



Fitness Improves Outcomes for Infertile Couples

Assisted reproductive technologies benefit from better health **By Parviz K. Kavoussi, M.D. and Shahryar K. Kavoussi, M.D., M.P.H.**

There is no better field in medicine than fertility care for treating two people at the same time for optimal results. One unique aspect of fertility care is that it requires an in-depth understanding of multiple organ systems and their complex functions between two individuals. When reproductive endocrinologists and reproductive urologists work together, they are able to optimize fertility outcomes for the couple as a whole. Although evaluating and treating both partners optimizes fertility, couples can enhance their fertility with fitness. A fitter couple is a more fertile couple.

Having fertility problems? Data is revealing that combination treatments provide the best outcomes. Forty percent of infertile men with low sperm counts have varicoceles. A varicocele is an abnormal dilation of veins around the testicle; this is harmful to a man's fertility because varicoceles trap heat and damage function. Surgically repairing varicoceles has been shown to improve outcomes.

Some infertile couples ultimately

require in vitro fertilization (IVF) with a specialized process. To help with fertilization, one individual sperm is microscopically injected into each individual egg in the IVF lab, a process known as intracytoplasmic sperm injection (ICSI). Performing varicocele repair in infertile couples that also undergo ICSI increases pregnancy and live birth rates while decreasing miscarriage rates.

Where does fitness enter the discussion? Infertile men can also benefit from counseling regarding lifestyle modifications. A reproductive urologist may advise overweight men

who have a high body mass index to lose weight, as that extra mass invites a host of negatives for fertility: worse sperm parameters, DNA damage to the sperm, worse embryo development, and decreased live birth rates with IVF. Overweight men carry more fat deep in the pelvis and the upper scrotum; as with a varicocele, this accumulation of fat results in a heat effect on the testicular cells, which is bad for sperm production. Weight loss in this instance is one area where good diet,

Twenty percent of infertility cases are attributed solely to the male while 30–40 percent include both male and female factors.

adequate exercise, and overall fitness go a long way in aiding infertile couples.

Fat in infertile men also affects those with non-obstructive azoospermia, a condition where there is no sperm in the semen. This is due to a deficiency in production rather than a blockage in anatomy, and 1 percent of men have this condition. A close relationship between the reproductive endocrinologist and reproductive urologist allows for coordination and enhanced outcomes in this complex case, as couples can still have a child together. A highly specialized surgical procedure called a microdissection testicular sperm extraction (MicroTESE) is required to use the man's sperm and woman's egg. MicroTESE consists of a meticulous microsurgical dissection through the testicle to find small pockets of sperm production, which may then be used along with IVF/ICSI. Again, how does fitness affect this procedure? Men who are fit and, therefore, leaner, carry less fat cells; fat cells convert testosterone into estrogen, and a good testosterone-to-estrogen ratio optimizes the odds of sperm retrieval with MicroTESE.

Many women have questions about the effects of exercise and weight loss on their ability to become pregnant. Research has shown the positive effects of weight loss on the ability to become pregnant and decrease miscarriage rates. For example, recent studies have shown that weight loss improves live birth rates among overweight women dealing with infertility. In overweight and obese women, short-term weight loss improves pregnancy rates with IVF. Furthermore, a study published this year associated an active past year of sports and exercise with favorable IVF outcomes (the women in this particular study participated in mostly light physical activity and sedentary behaviors after embryo transfer, so the effects of an active lifestyle on embryo implantation was difficult to assess). Those with higher pregnancy rates with IVF had a higher level of continuous active living, sports and activity, and total activity indices during the preceding year.

Ultimately, it's very important to evaluate both when couples are struggling with infertility. Often, solutions require teamwork from medical professionals and a combination of treatments, but a great first step in taking charge of fertility is becoming and staying fit. **AFM**