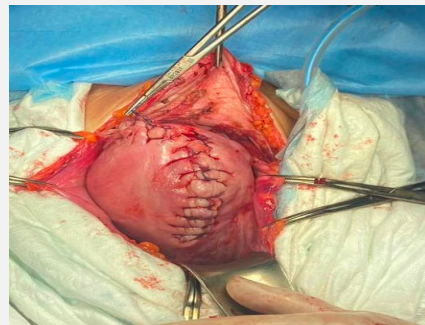
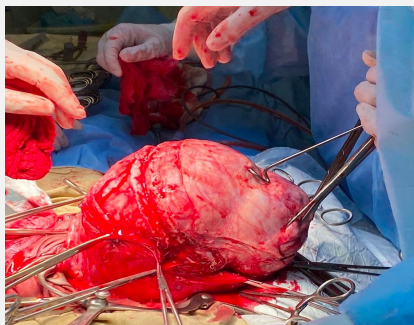


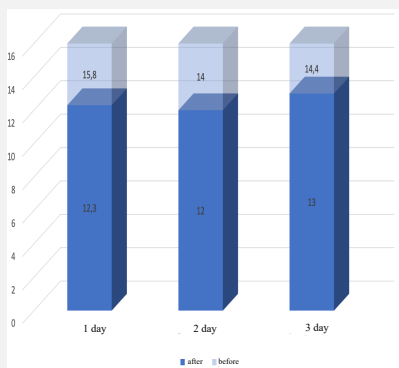
# THE USE OF A HEATED OXYGEN-HELIUM MIXTURE AT THE STAGE OF REHABILITATION IN PATIENTS AFTER MYOMECTOMY

**Introduction:** There is no information on personalized treatment of patients after myomectomy in modern world medical guidelines. The most important factor in the successful implementation of the reproductive function after organ-preserving operations is the smooth course of the recovery period with the formation of a high-quality scar on the uterus, which depends not only on the professionalism of the surgeon, but also on the effectiveness of postoperative rehabilitation. An innovative method of using inhalations of a heated oxygen-helium mixture (HOHM) has been developed in Russia. Inhalations are widely used to treat respiratory diseases. It was noticed HOHM inhalations improve microcirculation and contribute to the anti-inflammatory effect in the affected area. Until now HOHM inhalations have not been used in gynecological practice.



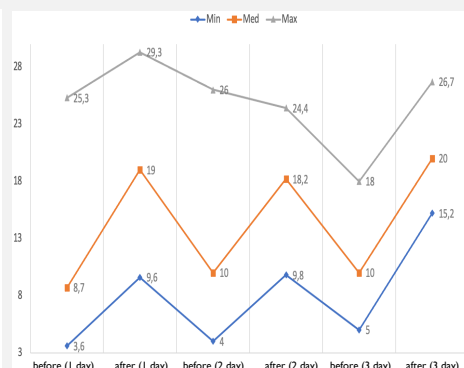
**Purpose of the study:** To evaluate the effect of exposure to a HOHM (70% helium / 30% oxygen) on the acid-base balance of the body, microcirculation in the postoperative suture area of the uterus after myomectomy in patients of reproductive age.

**Materials and Methods:** The single-center scientific research was conducted in the department of operative gynaecology with oncogynecology and a day hospital of the State Budgetary Healthcare Institution of the Moscow Region, Russia, from September 2021 to April 2022. Thirty patients aged 25 to 45 years old took part. All patients underwent laparotomic myomectomy of large and giant myoma nodes. In the early postoperative period (on the 2-4 day after surgery) the HOHM effectiveness on the acid-base balance of the blood, ultrasonic, dopplerographic and echographic indicators of the uterine suture condition were evaluated.

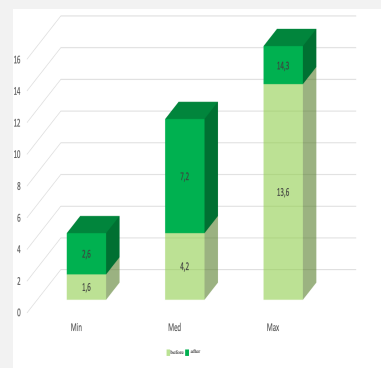


A pelvic ultrasound revealed a uterotonic effect, which was expressed in a reduction in its volume.

The maximum volume decrease of the uterus was 9 cm<sup>3</sup> when of inhalations of a HOHM was used. The average volume of the uterus before the procedure was 13.3 cm<sup>3</sup>, after the procedure the volume was reduced to approximately 10 cm<sup>3</sup>.



The blood flow in the uterine suture averaged the initial values 11.93 sm/sec before inhalation; after inhalation this indicator increased to 18.62 sm/sec, which was confirmed statistically ( $p < 0.0001$ ).



The end-diastolic velocity ratio in the ligature area: before inhalation its average value was 4.92 sm/sec, after inhalation this indicator increased to 7.56 sm/sec ( $p < 0.0022$ ).

**Conclusion.** The study showed HOHM inhalation is a promising non-drug method of rehabilitation after organ-preserving operations. Improved blood flow, blood oxygenation, uterotonic effect potentially contribute to the elimination of ischemia in the surgical area due to the normalization of microcirculation and oxygen saturation of tissues, which will have a positive effect on reparative processes in the area of surgical intervention.