

Exercise and Conception

Fitness levels can impact male and female fertility

BY PARVIZ K. KAVOUSSI, M.D. AND SHAHRYAR K. KAVOUSSI, M.D., M.P.H.

Male fertility, by Dr. P. K. Kavoussi:

Fitness is clearly important for men and women's health, but what about fitness' impact on fertility? Testosterone is believed to be an important factor in a man's fertility. Low testosterone (total testosterone level of less than 300 ng/dl by the endocrine society definition) is very prevalent in infertile men. Forty-five percent of men with no sperm in the semen, without a blockage in the system transporting sperm, have low testosterone and 43% of men with low sperm counts have low testosterone levels. Sperm are thought to like a testosterone rich environment. Low testosterone can impact a man's fertility along with causing other adverse effects such as increased fat mass, decreased muscle mass, decreased exercise tolerance and motivation, decreased bone mass, worsened erectile function, decreased

sex drive, depressed mood, irritability, tiredness, lack of motivation, sleep disturbances, difficulty with concentration, and hot flashes.

So what does this have to do with being fit? Fat cells in the body contain an enzyme called aromatase. Aromatase converts testosterone into estrogen, so the more fat cells there are, the less overall testosterone there is, as it is being converted into estrogen. This makes it tougher to lose fat cells and maintain muscle mass and starts the vicious cycle of turning more testosterone into estrogen and adding more fat. Getting fit can break the cycle and turn things around. By burning fat, more testosterone can be kept as testosterone. However, men taking testosterone as a supplement or for medical replacement can actually adversely affect their fertility. It is also believed that men with more body fat have

more fat in the scrotum that can increase testicular temperatures and that can be bad for sperm production as well.

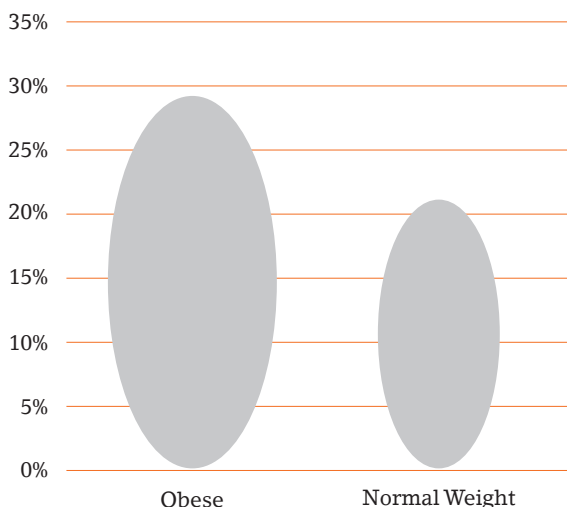
Recently it has also been demonstrated that obese men (BMI ≥ 30 kg/m²) have sperm cells with poorer progressive motility (don't swim as well) as their leaner counterparts. The obese men were also found to have more damaged sperm DNA making these sperm not as good of candidates to fertilize the egg.

Obesity is a worsening epidemic in the United States, where currently one third of all American adults are obese. An increase in the rate of male infertility is paralleled by the increase in obesity. Another recent study looking at previous data from 14 prior studies including nearly 10,000 men has shown that 32.4 percent of obese men have low sperm counts when compared to 24 percent in men with normal weight. The percentage of men

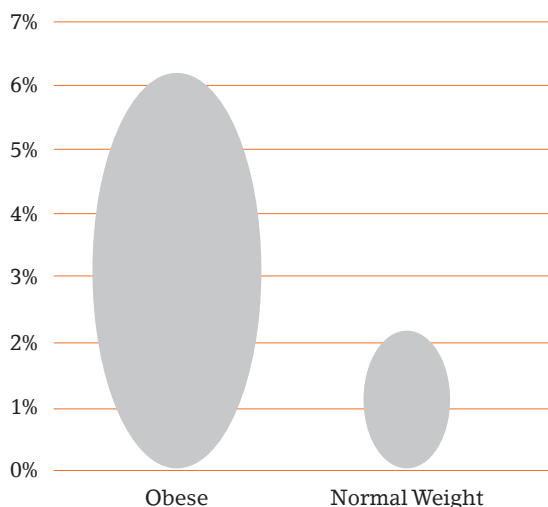
with no sperm in the semen whatsoever increases from 2.6 percent up to 6.9 percent when comparing normal weight men to obese men!

Clearly, obesity is bad for a man's reproductive health. What about being ultra-fit? While the data is scarce and has been understudied in human trials, there is some weak data suggesting that hormonal axis changes and super high levels of fitness may affect fertility. There is also some weak evidence that cycling may worsen a man's fertility, mainly due to the tight-fitting biking shorts and the seated position potentially increasing testicular temperatures. Taking a break every 30 minutes of cycling is recommended, but again, that is based on less than robust data. Considering the level of data out there, I'd err on the side of being fit over not, from a male fertility standpoint.

PERCENTAGE OF MEN WITH LOW SPERM COUNTS BASED ON BODY TYPE

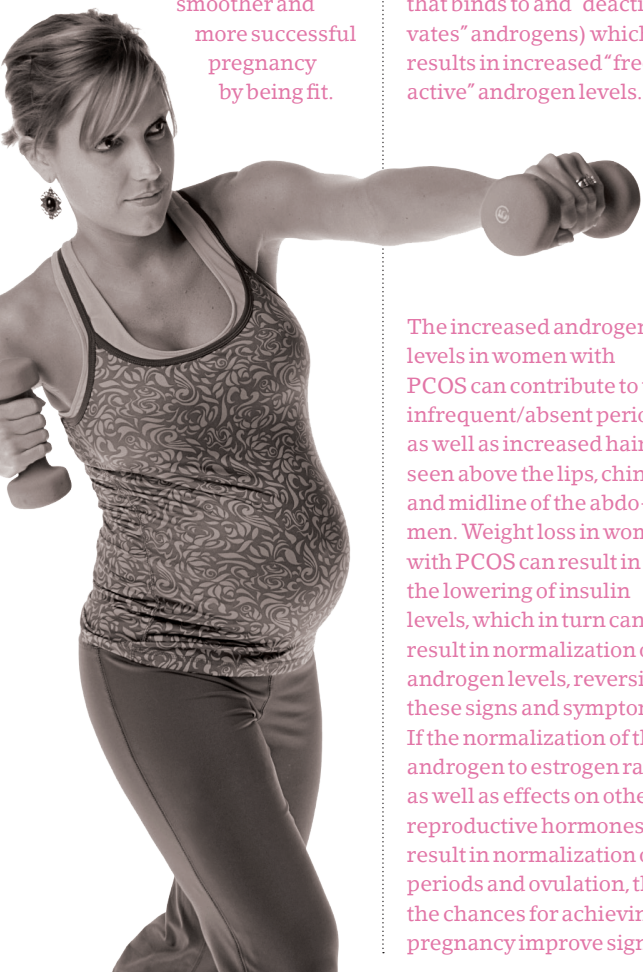


PERCENTAGE OF MEN WITH NO SPERM IN SEMEN BASED ON BODY TYPE



Female fertility, by Dr. S.K. Kavoussi:

Building families and improving health are positive aspects of life that go hand-in-hand. It has been well established that exercise, in general, is beneficial in improving and maintaining one's health status as well as in decreasing the risk of high cholesterol levels, diabetes, and cardiovascular disease. A minimum of 30 minutes of moderate exercise at least three days a week is recommended for weight loss and maintenance. Exercise seems to benefit the mind, body, and soul in a myriad of ways and can even help from a fertility standpoint. Women who are fertile will increase their chances of a smoother and more successful pregnancy by being fit.



Obesity has been found to increase the risk of adverse outcomes such as menstrual irregularity, infertility, and spontaneous miscarriage, in addition to obstetric and neonatal complications. Weight loss in obese women has been shown to decrease the risk of these adverse outcomes.

A subset of obese women can have polycystic ovary syndrome (PCOS), one component of which is infrequent or absent periods, signifying infrequent or absent ovulation. Many women with PCOS have an increased level of insulin, which can stimulate increased levels of androgen by cells in the ovary. Insulin can also decrease levels of sex hormone binding globulin (SHBG is a protein that binds to and "deactivates" androgens) which results in increased "free, active" androgen levels.

The increased androgen levels in women with PCOS can contribute to the infrequent/absent periods as well as increased hair seen above the lips, chin, and midline of the abdomen. Weight loss in women with PCOS can result in the lowering of insulin levels, which in turn can result in normalization of androgen levels, reversing these signs and symptoms. If the normalization of the androgen to estrogen ratio as well as effects on other reproductive hormones result in normalization of periods and ovulation, then the chances for achieving pregnancy improve signifi-

cantly. Studies have shown that if these women lose as little as 5% of their body weight, they have a higher chance of spontaneous, regular ovulation and even pregnancy.

On the other hand, fertility can be negatively affected by very extreme levels of exercise and/or dieting. If too much weight has been lost and the woman's nutrition is minimized, several important neuroendocrine pathways in the body are affected. Ovulation can cease and this is manifested as a lack of periods due to low levels of follicle stimulating hormone (FSH), basal luteinizing hormone (LH), and estradiol levels. Although the threshold of regaining a few pounds in order to re-establish ovulatory cycles may differ among women, this is the safest and most "natural" way to restore the potential for fertility. Administration of FSH and LH injectable medications can facilitate ovulatory cycles as well, but this option carries with it increased cost, possible side effects, and multiple gestation risks.

In summary, the extremes of weight gain and weight loss can each adversely affect fertility. The good news is that lifestyle modifications are effective first-line options. The combination of a regular exercise regimen and balanced diet has been shown to help optimize fertility. **AFM**

ALITE LASER

look good. feel great. be confident.



New Year's Resolution?

Changes Automatic Exercise

Tone and sculpt muscles without lifting a finger!

3 sessions for \$99

Real Results with Green Vac Cellulite Reduction Therapy
First Session \$59

Go to www.AliteLaser.com for more details

Sign Up For A FREE Consultation And Receive 50% Off All Future Laser Hair Removal Treatments

OFFERS EXPIRE 2/15/13

512-328-1555

HAIR REMOVAL & SKIN REJUVENATION
downtown round rock onion creek