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Original Research Article

ASTASHINE CAPSULES: AN EXCELLENT CHOICE TO IMPROVE SPERM PARAMETER AND FERTILITY.

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Abstract

In 2010, an estimated 48.5 million couples worldwide were infertile according to the World Health Organization (WHO). Infertility is defined as the inability of a sexually active, non-contracepting couple to achieve spontaneous pregnancy within one year. Other surveys have shown that 15% of couples do not achieve pregnancy within one year and seek medical treatment for infertility. Eventually close to 5% will remain unwillingly childless. One in eight couples encounters problems when attempting to conceive a first child and one in six when attempting to conceive a subsequent child.

Astaxanthin is most widely studied and talked about for enhancing endurance, sports recovery, and to support heart, brain and eye health. Recently, clinical trials have been conducted to learn the relationship between astaxanthin and sperm health. Several studies shown that the antioxidant astaxanthin, is supportive of sperm health and in particular sperm motility.

Keywords: Astashine capsules, Sperm quality, Infertility treatment, Astaxanthin.

Introduction

Infertility affects many couples of child-bearing age. A couple is considered infertile if they are unable to get pregnant for more than one year. About one third of infertility cases are attributed to the man. Infertility is caused by many different factors, including irregular development of the testicles, low mobility of the sperm, irregular growth of veins around the testicles, and lack of sperm development among others. However, research suggests a potential new factor affecting male fertility. Damage caused by reactive oxygen species, could play a very large factors in male fertility. When ROS levels exceed your body's normal antioxidant levels it may lead to increased cellular damage. Oxygen species, free radicals, and peroxides are grouped together under the general term reactive oxygen

species. And, over half of the infertile men, according to research, showed higher than normal levels of ROS.

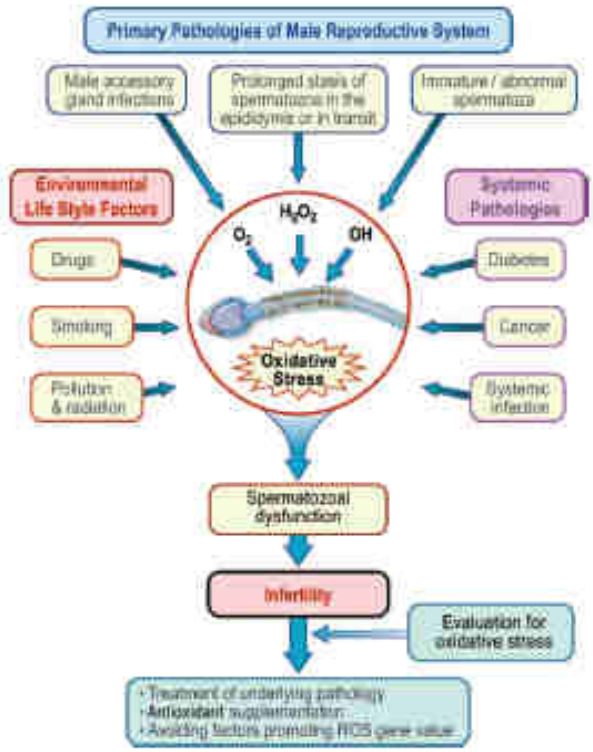
Male Factor Infertility Accounts For up to half of All Cases of Infertility.

Infertility affects both men and women. A WHO survey of 7,273 couples with infertility revealed that in 24% of the cases the infertility was attributable to male factors alone. A further 24% was attributable to both male and female factors. Therefore, the male factor is at least partly responsible in about 50% of infertile couples. Another study indicates infertility affects one man in 20 in the general population

Oxidative Stress Contributes to Male Infertility

Though about half of all infertility cases are at least partially attributable to men, most of the established therapies, such as artificial insemination or *in vitro* fertilization, are aimed at women.Recently, there has been a spate of study results which indicate the possibility that intratesticular oxidative stress may contribute to male infertility. Supporting this theory is a study which reported that men who showed evidence of oxidative stress in their semen also had poor results in tests of basic semen quality and low pregnancy rates . Other evidence suggests that damage from oxidative stress exists in between 30 to 80 % of male infertility patients.

Oxidative Stress and Infertility



Oxidative stress affects the sperm of men in two different ways:

1. Oxidative stress damages the cell membrane of sperm, which could decrease sperm motility and its ability to connect with an oocyte.
2. Oxidative stress causes damage to the DNA of sperm. This could increase the

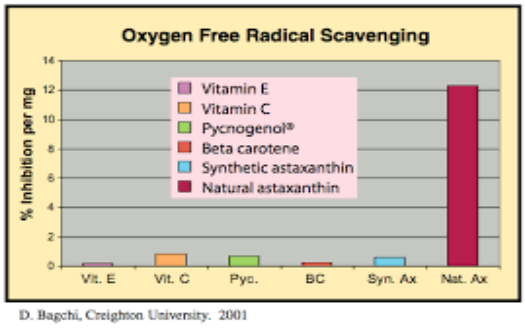
chance of passing along damaged DNA from the man.

According to clinical research, albumin found in sperm has the potential to block free radicals, which prevents them from reaching the sperm. Also, sperm DNA is tightly covered by a protective protein. And this layer can protect the DNA in your sperm, suggests research, which could prevent damage from occurring to your sperms DNA. However, infertile men could be deficient in this protein, possibly leaving the DNA exposed to reactive oxygen species.

Astashine capsules and Fertility: However, when levels of reactive oxygen species are too great, and there are not enough antioxidants, this could potentially lead to damage to cells, Research suggests that powerful antioxidants could reduce damage associated with ROS's by destroying them. One powerful antioxidant, Astaxanthin, has been shown in research to reduce free radical damage associated with male infertility and could help improve sperm motility.

In a clinical study it has been shown that Astaxanthin has the ability to reduce damage associated with free radicals. Thirty infertile men who had suffered infertility for 12 or more months. They administered 16mg/day of Astaxanthin for three months. The researchers noted, the Astaxanthin group showed a significant reduction in reactive oxygen species. Also noted in the Astaxanthin group, was a significant increase in sperm velocity which was different than the placebo group. Total pregnancies and pregnancies per cycle increased in the **Asataxanthin group (54.3% and 23.17%)** than in the placebo group (10.5% and 3.6%). The researchers concluded that the Astaxanthin could potentially be a new method of treatment for male infertility. The latest research shows damage from reactive oxygen species could be a cause of male infertility and, according to research, increasing total antioxidant levels could reduce damage to sperm membranes and its DNA. Powerful antioxidants like Astaxanthin could be potent nutrients that could reduce reactive oxygen species and research suggests, this could improve the function of male sperm count and motility.

Astashine capsules for Sperm Health



Around 40% of infertile men have high levels of free radicals in their semen. This may be due to exposure to environmental toxins, poor diet and unhealthy lifestyle habits such as smoking cigarettes. Sperm also produce high quantities of free radicals as they work hard to traverse the many challenges along their journey to the awaiting egg. These challenges can be anything from simply having to move through the uterus itself, cervical mucus and the thick gelatinous outer layer that surrounds an egg called the cumulus oospores (it takes a lot of energy to break through this layer of cells).

In one double-blind randomized controlled trial to evaluate astaxanthin's use in protecting sperm function and male fertility, thirty men from infertile couples (where the female partner had no fertility issues) received either astaxanthin (16 mg/day) or a placebo for three months. The men provided semen for IUI during the three months and the occurrence of pregnancy was recorded. By the end of three months, sperm motility was significantly increased and semen free radical production was decreased in the astaxanthin group, versus the placebo group. Most noted in this study was the pregnancy rate, which was 54.5 percent for the astaxanthin group compared to 10.5 percent for the placebo group.

Because of the powerful antioxidant actions astaxanthin provides, potential fertility benefits to-

- Enhance reproductive health
- Stabilize blood sugar
- Boost immune system function
- Reduce inflammation of all causes; it is a powerful anti-inflammatory agent
- Improve male fertility by increasing sperm strength, quality, motility and sperm count
- Improve endurance
- Reduce oxidative damage to DNA
- Reduce pain – astaxanthin blocks COX 2 enzymes, which may be potentially supportive for reproductive organ pain

Safety of Astashine Capsules

Astaxanthin has demonstrated safety in numerous human clinical trials. In one open-label clinical study on subjects with metabolic syndrome (n=17) . Astaxanthin (16 mg/day, for three months) significantly raised blood bilirubin ($p \leq 0.05$), potassium ($p \leq 0.05$), and creatine kinase ($p \leq 0.01$), although all three values remained within normal range. Also, astaxanthin significantly lowered the liver enzyme gamma-glutamyl transpeptidase (GGTP; $p \leq 0.05$). Since the researchers noted this enzyme was abnormally elevated in 11 of the 17 subjects at baseline, this astaxanthin effect may have been beneficial. Animal experiments have investigated astaxanthin at levels well over 120 mg/day in human equivalents, without causing apparent harm. Hoffman-La Roche confirmed its safety with extensive tests, including acute toxicity, mutagenicity, teratogenicity, embryotoxicity, and reproductive toxicity.

Suggested Dosage

The doses of astaxanthin used in clinical trials have ranged from 1 mg/day to 40mg/day (with the majority in the 6-12 mg range); single-dose pharmacokinetic studies used up to 100 mg per dose. As a dietary supplement, astaxanthin should be taken along with fats, with or immediately prior to meals, to ensure its optimal absorption.

Summary and Conclusion

It is now concluded that reducing oxidative stress through increased intake of antioxidants might be an effective self-care method for male infertility. For this reason, scientists worldwide are looking at a number of different natural therapies, including the use of powerful antioxidants such as natural astaxanthin. In a clinical study performed at Ghent University(Belgium) in 2005, thirty men with infertility received astaxanthin (16 mg/day)for three months. Sperm analysis results showed astaxanthin supplementation not only decreased reactive oxygen species (ROS), but also increased sperm concentration, linear velocity, and morphology. Most importantly, astaxanthin significantly improved pregnancy rates: 54.5% in the astaxanthin group versus10.5% in the placebo group.

Antioxidants like Astashine capsules are the most important defence against free radical induced infertility. There is a rationale to support the use of antioxidants in infertile male patients with high OS status. However, the amount of scientifically acceptable evidence clearly showing their benefit in controlled human studies . For a nutritional supplement to be considered effective, it should improve sperm parameters and pregnancy rates in at least one blind,

prospective, placebo-controlled trial. The existing evidence supports the use of potent antioxidants like astashine capsules for the management of male infertility.

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