

OBSTETRICS AND GYNECOLOGY DOPPLER TECHNOLOGY***Tolqinkhojayeva Nilufarkhon****Assistant teacher of Kokand University Andijan branch****Zokirova Shohistakhon****Kokand University Andijan branch**Student of the direction of treatment work**E-mail: shohistazkrv@gmail.com*

Annotation: Doppler ultrasound methods are important in assessing the health of the mother and fetus in pregnancy monitoring, allowing early detection of preeclampsia, fetal blood flow disorders, and other high-risk conditions. According to the World Health Organization (who), the number of Doppler investigations in 2023 has increased by an annual average of 12%, indicating that the technology is globally widespread. This work will assess the effectiveness of Doppler technology on the basis of international standards, international research and statistics. In conclusion, Doppler technology has been strengthening its position as a key tool in improving the quality of pregnancy monitoring in the field of Obstetrics and gynecology.

Keywords: Obstetrics, Gynecology, doppler technology, ultrasonography, pregnancy monitoring, preeclampsia, blood flow analysis.

Introduction. In obstetric and gynecological practice, Doppler technology is one of the important tools that expand diagnostic capabilities and increase efficiency. Doppler ultrasound technology is widely used to assess the health of the mother and fetus by determining blood flow, its speed and direction. This technology helps to identify various pathologies that can occur during pregnancy at an early stage, which is decisive in ensuring the health of the mother and child. So in recent years, the development of Doppler technology and its application in obstetric-gynecological practice have been increasing rapidly. According to the World Health Organization (2023), the number of Doppler ultrasound examinations in pregnancy worldwide has increased by an annual average of 12%. This increase indicates an increase in the diagnostic importance of Doppler technology and its prevalence. In a 2022 study conducted by the Ohio Department of health, it was noted that the accuracy factor reached 85% in determining high-risk cases of pregnancy in clinics using Doppler ultrasound equipment. [1]. At the same time, it has been found that the complications associated with preeclampsia and other cardiovascular diseases identified through this technique have decreased by 30%. [2]. The non-invasive and safe nature of Doppler technology sets the stage for its widespread use in the monitoring process in pregnancy. According to a statistical analysis conducted in 2023, Doppler ultrasound-assisted fetal monitoring resulted in a 15% improvement in fertility results, indicating a significant contribution to the safety of the mother and child in the delivery process. In addition, along with the development of Doppler technology, its advantages over X-rays and other invasive diagnostic methods are becoming more recognized. Doppler ultrasound, for example, allows real-time monitoring of changes in fetal heart rhythm, which plays an important role in determining subtle changes in fetal development.

Table 1: analysis of doppler technology in Obstetrics and gynecology.

Doppler Technology Type	Areas Of Application	Advantages	Disadvantages
Transvaginal Doppler	<ul style="list-style-type: none"> - Measurement of fetal blood flow - Observation of uterine arteries 	<ul style="list-style-type: none"> -High precision - Clear image 	<ul style="list-style-type: none"> - Invasive method - Discomfort in some women
Transabdominal Doppler	<ul style="list-style-type: none"> - Monitoring the heart rhythm of the mother and fetus - Monitoring blood flow 	<ul style="list-style-type: none"> -Noninvasive -Convenience 	<ul style="list-style-type: none"> - Low accuracy in some cases - Difficulties as a result of belly fat
3D/4d Doppler	<ul style="list-style-type: none"> - Show the anatomical structures of the fetus - Monitoring the development process 	<ul style="list-style-type: none"> -High precision -Visual image 	<ul style="list-style-type: none"> - High price - Takes more time

International attention to the obstetric and gynecological practice of Doppler ultrasound technology has developed a number of standards and recommendations. The World Health Organization (WHO) and the American Association of gynecology and Pediatrics (ACOG) have published selections and proposals to ensure the effectiveness and safe operation of Doppler equipment in pregnancy monitor and gynecological examinations. According to the manual developed by Kim (2022), Doppler ultrasound methods are important to assess fetal blood flow, improve the heart function of the mother and Motherland, preeclampsia and other pregnancy, and detect garden diseases at an early stage. [4].Provides complete information about the technical characteristics of Doppler equipment, operator qualifications and safety protocols.ACOG (2023), however, has developed specific recommendations for the use of Doppler technology in prenatal monitoring. These recommendations set standards regarding the use of Doppler methods in assessing blood flow in the wing at home, ensuring development in the nervous system at home, and reducing risks during the termination process.

International studies prove that Doppler technology is effective in obstetrics and gynecology. For example, a 2024 comprehensive study by the European Association for medical research (ECR) found that the Preeclampsia rash in home monitoring administered on Doppler ultrasound assistance increased the level of additional information to 90% (source: ECR, 2024).According to a meta-analysis of the year 2023 carried out, the results of the assessment of blood flow in the Doppler methods relief home have developed by 20%, including a decrease in the number of necessary medical aids during the created process . The application of Doppler technology has also expanded in the Asian and African regions. In China, as of 2024, the number of Doppler examinations in pregnancy has increased by 15%, indicating the development of medical services that have improved fetal and maternal health .[3].In Africa, however, support for Doppler equipment has been identified in high-quality home settings, which has helped reduce the level of termination mortality in the region by 25%.Internationally, the development of Doppler technology supports its obstetric and gynecological practice. In recent years, miniature, artificial intelligence integration, and garden innovation with telemedicine have expanded the portability and diagnostic capabilities

of Doppler equipment. A new generation of Doppler equipment created by the "smartphone" project, funded by the European Union (2024), allows real-time monitoring of the fetus, storage and analysis of data. This technology center hospitals will be able to receive continuous services and accelerations in the condition of the fetus. Also, technologies such as South Korea and Japan are developing Doppler systems based on artificial intelligence in developed countries. These systems automatically analyzed blood flow to predict potential safety conditions for fetal and maternal health. Information-growing medical centers around the world support a strict best practice in the integration of Doppler technology. For example, at the German Center for advanced Gynecology, The Center for the integration of Doppler equipment and artificial intelligence algorithms has succeeded in automating fetal monitoring and accelerating diagnostic processes. Also, in the Scandinavian countries, the Doppler technology support cooperation network is Tashkent, through which opportunities are being created for obtaining, training course Tashkent and introduction of technical innovations .[2] .

On the basis of international demand, Doppler technology occupies an important place in the field of Obstetrics and gynecology.[5]. International standards and recommendations play an important role in ensuring its effective and safe application. Statistics and studies prove that Doppler methods are effective in improving diagnostic accuracy and maternal salute in fetal Ham. And technical progress and international education make it possible to continue the development of this technology. Therefore, the application of Doppler technology in accordance with international requirements and standards in maintaining its importance as a key opportunity to improve the quality of local health monitoring in the global health system.

Conclusion: Doppler ultrasound technology is widely used to assess blood flow, to determine the condition of blood vessels within the organization. Doppler methods in obstetrics provide an opportunity to monitor the state of work at home in workplaces, analyze maternal and household blood flow, early detection of preeclampsia and other home work disorders. In gynecology, however, this technology is an effective tool in assessing blood flow in the pelvic organs, identifying and improving the function of changing the processes of inflammation. The results of the study show that Doppler technology and Gynecology in practice play an important role in improving diagnostic accuracy, which serves to treat people early and improve their health condition. At the same time, limiters such as the high cost of technology and the demand for qualified specialists have been identified. In the future, the development of Doppler technology and its application is in the breadth of areas, which increases the quality of health care in the areas of cooperation and gynecology.

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