



THE IMPORTANCE OF SPERMOGRAM IN THE DIAGNOSIS OF MALE INFERTILITY

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Abstract: *This thesis analyzes the importance of spermogram in diagnosing male infertility. Spermogram is a crucial diagnostic method that assesses the main parameters of seminal fluid to evaluate male reproductive health. The study discusses factors affecting spermogram results, diagnostic criteria, and modern analysis methods.*

Keywords: *Spermogram, male infertility, seminal fluid, diagnosis, sperm quality, reproductive health, motility.*

INTRODUCTION:

Currently, reproductive health remains a significant global health issue. Infertility affects approximately 15% of couples, with male factors accounting for about half of these cases. Therefore, timely detection and accurate assessment of male infertility is an urgent matter. One of the primary diagnostic methods for identifying male infertility is the spermogram — a laboratory analysis of seminal fluid. This test evaluates parameters such as semen volume, concentration, motility, and morphology, which determine male fertility levels. This thesis explores the diagnostic value of spermogram, factors influencing it, and modern evaluation techniques.

Main Body:

1. Causes of Male Infertility and the Need for Diagnosis:

Research in reproductive health shows that 40-50% of infertility cases are related to male factors. Male infertility may be associated with the following main causes:

Endocrine disorders: Imbalance of hormones such as testosterone, LH, and FSH.

Varicocele: Dilation of testicular veins leading to decreased sperm production.

Inflammation and infections: Sexually transmitted diseases, chronic prostatitis.

Genetic and hereditary factors: Klinefelter syndrome, Y-chromosome microdeletions.

Environmental and lifestyle factors: Radiation, heavy metals, stress, smoking, drug abuse, poor nutrition.

2. The Essence and Diagnostic Criteria of Spermogram:



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A spermogram is a laboratory examination of seminal fluid that helps evaluate male reproductive capacity. According to the World Health Organization (WHO) standards, the normal reference values are:

Semen volume: ≥ 1.5 ml

Sperm concentration: ≥ 15 million/ml

Total motility: $\geq 40\%$

Progressive motility: $\geq 32\%$

Normal morphology: $\geq 4\%$

Vitality: $\geq 58\%$

pH level: 7.2-8.0

Analysis is performed under a microscope. Nowadays, modern laboratories employ computer-assisted semen analysis (CASA) systems for precise and automated assessment.

Using spermogram, the following clinical conditions can be diagnosed:

Oligospermia: Low sperm concentration

Asthenospermia: Reduced motility

Teratospermia: Morphological abnormalities

Azoospermia: Complete absence of spermatozoa

3. Factors Affecting Spermogram Results:

Physical factors: Elevated body and testicular temperature negatively impact spermatogenesis.

Nutrition and lifestyle: Antioxidant-rich foods (vitamin C, zinc) improve sperm quality, while smoking and alcohol reduce motility.

Stress and psychological state: Chronic stress disrupts hormonal balance, affecting sperm quality.

Medications and chemicals: Some antibiotics, anabolic steroids, radiation, and toxins inhibit or damage spermatogenesis.

Conclusion:

Based on conducted analyses, spermogram is proven to be the most important and reliable diagnostic method for detecting male infertility. This test evaluates key semen parameters and identifies factors causing infertility. Modern technologies enhance the accuracy of spermogram results, making it a vital tool in medical practice for assessing male reproductive health.

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