

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
ОДЕСЬКА НАЦІОНАЛЬНА АКАДЕМІЯ ХАРЧОВИХ ТЕХНОЛОГІЙ**



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**X Всеукраїнської науково-практичної конференції
молодих учених та студентів
з міжнародною участю**



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здорового способу життя у молоді»**

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РОЗДІЛ 3
ТЕХНОЛОГІЧНІ АСПЕКТИ
ВИРОБНИЦТВА ХАРЧОВИХ ПРОДУКТІВ
ЛІКУВАЛЬНО-ОЗДОРОВЧОГО НАПРЯМКУ

ТЕХНОЛОГІЯ М'ЯСНИХ, РИБНИХ І МОРЕПРОДУКТІВ

Results of researches about PUFA's effect on mechanism of Alzheimer's disease are still unclear, but some positive dynamic was noticed.

Animals do not produce PUFA, so content of it in meat is due to consumption products rich in polyunsaturated fatty acids. For example, such fish as herring and sardines, obtain it from microalgae and plankton. The richest plant sources of PUFA are flax and hemp. Their seeds or oil can be eaten. If they (or other sources of omega-3 fatty acids) are added to animals' feed, their meat and other products (milk, eggs) will be rich in PUFA.

Scientific director – Ph. D., docent Patyukov S.D.

PRACTICAL ASPECTS OF ADDING POLYUNSATURATED FATTY ACIDS (PUFA) IN DAILY DIET

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In the first part of XX century, fish fat was recommended for children because its importance for healthy growing has been already discovered. But storage conditions used to be inappropriate, so fish fat had bad taste and was kind of nightmare for children. Nowadays there are a lot of other dietary recourses of PUFA. It can be taken in form of food supplement capsules but their benefit for health is doubtful because in result of processing double bonds in polyunsaturated fatty acids can be displaced or destroyed so they turn into another substances and lose their useful properties. Animals cannot produce PUFA; therefore their meat can be rich in polyunsaturated fatty acids only due to consumption of some plants. For instance, such fish as herring has significant amount of omega-3 in their meat because they obtain it from microalgae and plankton in their diet. The richest plant sources of omega-3 are flax and hemp, in particular, their seeds. It can be taken in form of seeds or oil. Moreover, if you add them into feed for other animals, their meat, milk and eggs will be enriched in PUFA.

The Institute of Medicine in USA published a system of Dietary Reference Intakes claimed that for alfa-Linolenic acid (one of the n-3 fatty acids) adequate intake is 1.6 grams/day for men and 1.1 grams/day for women. They also set tolerable limit for omega-3 fatty acids of 3 grams per day of combined DHA and EPA, with no more than 2 from dietary supplements. However, different organizations give different recommended quantity for PUFA consumption. For example, The European Food Safety Authority approved a claim "EPA and DHA contribute to the normal function of the heart" for products that contain at least 250 mg EPA + DHA. The World Health Organization recommends regular fish consumption (1-2 servings per week, equivalent to 200 to 500 mg/day EPA + DHA) as protective against coronary heart disease and ischemic stroke. The American Heart Association made trials where patients consumed about 1000 mg/day which decreased risk of the heart problems.

There is also issue of contamination in fish oil supplements which is rich on omega-3 fatty acids. Fish's body accumulate heavy metals like mercury and lead and also some dioxins and furans. However, heavy metal toxicity from consuming fish oil supplements is highly unlikely, because heavy metals selectively bind with protein in the fish flesh rather than accumulate in the oil. An independent test in 2005 of 44 fish oils on the US market found all of the

products passed safety standards for potential contaminants. Regarding to the fish consumption, Journal of the American Medical Association (2006) reported that the benefits of fish intake generally far outweigh the potential risks.

The richest dietary source of omega-3 fatty acids is oily fish such as herring, sardines, salmon, anchovies, mackerel and menhaden. Krill oil is also a good source of PUFA and its effect on human health is similar to fish oil's effect. Flaxseed (or linseed) and its oil are perhaps the most widely available botanical source of the omega-3 fatty acids. Linseeds are much cheaper than animal sources and good for people who do not consume meat.

Eggs can become good source of PUFA if chicken has diet rich in omega-3 fatty acids. It can be diet of greens and insects, flax and canola seeds. It also can be fish oil or seaweed or marine algae but consumers complain that such eggs can have a fishy taste. There also was discovered that meat and milk from grass-fed cattle have higher content of PUFA and vitamins than ones who was grain-fed or grain-finished. The meat can also enriched with PUFA by adding grains high in omega-3, such as flax, chia, and canola in cattle's diet. Global food companies have launched bread, mayonnaise, pizza, yogurt, orange juice, children's pasta, milk, eggs, popcorn, confections, and infant formula fortified in omega-3 fatty acid.

Scientific director – Ph. D., docent Patyukov S.D.

SECONDARY FISH RESOURCES AS SOURCES OF VALUE FOOD FIBERS

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Currently there is a destroying of the nutrition structure of the population of Ukraine, which is the main harmful factor to our health. There is deficiency of vitamin C, vitamins A and B complex, selenium minerals among the biggest part of Ukrainians. In addition to the micronutrient deficit, that covers all of the population, there is also a chronic deficiency of full protein in the diet, especially among children and the elderly people. In that way at the present step, the most important and priority task is to adjust the nutrition of the population of Ukraine.

One of the main directions of state policy in the field of healthy eating is the creation of technologies of new food products with a given composition and regulated physico-chemical properties.

Fish, possessing exceptionally high nutritional qualities, occupy an important place in our diet. The immutability and special value of fish and seafood in children's, curative and dietary nutrition is determined by their well-balanced chemical composition. Above all this is a source of valuable protein that differs in properties from proteins of warm-blooded animals. The main difference is in their best digestion by enzymes of the human gastrointestinal tract and high degree of digestibility (95-98%). Fish meat and seafood contains little coarse connective tissue. It is dominated by complete proteins of muscle tissue, which, acting on the digestive glands, contribute to the release of a large amount of juice. As a result, fish and sea-

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НАУКОВЕ ВИДАННЯ

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