QUALITY OF MILK AND DAIRY PRODUCTS

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Annotation: Milk and dairy products belong to the group of products consumed daily and accompany a person throughout his life - from the first days of birth to mature old age. First, it is breast milk, which is essential for the newborn, then cow's milk and products based on it. Goat milk products are currently being produced. The role of dairy products in human nutrition cannot be overestimated. They have beneficial dietary properties due to the peculiarities of the composition and properties of the raw material from which they were originally prepared. The great Russian scientist, academician I.P. Pavlov called milk "a wonderful and most perfect dish prepared by nature itself."

Keywords: Dairy products, milk, Vitamin, kefir, yogurt.

The high nutritional value of milk contains all the nutrients necessary for human consumption, they are well balanced, easily absorbed and complete. One of the main components of milk is complete proteins, which have a number of important functional properties. In the absence of animal protein, it is very important to include dairy products in the diet. Milk fat is easily absorbed by the body because it is present in milk in a finely dispersed form (in the form of small fat globules) and has a low melting point (28-30 ° C). Milk fat contains a lot of fatty acids, but to be honest, nutritionists call the deficiency of milk fat a deficiency of polyunsaturated fatty acids (linoleic, linolenic, etc.). a group of irreplaceable nutritional factors. However, lactic acid contains arachidonic acid, short-chain fatty acids, phospholipids, which are deficient, which increases its nutritional value. Lactose or milk sugar is the only carbohydrate found in milk. It is one of the most popular prebiotics - a source for lactulose, serves as a substrate for primary microorganisms in the production of fermented dairy products, has the property of improving the absorption of calcium.

The impact of milk and dairy consumption on individual well-being, chronic diseases, and the associated economic costs is significant. Milk contains vitamins (A, C, beta-carotene, P, B1, B2, etc.), enzymes, hormones, minerals, primarily calcium. Dairy products are the richest source of calcium, and 75-80% of the daily requirement for it is met by dairy products. Calcium is better absorbed in dairy products than in other foods because it is in a bioavailable form.

Milk also contains phosphorus, a number of preservatives and others. The biologically active protein of angiogen (a joint work of the staff of the Institute of Biochemistry named after ANBax and the Moscow State University of Applied Biotechnology) is isolated from raw milk. Stimulates the growth of blood vessels. In this regard, it can be said that dairy products are one of the main determinants of human health. From ancient times the milk is considered a medicinal drink. Ancient Roman and Greek scientists - Herodotus, Aristotle, Pliny - recommended milk to treat consumption. Ancient Georgian and Armenian physicians used whey to treat fever. 17th-century Russian medical books state that milk is an indispensable product in the diet of children, as well as in the treatment of heart disease, liver, obesity, iscorbiosis, as well as in the treatment of tuberculosis. and fever. Milk and dairy products are useful in the treatment of malnourished patients who need good nutrition, often boosting the immunity of sick and debilitated people. The scientific basis of dietary therapy with the use of milk was developed by 19th century Russian physicians F.I. Inozemtsev, F.L. Karrel, G.A. Zachary and the great Russian physiologist I.P. Pavlov. They proved that in order to digest milk, the body needs a small amount of weak gastric juice, which means that it is easy to digest and well absorbed. Renowned physician and scientist S.B. Botkin concluded that milk was "a valuable tool in the treatment of heart and kidney disease." Milk is able to normalize metabolism, it is useful for people who work with radioactive and toxic substances that affect the liver, disrupt protein and mineral metabolism and irritate the mucous membranes of the upper respiratory tract. Our ancestors not only used milk in its natural form, but also knew how to process it. For example, the favorite drink of the inhabitants of the East - sand was

mentioned by Herodotus in the V century BC. Cheese first appeared in Ancient Persia. The methods of its production are described by Hippocrates, Aristotle, Virgil; the ancient Greek poet Homer glorified cheese in his poems.

He also learned how to make butter before our era, but later began to eat it.

One of the oldest methods used by humans to obtain products with a longer shelf life from milk is fermentation. There are reports that such products began to be produced 10-15,000 years ago, when people moved from collecting to food production. It is associated with the domestication of animals (cows, sheep, goats, buffaloes and camels). Archaeological evidence suggests that some civilizations (e.g., the Sumerians and Babylonians in Mesopotamia, the inhabitants of Foros in northeastern Africa) were very well versed in agriculture and animal husbandry (especially in the production of fermented dairy products such as yogurt). Yogurt originated in the Middle East, and the technology of making it was developed and perfected thanks to the art of nomads who lived there. Belief in the beneficial effects of yogurt on the human body existed in many civilizations For example, the French emperor Francis I used goat's milk yogurt to cure a disease that was harmful to his health.

Kefir is a symbiosis of several types of microorganisms - a fermented milk drink obtained from whole or skimmed cow's milk by fermentation using kefir "fungi". A homogeneous, white, low-carbon, viscous, fermented milk drink made from cow's, goat's, sheep's or mare's milk that may contain different amounts of alcohol and carbon dioxide. The word "kefir" comes from the Caucasian language. Kefir is a popular drink in Russia, Germany, Sweden, Finland, Hungary, Poland, USA, Australia and especially Norway.

Yogurt - fruit-berry syrups, flavorings, fillers and added or not added in pure cultures of Bulgarian sticks and thermophilic lactic acid streptococci, obtained from milk normalized in the amount of fat and solids, fermented with sour dough is a fermented dairy product prepared without. paints. Yogurts depend on the fat content and the added fillers: milky creamy, fruity.

The word "yogurt" is Turkish (Turkish: yogurt) and means "condensed".The Scythians and nearby nomadic peoples have long carried milk in wine skins on the shoulders of horses and donkeys. Bacteria entered the product from the air and wool, fermentation took place in the heat, and the constant stirring finished the work, turning the milk into a thick sour drink that did not spoil for a long time and at the same time retained all the nutrients.

Features. You can add yogurt to fresh milk and use it to create new yogurt. This was first reported by Pliny the Elder, who wrote in his book Natural History: "The Scythians know how to condense milk, making it a sour and very tasty drink." For drinking, this drink was diluted with water and dried for food, something resembling cottage cheese was obtained.

Butter is a food product made by separating or whipping sour cream obtained from cow's milk (less than sheep, goat, buffalo, whole and zebu milk). Milk fat is obtained from high-fat (50-82.5%, fat - about 99%) sour cream, which is the main source of microorganisms in the hygienic production of butter. There is little difference between the microflora of whole milk and cream, so microorganisms present in raw milk can also be present in creams such as Clostridium SPP. Butter is a polydisperser with variable composition, a multi-phase and a multi-component system. The polydispersity of butter is the solid phase of milk fat, the water and gas phases are in the form of crushed particles, the size of which varies within certain limits. Thus, milk fat crystals are 0.01–2 μm, moisture droplets 1–30 μm, and air bubbles up to 20 μm. Multiphase - the presence of solid, liquid and gaseous components in oil. A phase is a set of all homogeneous particles of a system that are the same in terms of composition and chemical and physical properties at all points and bounded by some visible surface (interface) from other parts. The solid phase of butter is represented by mixed milk fat crystals, fat globular membrane proteins, and milk plasma proteins. The liquid phase consists of liquid fractions of milk fat, free water in the form of droplets, and bound water in capillaries that enter the continuous fat phase. The gas phase is represented by air bubbles and dissolved air. The composition of the gas phase in the new oil is the same as in the air, i.e. 78% nitrogen, 20.9% oxygen, no more than 0.5% carbon dioxide. The amount of oxygen decreases rapidly during storage. The volume of the gas phase in butter is 1-13 ml per 100 g. The physical properties of the oil are determined by the chemical composition and the degree of dispersion of the main components. The chemical composition of butter is regulated in the direction depending on the type of

product produced. The composition of the oil depends on seasonal fluctuations and it also depends on the production methods

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