VI session of press club "Attention, children!"

VI session of educational press club "Attention, children!" took place on 15 November in Moscow; it was attended by journalists of the leading medical and children's magazines. The press club traditionally dwells upon popular issues and subjects of pediatric nutrition. This time, the session was dedicated to an issue popular among most consumers and specialists – fats and their role in growth and development of infants.

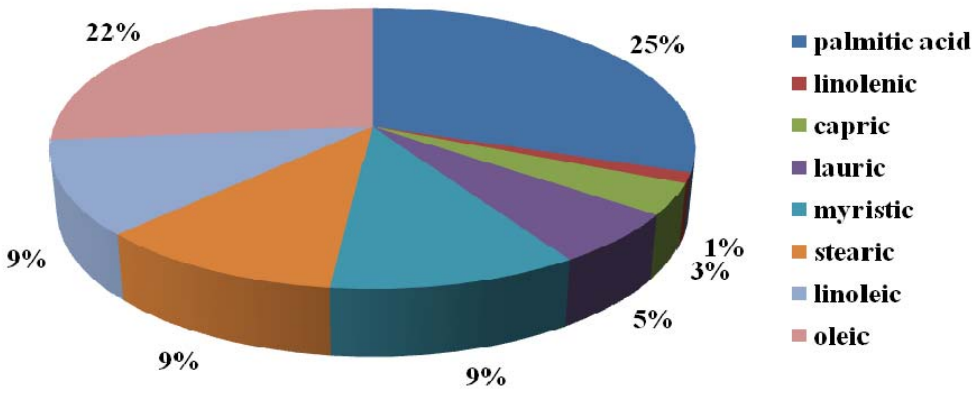
Press club "Attention, children!" traditionally reports on the urgent issues and subjects of pediatric nutrition. This session was no exception: it was dedicated to, perhaps, one of the most relevant issues – the role of fats in pediatric nutrition. Leading specialists in the spheres of pediatric nutrition and edible fat chemistry were invited to the press club organized with the assistance of Nutricia: leading research fellow of the pediatric nutrition department at the FSBI Research Institute of Nutrition, MD, PhD Maria Vladimirovna Gmoshinskaya; head of laboratory at the FSBI Research Institute of Nutrition, Doctor of Biology Vladimir Vladimirovich Bessonov; leading research fellow of the pediatric nutrition department at the FSBI Research Institute of Nutrition, member of the European Society of Pediatric Gastroenterology, Hepatology and Nutrition, Doctor of Biology Natalya Mikhaylovna Shilina; head of the medical research department at Nutricia Russia, PhD of Medicine Alexandra Vitalyevna Surzhik; technical regulation director at Nutricia Russia, PhD of Chemistry Dmitry Grigoryevich Miklin.

The invited specialists debunked the "myths about fats in pediatric nutrition" common not only among consumers, but also, unfortunately, among pediatricians in the framework of the press club.

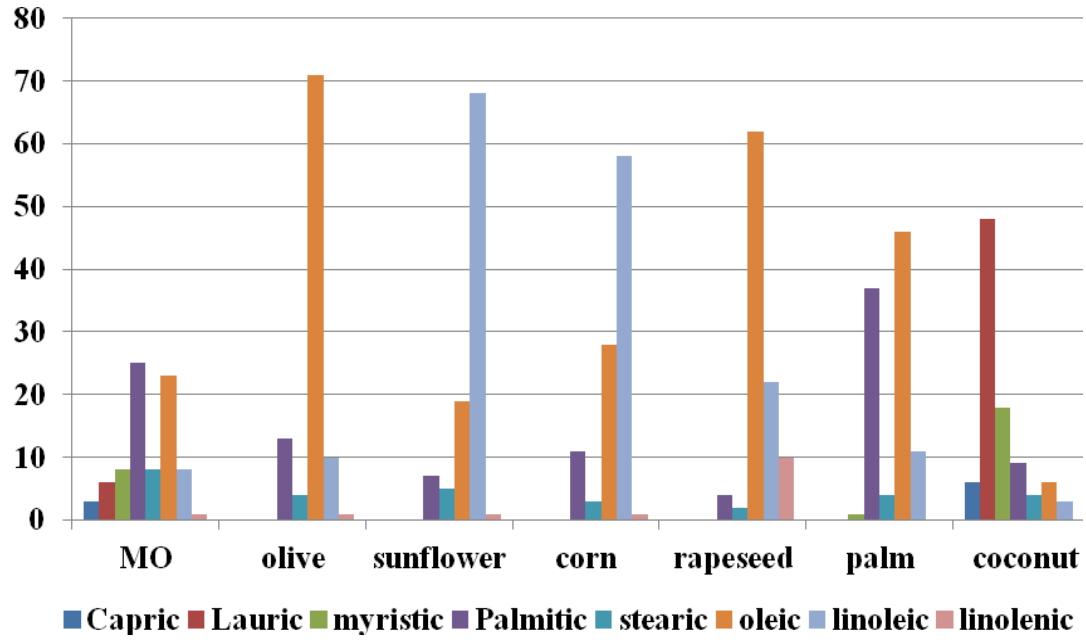
The session was opened by Doctor of Biology N.M. Shilina, who reported on fats and fatty acids, their classification and extraordinary variety of saturated and unsaturated fatty acids.

Fats are an important source of energy for infants and the second best source of breast milk components. When breast feeding is impossible, it is necessary to sort out a formula as similar in composition to breast milk as possible. Unique fatty-acid profile of breast milk is impossible to reproduce using only one type of oil; it requires various sources. E.g., the best sources of linoleic acid are sunflower oil and corn oil, of palmitic acid – the main fatty acid of breast milk – palm oil (pic. 1, 2).

Pic. 1. Fatty-acid range of breast milk



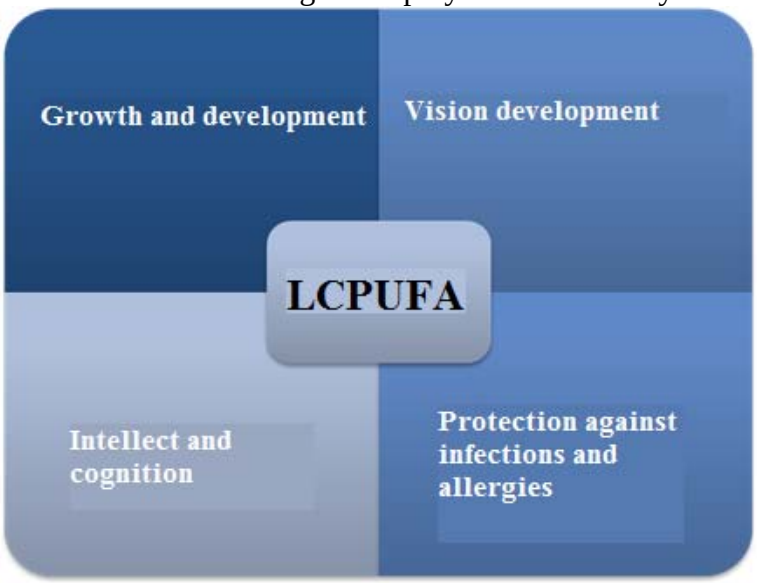
Pic. 2. Fatty acid composition of vegetable oils



Throughout the club's session, it was being emphasized that fats are neither harmful nor wholesome; everything depends on the amount and type of consumption. Unsaturated fatty acids are usually liquid, have low fusion temperature and are among the constituent parts of membranes of all body cells. Saturated fatty acids dominate in cow milk, unsaturated fatty acids – in breast milk. N.M. Shilina mentioned that the "oil's wholesomeness" is not always in direct proportion to its price. Thus, e.g., widespread sunflower oil contains more irreplaceable polyunsaturated fatty acids than olive oil.

Balance of omega-3 and omega-6 fatty acids also plays an important role, as they precede eicosanoids (prostaglandins, leukotrienes etc.), which are involved into blood coagulation regulation, change vascular lumen and have pro- and anti-inflammatory effect. Lipids constitute up to 60% of dry cerebral matter. 35% of them are long-chain polyunsaturated fatty acids (LCPUFA). One of them - docosahexaenoic acid – is the dominant polyunsaturated fatty acid in cellular membranes of central nervous system; it is also the main component of membranes of photoreceptors, which determine visual acuity (pic. 3).

Pic. 3. Functions of long-chain polyunsaturated fatty acids in the body



PhD of Medicine A.V. Surzhik mentioned that LCPUFA were introduced to pediatric formulas only ca. 15 years ago, and it was none other but Nutricia who started enriching formulas with LCPUFA. Their effect on vision and cognitive development of children has been studied since then. It is important not only to introduce these acids to pediatric nutrition, but also to determine their sources.

Doctor of Biology V.V. Bessonov reported on production of pediatric milk formulas and introduction of fatty acids into them. He noted that the source of fatty acids is selected according to 4 criteria: maximum similarity to breast milk, high quality and safety standards, availability of raw materials and manufacturability. Thus, there arose a question about zero use of linseed oil, which is rich in LCPUFA, in pediatric nutrition. It appeared that components of this oil quickly oxidize, and this process is difficult to prevent in the course of operating procedure of formula production, while the material itself is very expensive due to small amounts of production. Unfortunately, neither vegetable oil can reproduce the unique composition of breast milk, which is why several sources are used in manufacturing – corn, palm, coconut oils etc. (see pic. 2). Milk formulas for children of different age are the only dairy products in the Russian Federation, in which milk fats may legally be replaced by vegetable fats.

Along with other vegetable oils, palm oil may be legally used in food industry, including production of pediatric formulas. The journalists present at the session raised a question about the origin of myths about palm oil. V.V. Bessonov observed that palm oil is one of the first oils that a man started to consume. Shortage of the existing plantations has been observed recently due to wide use of this material, which is why more and more forests are being felled in order to plant new palms. Thus, the issue of palm oil use restriction concerns environment protection more than the safety of the product itself. It ought also to be noted that only 1% of the produced palm oil is used in pediatric nutrition.

It is considered that palmitic acid may bind calcium ions within intestines, which results in the formation of insoluble calcium compounds and, therefore, in denser stool. At the same time, some pediatric formulas include prebiotics, which, according to numerous trials, facilitate calcium reabsorption, stimulate intestinal passage and soften stool [1-3].

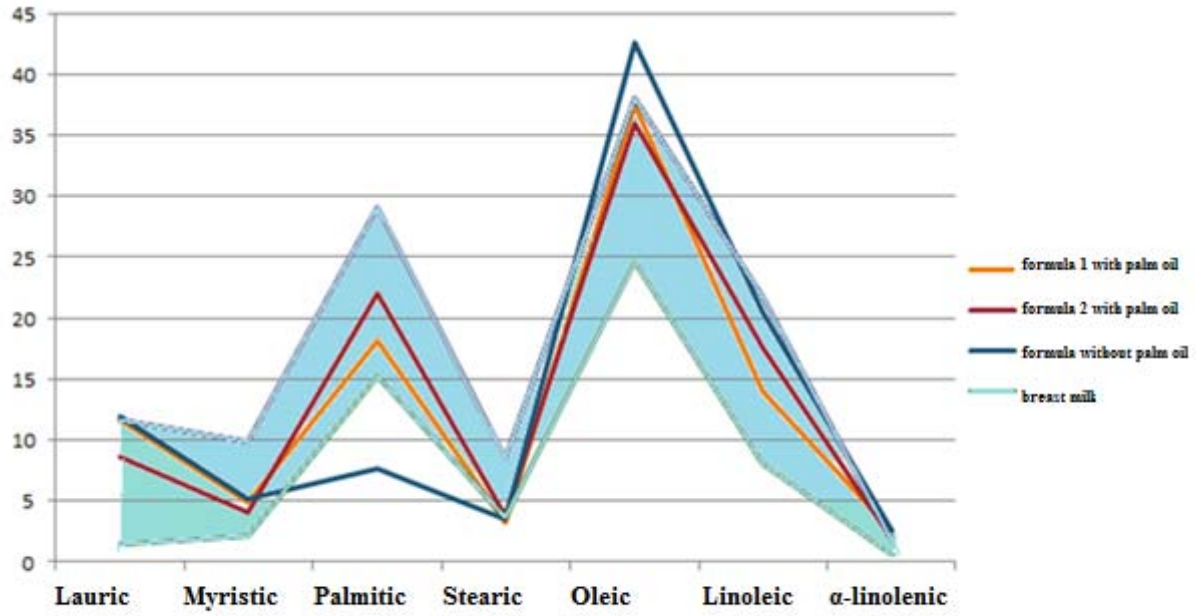
PhD of Chemistry D.G. Miklin reported that there are special strict requirements to materials for pediatric nutrition, which is why it is possible to trace the material's route "from garden bed to shop shelf" and guarantee high quality of the product.

The most widespread delusion of the audience was that the "use of palm oil is forbidden in Europe". The argument was that European pediatric nutrition tins do not feature a specification of sources of fatty acids. D.G. Miklin explained that manufacturers have not been obliged to list sources of fatty acids on products' labeling until recently, which is why the lack of such specification could not qualify for the lack of palm oil in formulas. Only recently a law on compulsory indication of all sources of fatty acids has been passed in Europe; therefore, since December 2013 all pediatric nutrition manufacturers must list all sources of fatty acids, including palm oil, on packaging.

In the end of the session, data on fatty-acid composition of formulas of the main pediatric nutrition manufacturers were demonstrated. The formulas involved in the analysis may or may not have had palm oil as a constituent part. An independent analysis showed that if the formula does not contain palm oil, the palmitic acid content in the formula is significantly lower than in breast milk (pic. 4).

The VI session of press club "Attention, children!" revealed high interest to the issue of fats in pediatric nutrition, whereas the questions raised by journalists demonstrated their knowledge of the problem. The main objective of the press club was to debunk the "myths about fats" and present consumers with complete and reliable information on the products' composition, thus improving their awareness.

Pic. 4. Fatty-acid composition of formulas with/without palm oil


45
40
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Lauric
Myristic
Palmitic
Stearic
Oleic
Linoleic
α-linolenic
formula 1 with palm oil
formula 2 with palm oil
formula without palm oil
breast milk