inedible in another one. The following animals are accepted or rejected as a source of meat, depending on a culture: pigs, cows, horses, poultry, dogs, camels, deer, cats or rats. Sophisticated gourmets of ancient Rome preferred meals of sticky consistency, such as pork chop, congested liver, tongues, brawn, brains, loin of veal, testicles, udders, uterus, and bone marrow. Goose livers were a delicacy in Homer's times. In the 10th century, there was no question about the superiority of Islamic culture in the world. This also included medicine and food processing.



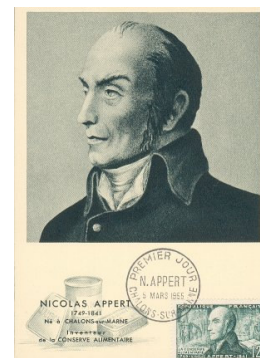
Thanks to it, dark and white slices of meat began to be placed alternately. An exemplary meal contained three roasted lambs stuffed with ground meat, fried in sesame oil with pistachio nuts, pepper, ginger, cloves, coriander and cardamom. In Christian countries, including Spain, meat was traditionally fried in pork fat, which Jews and Muslims were not allowed to eat. When Jews and Arabs were expelled from the Iberian Peninsula, olive oil became an essential element of the local cuisine. Imposed constraints have been, and still are, an expression of the collective wisdom of nations. Fat pork and blood quickly decays in hot climates; wild animals are carriers of numerous diseases; cows provide milk intended mostly for children and convalescents [2, 7, 18].



Military conflicts constitute an important element of the intermingling of cultures, including eating habits and food processing technology - including meat products. Roasted chickens in white sauce and roast beef with Yorkshire pudding even now can be found in Pakistani cuisine. The method of preserving food in a glass container is ascribed both to Nicolas Appert and Napoleon Bonaparte. The former developed a technology of food preservation for a contest announced by the latter. The prize was 12,000 francs [2, 7, 13].



Nicolas Appert, a French inventor, developed a technology of food preservation. The image shows a portrait of Appert and a vintage label for his 'PREMIER JURY' award-winning food preservation products, including 'N. APPERT' and 'MARQUE DÉPOSÉE'.



At the end of 17th century, turkey became a new source of meat in Europe. It was brought from America to France by Jesuit priests. It was first found on the tables of the rich, along with other birds, such as chicken, capon, poulard, snipe, pheasant or quail. From the very beginning was served in various ways - cooked, fried, roasted, hot or cold, whole or divided, with sauce or without, without bones, without skin or stuffed. In the first years of the 19th century, truffles - known since Roman times - were introduced to France, and later all of Europe, as an addition to the most luxurious meat meals.



Since the 19th century, there have been many developments and advances in food technology, including meat technology and gastronomy, as well as the beginnings of food science.

Anthelme Brillat-Savarin in his book *The physiology of taste: or meditations on transcendental gastronomy*, describes a piece of boiled beef, which is placed into slightly salted boiling water, so as to obtain an extract of soluble components (bouillon) and meat deprived of soluble components (a piece of boiled beef) [6].



Food technology and food science developed in the 20th century. Man had at his disposal more meat products. He also possessed knowledge of the chemical composition of meat and of its influence on human health. The



concept of the nutrition pyramid (repeatedly modified) was introduced, used for classifying products into individual groups and advising the frequency of their consumption. Changes of opinions regarding the share of meat in the human diet are closely related to life style, wealth, habits, religious beliefs and human awareness. What is very significant is the mutual relationship between the producer and the consumer. A considerable part is played by fashion, marketing and advertising. Today, not only a nutritionist and food technologist, but also the average consumer, knows that products of animal origin, mainly meat, are an excellent source of protein with a well-balanced composition of amino acids, group B vitamins, particularly panthothenic acid and cobalamine, fat-soluble vitamins (A, D, K), certain mineral components, such as iron, zinc, copper, but also of unfavourable fat, containing cholesterol and saturated fatty acids. Its large percentage of phosphorus and sulphur compounds is

the reason why meat is acid-forming. Meat is also a highly energetic product; and depending on the type of the source of meat, 100 grams provides between 110 and 520 kcal. When the meat is processed from the plant to the table, the amount of provided calories can be increased or decreased. Growing awareness makes it possible to choose lean turkey instead of fat goose, loin of pork instead of chap or bacon [2, 7, 13, 18].

The 20th century in Europe was a period of two world wars. They brought about changes in eating habits. This resulted mostly from the limited availability of meat and the need to supplement the shortage of nutrients in societies weakened by military conflicts. After World War II, the following rule was accepted: "Eat what you want, if you have already eaten what you should". While using meat in human nutrition, problems of production intensification of meat resources became more and more important. New breeds and stocks were reared so as to provide larger amounts of meat in a shorter time with the minimum use of fodder per kilogram of weight gain. This resulted in an increase in the amount of meat, a change in its technological features and a worsening of the taste of products. For example, white wide-breast turkeys were obtained as the result of genetic modification according to Mendel's principles. However, there were some problems which were highly significant for human nutrition. In the 1990s, encephalopathy (BSE) in cows resulted in human illness - a variety of Creutzfeld-Jacob disease. This resembled an epidemic of kuru, a disease found at the beginning of the 20th century in Papua New Guinea, caused by ritual cannibalism. Recently, there has also been the threat of bird flu. Both of these events contributed to the fact that the numbers of herds of basic farm animals were reduced, and created psychological barriers for consumers. Consequently, this brought about changes in consumer preferences as regards the consumption of certain kinds of meat.



In some developed countries, and in some social groups, it became fashionable to eat, so-called "wholesome", i.e. lean meat, with low cholesterol content. Such animals as kangaroos, alligators, bantengs, buffalos, bison,

emus, gaur, ostriches, rattlesnakes, guanacos, turtles or caribou were used more often in human nutrition. These new and revisited sources of meat are characterized by a chemical composition which is accepted and preferred by nutritionists (high in protein, low in fat, trace quantities of cholesterol). On the other hand, because of the laws of supply and demand (small supply - large demand), they are expensive and, therefore, available only for some.



A faster pace of life has resulted in the development of meat products of the *fast food* type. One can frequently see people eating hamburgers or hot dogs in a hurry. These meals are characterized, on one hand by the repetitiveness of the quality standard, but on the other, they are a kind of an energetic bomb, particularly for a person with a low level of activity. Unfortunately, these products are relatively often eaten between proper meals (snacking - not recommended by nutritionists) [18].

CHANGES IN MEAT CONSUMPTION IN POLAND

The first information regarding meat in the nutritional habits of Poles is associated with the beginnings of the nation itself. Even Rzepicha, the wife of Piast, had at her disposal an abundance of meat - beef, pork, game, birds, and poultry. In the 9th and 10th centuries, cured meat was quite often consumed, since salting and smoking were known and used. Pork meat was preferred. Cows were spared, since they provided milk, and oxen were used for ploughing. In the Middle Ages, meat was found on tables less frequently, particularly in poorer households. Dairy products and leguminous plants provided a source of protein (pea, broad bean and lentil).



Fasting days, the number of which amounted to 192, were beneficial for the rich, who consumed excessive amounts of meat. Meat seasoned with fat was regarded as a healthy meal. Excessive consumption of meat, leguminous plants and wine contributed to an increase in the number of people suffering from podagra. Another important issue was food storage. Meat was smoked, salted and dried. Salted dried meat was tough and it had to be soaked and cooked for a long time to become soft and to get rid of excessive amounts of salt. This stock was called "ro[z]sol" ("de-salt"). Meat products were very often served with more spices than would

normally be necessary. They masked the taste and smell of a bad product. For this reason, there was hold a belief that "Polish cuisine is for people with healthy stomachs and scalded mouths" [17]. The feast that went down to history, as described by Jan Długosz and immortalized by Jan Matejko and Bronisław Abramowicz, was given in 1374 by Kraków councillor, Mikołaj Wierzynek, on the occasion of the wedding of Elisabeth, the granddaughter of Casimirus the Great to the Roman Emperor, Charles IV of Luxemburg. Guests were treated to a wide range of

meals and drinks, fowl, fish and other kinds of meat. Since all state and family celebrations became an opportunity to organize feasts resulting in an excessive consumption of meat, King Casimirus the Great ordered in 1336 that weddings cannot last longer than 16 days, i.e. eight days before and eight days after the wedding (an octave, known until today). At King Jagiełło's court, mainly stewed and roasted beef, pork and poultry (mainly hens and chickens) were served. Special occasions involved serving piglets, veal, mutton, geese, ducks and game [4, 5, 13].



At the turn of the 14th and 15th centuries, increasing attention was paid to behaviour at the table. The consumption of meat in the 15th century, during one meal in a wealthy house, was at the level of 1.3 kg for a woman and 2 kg for a man. In the 16th and 17th centuries, large amounts of pepper and saffron were added to meat meals. Meat meals of burgesses were described by Mikołaj Rej in *The Life of the honest polish gentleman*.



When Bona Sforza, the wife of Sigismundus the Old, came to Poland in 1518, she introduced vegetables, known until today as "włoszczyzna" ("Italian food") to the Polish diet, which was then very lavish, fat and meaty. She also brought forks from Italy, which were called "rakes for disjointsing meat" [4, 11].

The first records of the sausage trade date back to 1571. Sausages, which appeared for the first time in Vienna in 1803, almost immediately entered the market in Poznań soon after. A secretary of the French ambassador, Karol Ogier, in his *Journal of Travelling to Poland* (1635-1636) praised meals of salmon meat, and regarded salmon lips as the greatest delicacy.

The Saxon era is the period of particular abuse of drinking and uncontrollable gluttony. Potatoes, introduced to Poland from Czech regions and Germany, started to be grown on a larger scale. Jędrzej Kitowicz mentions the following traditional meals: bullion, borsch, a piece of boiled beef, bigos (a stewed dish made of sauerkraut), various kinds of meat, sausages, goose stewed with cream and mushroom, goose served black. Other meals include trips, veal, roasted poultry, piglets, smoked meal, beef legs in aspic, sausages and liver sausages. Additionally, coffee and tea were introduced [13].



The 18th and 19th centuries were a period of great social transformations in Poland: The Constitution of May 3, Targowica, the Second Partition of Poland, the hopes built up by Napoleon. In May 1810, Prince Walenty Radziwiłł gave a feast for Prince Fryderyk August, where guest were served, among others: crayfish soup, French patties, stuffed goose feet, Italian pasta with truffles in pâté, sausages, poulards stuffed with endive, duck with cucumbers, capons, geese, chicken, wild boar with sweet sauce. Such meals as bigos, borsch, pierogi (dumplings) and beef roulades became very popular. Bigos is a dish made of both meat and vegetables [4, 5]. In his Book IV of *Pan Tadeusz* [10], entitled *Diplomacy and Hunting*, Adam Mickiewicz writes:

*But bigos e'en without such sauce is good,
Of vegetables curiously brewed.
The basis of it is sliced sauerkraut,
Which, as they say, just walks into the mouth;
Enclosed within a cauldron, its moist breast
Lies on the choicest meat in slices pressed.
There it is parboiled till the heat draws out
The living juices from the cauldron's spout,
And all the air is fragrant with the smell.*



The cuisine of the end of the 19th century does not differ much from contemporary cuisine. There is a preponderance of meat over vegetables. The following meals have survived: bigos, bullion, roasted and stewed meat. As Maria Zientara-Malewska reports [15, 16], in Warmia, pigs were slaughtered during the time of nuptials and Shrovetide. Blood was used for the production of blood sausage and brawn. Offal was used for the production of cured meat. Meat was preserved by drying and smoking. The impact of other nations is clearly visible in the consumption and processing of meat.

In post-war Poland, meat became a product of a political significance. Production quotas, prices, and the resulting level of meat in the human diet - were centrally controlled. The worst crisis occurred in the 1960s. Instead of buying meat and using it rationally in nutrition, it began to be acquired. In 1981, meat ration coupons

KUPON REJESTR. KARTY „M-1”	Mięso 300 g 1986-05	Mięso 300 g 1986-05	Mięso 300 g 1986-05	Mięso 300 g 1986-05
Wol., Ciel. z kością 400 g 1986-05	H 3356498			Mięso 200 g 1986-05
Wol., Ciel. z kością 300 g 1986-05	nazwisko i imię			Mięso 100 g 1986-05
Rezerwa 1 1986-05	Rezerwa 2 1986-05	Mięso 100 g 1986-05	Mięso 100 g 1986-05	Mięso 100 g 1986-05

were introduced [9]. The 1990s marked the normalization of the meat market. Today, there is a large abundance and variety of meat and meat products; their quality and amount used in nutrition depends on many factors, such as price, habits, advertising and more and more often - nutritional awareness..

QUO VADIS-THE FUTURE OF MEAT IN HUMAN NUTRITION

Meat will probably remain the main component of the human diet, although fish breeding is more cost-effective. For example, Norwegian salmon provides a yield of 2,000 tones from one hectare, i.e. fifteen times more than production of beef from the same area. However, it is hard to compete with consumer habits. Therefore, what will be the directions of actions from the farm to the table?

As regards meat resources, we will witness both intensive and extensive breeding, closer to organic food, or the so-called "bio-food", which should be based on the repeated use of organic matter, natural fertilizers, and the rotation of crops in plant production, taking into consideration the balance between plant and animal products. Will traditional, proven breeds, and stocks of animals return? What about traditional methods of meat processing? [13]

Perhaps we will witness wider genetic modification of livestock. Today, we already have at our disposal tools for implanting a fragment of the genome of one animal (donor) into the genome of the other (recipient). This makes it possible, as it can be clearly seen in the fish example, to use fodder more efficiently and to obtain better weight gains over time. Will there be social consent for this?



The mid-19th century was a time when new types of food appeared on the market, both convenient and functional. The demand for convenient food is increasing due to the fact that more women work outside home, smaller families, changes in the forms and ways of consumption, as well as globalisation and changes in world tourism. An average consumer has at his disposal meat products ready to be eaten or requiring only heat processing consisting of warming up the product to the consumption temperature. More and more meat products are sliced. Packaging is becoming more attractive and functional. It can be expected to be one of the most important directions related to the presence of meat in human nutrition [10, 13].

The 21st century can probably be characterized by the appearance of meat products with lowered fat content, i.e. lowered cholesterol level and saturated fatty acids, with an increased level of necessary, unsaturated fatty acids. Through genetic, nutritional and technological methods, we will increase the content of natural antioxidants in meat (including vitamin E) and some other nutritionally important mineral contents (selenium). The range of fermented products will be enlarged using probiotic strains of micro-organisms. New products with low sodium chloride content, partially replaced with other salts, should also be introduced [1, 19].



An important role should be ascribed to gastronomy. Jean-Anthème Brillat-Savarin [6], living in the years 1755-1826, in his book entitled *Physiology of taste or meditation over an excellent gastronomy*, wrote, "The pleasures of the table are the privilege of all ages, all conditions, all countries, all days; they can be in consent with other pleasures, and finally, they are our solace after we lose those other ones". Gastronomy is both an art and a science. It is a child of time and was shaped imperceptibly, at first by gathering methods indicated by the experience, and then by discovering rules, which could be described through analysis of these methods.

People use various forms of consuming meat products outside the home increasingly often. Some prefer fast food bars. Others prefer traditional cuisine. Various local regional and traditional products have entered the

market. This all is our culinary heritage, closely related to our cultural heritage, which in the immediate future must be more intensely cultivated.

The European Union, seeking the preservation of cultural identity (including culinary heritage), has introduced a system of regional and traditional products. It is based on two regulations of the Council, No. 510/2006 *on the protection of geographical indications and designations of origin for agricultural products and foodstuffs*, and No. 509/2006 *on agricultural products and foodstuffs as traditional specialties guaranteed*. Three categories were established: Protected Designation of Origin, which refers to products very closely related to the area which name they bear; Protected Geographical Indication, which, in a specified Geographic Area, will concern production or processing or preparation, as well as Traditional Speciality Guaranteed, a necessary condition of which is to describe the traditional character of the product [8, 12].



The list of Traditional Products was based upon the Act of 17 December 2004 on the registration and protection of names and symbols of agricultural products, foodstuffs, and traditional products. Its task is to support the process of product identification and the process of providing the consumer with information on such products. The list of traditional products includes those products the quality, or a feature of which, results from using a traditional method of production. The scope of usage is very wide; a natural person, legal person or an organizational unit without legal status can apply to include a product on the list. As of 10 August 2006, the list of traditional products contained 221 products from 16 regions. Meat and meat products included 33 products [14]. They include both carcass of overseas goose, black, stuffed duck, half a roast goose, sausage, hams, black sausage and black pudding, pates, smoked meat, as well as kindziuk, pork kumpia from the chimney or the pork from the area of Greater Poland - "Złotnicka".



It seems that the seven following nutritional recommendations of Professor Berger should be taken into consideration during the consumption of meat [3]. Proper nutrition, including the usage of meat in human diet should be: varied, moderated, controlled, skilfully prepared, associated with practicing sport and tourism every day, the avoidance of excessive amounts of fat, sugar, salt and alcohol - and a smile on the face. Perhaps, looking into future, one should also add relief from stress and proper consumption of certain drinks in good company.



A virtual meal, which might be used as a summary of this study, would be composed of bread on leaven with kindziuk, vegetable salad on the basis of broccoli and kopi luwak coffee originating from Sumatra and pre-digested by civets, as one of the latest gastronomic hits.

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