Impact Factor:					
	ISRA (India) = 6.317	SIS (USA) = 0.912	ICV (Poland) = 6.630
	ISI (Dubai, UAE) = 1.582	РИНЦ (Russia) = 3.939	PIF (India) = 1.940
	GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

SOI: 1.1/TAS DOI: 10.15863/TAS

International Scientific Journal

Theoretical & Applied Science

p-ISSN: 2308-4944 (print) **e-ISSN:** 2409-0085 (online)

Year: 2022 **Issue:** 06 **Volume:** 110

Published: 24.06.2022 **http://T-Science.org**

Issue Article

Nargiza Alimjanovna Tishabaeva
Ferghana Medical Institute of Public Health
Assistant of the department «Anatomy»,
Ferghana city, Uzbekistan

Mokhirabonu Shukurokhunovna Alimjanova
Ferghana Medical Institute of Public Health
Student of International Medical Faculty,
Ferghana city, Uzbekistan

THE USE OF OMEGA-3-POLYUNSATURATED FATTY ACIDS IN PREGNANCY AS A FACTOR IN THE PREVENTION OF PRETERM BIRTH

Abstract: *The article under discussion depicts the use of omega-3 polyunsaturated fatty acids in pregnancy as a factor in the prevention of preterm birth. The World Health Organization (WHO) reports that during pregnancy a woman's body is more likely to have a deficiency of omega-3 polyunsaturated fatty acids (PUFAs). At the same time, most doctors believe that this deficiency can adversely affect the health of the expectant mother and fetus. To replenish the reserves of these substances it is proposed to take additional specialized nutritional supplements. The authors of the article believe that omega-3 fatty acid supplementation is an effective strategy for preventing preterm birth.*

Key words: *pregnancy, prevention, omega-3-polyunsaturated fatty acids, developmental disorders, physiological course of pregnancy, preterm birth, fish and algae.*

Language: *English*

Citation: Tishabaeva, N. A., & Alimjanova, M. Sh. (2022). The use of omega-3-polyunsaturated fatty acids in pregnancy as a factor in the prevention of preterm birth. *ISJ Theoretical & Applied Science, 06 (110),* 353-355.

Soi: http://s-o-i.org/1.1/TAS-06-110-61 ***Doi***: https://dx.doi.org/10.15863/TAS.2022.06.110.61

Scopus ASCC: *2737.*

Introduction

For more than two decades, polyunsaturated fatty acids (PUFAs) have been the focus of worldwide scientific attention. The properties of these substances, their role in the human body, their effect on pregnancy, as well as on the growth and development of the fetus, have been studied.

According to numerous studies, among children born earlier than 37 weeks of gestation the risk of long-term adverse prognosis associated with developmental disorders or lethal outcomes in the first 5 years of life is significantly higher [1]. Early gestational age children have previously been shown to be at higher risk of developing a number of conditions in the long term, including visual impairment, neurodevelopmental abnormalities, and learning difficulties. At the same time, it was found that omega-3-polyunsaturated fatty acids, particularly docosahexaenoic and eicosapentaenoic acids, which are abundant in fish oil, have a favorable effect on the physiological course of pregnancy, reducing the possible risk of preterm birth [13]. The daily increase in consumption of omega-3-polyunsaturated fatty acids during pregnancy can reduce the chance of preterm birth, reducing adverse effects for the mother and the newborn:

1) reduces the risk of preterm birth (before 37 weeks) by 11% (from 134 per 1,000 to 119 per 1,000 births)

2) reduces the risk of preterm early birth (before 34 weeks) by 42% (from 46 per 1,000 to 27 per 1,000 births)

3) reduces the risk of low birth weight babies (less than 2,500 grams) by 10%.

Omega-3 fatty acids are long-chain polyunsaturated essential fatty acids necessary for

good health and development [12]. In contrast to omega-3 fatty acids of plant origin, such as those derived from flaxseed and canola oils, fish oils derived from fish and algae contain docosahexaenoic (DHA) and eicosapentaenoic (EPA) acids, which have longer chains. They are called essential fatty acids because the body is unable to produce them on its own and therefore they must be consumed in appropriate amounts [2].

Eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) have the following biological effects:

- normalize blood lipid composition, reduce levels of harmful cholesterol, which is important for the prevention of damage to the vascular wall - the main cause of heart attacks and strokes. With regular consumption of fish oil, which contains omega-3 polyunsaturated fatty acids, LDL and LDL cholesterol levels are reduced;

- prevent platelet clumping, promote blood thinning, and prevent thrombus formation, the second cause of strokes and heart attacks. As a result, the elasticity of blood cell membranes is increased, platelet activation is reduced, and chemotaxis is inhibited. This leads to a decrease in blood viscosity and risk of thrombosis, vasodilatory effect prevails over vasoconstrictor effect. The above properties improve microcirculation, especially in vessels affected by atherosclerosis;

- basis for synthesis of substances that inhibit inflammatory processes - prostaglandins. This explains the decrease in the activity of non-specific inflammatory reaction when taking sufficient amounts of essential omega-3 PUFAs;

- improve the function of the nervous system, promote concentration, improve memory, vision, prevent the development of nervous and mental disorders;

- are necessary in the complex care of the skin, nails and hair, promote quality renewal of skin cells, moisturize the skin "from within", reduce dryness, flaking and redness;

- are contained in the retina and have a beneficial effect on vision;

- have a positive effect on fat metabolism;

- slow down the production of stress hormones, help increase levels of neurotransmitters - serotonin, dopamine, acetylcholine - and activate the transmission of nerve impulses, so it is advisable to use them in the prevention of postpartum depression;

- consumption of omega-3 PUFAs during pregnancy reduces the risk of late toxicosis of pregnancy, thrombophilia of pregnant women, premature birth, fetal hypotrophy;

- necessary for the proper formation and development of all systems of the fetus, especially the nervous and immune systems.

The prenatal period is a time associated with an increased risk of omega-3 acid deficiency, as their stores in maternal tissues are depleted as they are used up for fetal development. Pregnant women are often recommended to take fish oil to replenish omega-3 acids [4].

The use of fish oil in pregnancy is the subject of research as a potential strategy for preventing preterm birth (or increasing intrauterine age) and preventing eclampsia and increasing birth weight along with other possible benefits such as improved fetal brain development and reduced risk of cortical paralysis and postpartum depression. The fatty acids DHA and EPA found in fish oil are the starting product of prostaglandins, which have the effect of compressing blood vessels. Fish oil is considered a remedy for hypertension, or high blood pressure, which is recommended for pregnant women and non-pregnant adults. These same components of fish oil can also delay labor and thus prolong gestation and increase birth weight by preventing the formation of prostaglandins that stimulate cervical maturation [5].

However, the results of research on these mechanisms and their potential benefits for mothers and children are mixed . The most optimistic of the conclusions drawn from a recent systematic review is that, although there is insufficient evidence to support continued fish oil supplementation during pregnancy to reduce the risk of preeclampsia, preterm birth, or low birth weight, pregnant women may benefit from fish oil supplementation by increasing intrauterine development [6].

Doses of DHA and EPA contained in fish oils may also vary in terms of the amount needed for any potential benefit to the mother and baby.

Conclusion

Thus, we can conclude that omega-3 fatty acid supplementation is an effective strategy for preventing preterm birth. A daily supplement containing 500 to 1,000 milligrams (mg) of long-chain omega-3 fatty acids (containing at least 500 mg of DHA) starting at 12 weeks of pregnancy is most appropriate.

References:

1. Boltabaeva, D.K., & Tishabaeva, N.A. (n.d.). Etiological factors and infertility treatment tactics *A Multidisciplinary Peer Reviewed Journal*, Volume 7, issue 12, Dec. 202. pp.161-

166. https://media.neliti.com/media/publications/353942-etiological-factors-and-infertility-trea-3c890ab5.pdf
2. Gavrisyuk, V.K., Yachnyk, A.I., Leshchenko, S.I., Morozova, N.A., & Dzyublik, YA. (1999). Prospects of omega-3 polyunsaturated fatty acids in medicine. *Pharm. vknik.* № 3, pp. 39-41.
3. Kalugin, S.A., Petrukhina, G.N., & Makarov, V.A. (2000). Influence of a new domestic concentrate number 3 epaden polyunsaturated fatty acids on functional activity in vitro. *Experimental and Clinical Pharmacology*, № 63 (1), pp. 45-50.
4. Makatsaria, A.D. (2003). *Thrombophilia and antithrombotic therapy in obstetric practice.* A.D. Makatsaria, V.O. Bitsadze; ed. by V.N. Kusainova. (p.904). Moscow: Triad-X.
5. Murashko, L.E., Sokur, T.N., & Ivanova, O.L. (1998). Application of eikonol in obstetrical practice. *Obstet. and Gynecology*, № 4, pp.36-38.
6. Sidelnikova, V.M. (2008). Application of omega-3 PUFAs for prevention and complex treatment of thrombophilic n-aroushee during pregnancy. *Russian medical journal*, Vol. 16, № 6, pp. 1-6.
7. Tishabaeva, N.A. (2021). Infertility: Causes, methods of research and treatment. *Asian Journal Of Multidimensional Research.*, Volume: 10, Issue: 6, pp.17-22. https://indianjournals.com/ijor.aspx?target=ijor:ajmr&volume=10&issue=6&article=002
8. Tishabaeva, N.A. (2021). Endometriosis: Relevance, clinic and treatment. *Asian Journal Of Multidimensional Research*, Volume : 10, Issue: 4, pp.438-443. https://indianjournals.com/ijor.aspx?target=ijor:ajmr&volume=10&issue=4&article=069
9. Tishabaeva, N.A., & Botiraliev, B. B. (2021). Endocrine system diseases, relevance, morbidity and mortality rates. *Voprosy nauki i obrazovanija*, №. 17 (142), pp. 15-19. https://cyberleninka.ru/article/n/endocrine-system-diseases-relevance-morbidity-and-mortality-rates
10. Titova, V.N., & Lisitsyn, D.M. (2006). *Fatty acids. Physical Chemistry, Biology and Medicine*. (p.412). Moscow: Publishing house Triad.
11. Torshin, I.Yu., Gromova, O.A., & Egorova, E.Yu. (2011). Systematic analysis of molecular mechanisms of the effect of omega-3 polyunsaturated fatty acids on arrhythmia. *Cardiology*, №5, pp. 37-49.
12. Torshin, I.Yu., Gusev, E.I., & Gromova, O.A. (2011). Systematic analysis of world experience in studying neurological effects of omega-3 PUFAs. *Jurn. n.Evol. and pychiat*. S.S. Korsakov, №12, pp.28-32.
13. Persianinov, L.S. (1964). *Antenatal protection of the fetus.* (p.425). Moscow: Medicine.