

## MALE INFERTILITY THERAPY: ANALYSIS OF STUDIES

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**Annotation.** AndroDoz has shown promising clinical efficacy in the treatment of male infertility. Its antioxidant components have been associated with improved semen quality, including increased sperm concentration, motility, and normal morphology. Clinical studies also report reduced sperm DNA fragmentation and higher pregnancy rates, both via assisted reproductive technologies and natural conception. The absence of adverse effects supports its safety and potential for widespread use in patients with pathozoospermia and idiopathic infertility.

**Keywords:** male infertility, idiopathic infertility, pathozoospermia, antioxidant therapy, AndroDoz

**Infertility** is a relevant and socially significant issue faced by approximately 15% of married couples. According to WHO data, at the beginning of the current century, abnormal ejaculate parameters were found in about half of men in infertile marriages. Observations in recent years have revealed a consistent trend of a gradual decline in sperm count among men in developed countries from 1973 to 2011. Despite the continuous improvement of diagnostic methods, the causes of male fertility decline remain unidentified in many cases, and in 40-60% of cases, male infertility is classified as idiopathic [1].

According to current understanding, the decline in reproductive function in many men with idiopathic infertility may be due to the pathological effects of reactive oxygen species (ROS) on spermatozoa. Under normal conditions, ROS are continuously generated during cellular metabolism, and their presence within

physiological levels supports hyperactivation, the acrosomal reaction, and capacitation of spermatozoa, which are necessary for successful conception. However, under normal conditions, an excess of ROS can be inactivated by the antioxidant system. If their production exceeds the protective capacity of the cell, it can lead to oxidative stress — severe damage to lipids, proteins, cellular membranes, and DNA molecules in spermatozoa. This causes impaired sperm motility and interaction with the oocyte and may lead to errors in the union of genetic material from the father and mother, abnormal embryo development, and early pregnancy loss [2].

Currently, various lifestyle, environmental, and physiological factors have been identified that contribute to the activation of molecular-cellular mechanisms of oxidative stress and the development of infertility in men: smoking, alcohol abuse, exposure to herbicides, fungicides, petroleum distillation products, radioactive radiation, varicocele, obesity, diabetes, stress, inflammatory diseases of the reproductive organs, increased temperature, and others [3].

At the same time, it has been proven that there are antioxidants — vitamins, minerals, amino acids, and other organic compounds — which, by enhancing metabolic processes, activating nuclear-cytoplasmic transport, reducing inflammation, and weakening autoimmune reactions, can reduce oxidative stress. [4] . The intake of preparations containing these substances in infertile men leads to improved sperm parameters, restoration of sperm function, and an increase in pregnancy rates, including when using assisted reproductive technologies (ART) . Despite the large number of publications dedicated to studying the effect of antioxidants on male fertility, insufficient data have been accumulated to provide high-confidence evidence-based recommendations regarding the dosage, frequency, and duration of each antioxidant's use [5]. Since there is a wide range of available preparations containing multiple antioxidants in different dosages for clinical use, their advantages can only be assessed based on the results of conducted clinical studies.

**AndroDoz** contains L-arginine, L-carnitine, L-carnosine, coenzyme Q10, glycyrrhizic acid, zinc, vitamin E, vitamin A, and selenium in doses that, with the recommended regimen of 4 capsules per day, can provide 12-80% of the daily recommended intake [6]. The positive impact of the components in the AndroDoz complex on male fertility has been confirmed by many specialists. According to the results of placebo-controlled studies, the intake of L-carnitine contributed to an increase in sperm concentration and motility in men [7]. Zinc and selenium play an important role in regulating the hormone-producing function of the testes and maintaining adequate levels of testicular testosterone, as well as stabilizing chromatin, ensuring oxygen consumption by spermatozoa, and capacitation. The protective effect of zinc, preventing a decrease in sperm motility and DNA fragmentation, was described by R. Talevi et al., noting that it is primarily observed in men with oligozoospermia [8].

**Conclusion.** The article discusses male infertility, emphasizing the role of oxidative stress and antioxidants in improving fertility. It highlights how factors like lifestyle and environment contribute to oxidative damage, and how antioxidants (e.g., vitamins, minerals, amino acids) can improve sperm quality. AndroDoz, a biocomplex containing key antioxidants, has shown effectiveness in enhancing sperm concentration, motility, and overall fertility. However, further research is needed to establish optimal treatment guidelines.

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