

Weight Loss & Conditioning Improve Fertility

By Laurence A. Jacobs M.D.

Reproductive Endocrinologist & Infertility Specialist

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The adverse effects of obesity on fertility and pregnancy outcomes are overwhelming and indisputable. Even with fertility drugs or in Vitro Fertilization (IVF) treatments, pregnancy rates are adversely affected by obesity. Body mass index (BMI) in kg/m^2 is calculated from maternal height and weight data. Morbid obesity is defined as BMI of 40 or greater; obesity is defined as BMI over 30. In obese women with excessive adipose tissue, abnormal hypothalamic and pituitary hormone secretions, as well as abnormal insulin hormone secretions are common, leading to anovulation (lack of ovulation). Obesity is seen in the majority of polycystic ovarian syndrome (PCOS) patients.

Insulin resistance

Most women with PCOS and/or obesity have an endocrine imbalance known as “*insulin resistance*” in which the body doesn’t handle insulin normally. Women with insulin resistance may have normal blood glucose levels, but because the cells of their bodies are resistant to insulin, the body over compensates by producing even higher levels of insulin to keep their blood glucose levels normal. The resulting higher insulin levels lead to more fat storage (obesity) and also disrupt proper ovarian hormone production, resulting in increased male hormones (Androgens), thus preventing proper ovulation. The increased ovarian Androgen levels adversely affect egg quality. Insulin resistance ultimately can produce all the symptoms of PCOS...anovulation, infertility, obesity, and hirsutism.

Obesity and anesthesia risks

Obese patients with significant ovulatory dysfunction often need to resort to IVF. Today almost all IVF centers are freestanding, outside of hospitals. IVF egg retrievals are performed under conscious sedation (moderate sedation/analgesia). The most critical part of patient care is providing for patient safety during the time the patient is sedated. Obese patients are at increased risk for complications such as over-sedation, under-sedation, respiratory insufficiency, hypoxemia (decreased oxygen in the blood), airway obstruction, and aspiration of stomach contents. Aspiration, although rare, is the most common cause of death secondary to conscious sedation.

Proper patient selection involves recognition of risk factors that may place the patient at increased risk for complications and is critical to safe patient care. For this reason, many IVF centers have imposed restriction guidelines for BMI and IVF egg retrievals under conscious sedation. Women with a BMI over 40 (morbid obesity) may not be allowed to proceed to egg retrieval and conscious sedation. Obese women with a BMI 35-39 must get medical clearance from their primary care physician before proceeding to IVF.

Increased pregnancy complications

In addition, many studies confirm that morbidly obese women who do conceive have a significantly increased risk of pregnancy complications and adverse perinatal outcomes. These complications include pre-eclampsia, antepartum stillbirth, caesarean section, shoulder dystocia, meconium aspiration, early neonatal death, diabetes mellitus, and birth defects involving the brain, heart and neural tube defects.

Weight loss 5-10% improves pregnancy rates

When women with PCOS are able to correct the insulin resistance with proper diet, exercise, and/or insulin-sensitizing drugs, such as Metformin (Glucophage), normal ovarian function (ovulation and normal female hormone production) often returns. Use of Metformin, regular exercise and/or weight loss of 5-10% of body weight can each *independently* lead to spontaneous pregnancies as well as dramatically improve pregnancy rates with all fertility treatments, such as Ovulation Induction (OI) and IVF.

Motivation & counseling

The take home message from these studies is that women need to be informed that obesity seriously hampers fertility; they need to be counseled about the serious dangers associated with obesity and pregnancy complications. Obesity is a chronic but treatable condition. Simply telling a patient to lose weight does not work. The problem of obesity can be solved, but requires motivation, counseling, and behavior modification.

X2 Fit & Fertile

Last year, I co-founded a fitness and weight loss program (X2 Fit & Fertile) with George Morrison (developer of the X2 weight vest). The X2 Fit & Fertile program was for my overweight infertility patients willing to make a serious commitment to using proper nutrition and physical conditioning to aid their fertility therapy. For a detailed look at this fitness program see last quarters **FERTILITY TODAY** magazine article by me and George Morrison. (**Fitness Misconceptions, A Fitness Plan & A Big Important Fact to Improve Fertility**)

Remember, as little as a 5-10% weight loss can dramatically improve fertility treatment pregnancy rates. I have personally battled weight problems my entire life. Not long ago, I found success in conditioning and weight loss with the help of the X2 Vest. www.X2Vest.com The X2 Vest is an

adjustable weight vest that can easily be worn in the gym, outdoors, or just around the house. The X2 Vest works safely and effectively allowing the individual to add weight to their CORE (the mid-section of the body) in one-pound increments. Adding weight to your body requires more muscle fibers to be called into action, thus requiring more calories to be burned, which allows muscle development and weight loss, and most importantly in my patients ... potentially improving pregnancy rates. The X2 Vest simply serves as a *catalyst* to motivate patients to exercise. **Any form of regular exercise & conditioning should be able to accomplish the same goals.**

For women who actively manage their obesity or PCOS via good nutrition, proper exercise, and help from a Reproductive Endocrinologist with expertise in the latest treatments, the chances of conceiving are extremely good.



Laurence A. Jacobs, MD completed medical school and his residency in obstetrics and gynecology at Northwestern University, and then completed a two-year fellowship in reproductive endocrinology and infertility at the Mayo Clinic in Rochester, MN in 1988. Since 1995 he has been the Section Head: Division of Reproductive Endocrinology at Lutheran General Hospital, Park Ridge, IL. Dr. Jacobs authored numerous articles for journals and books, and has a monthly column called "Focus on Fertility" in the *Pioneer Press* newspapers. He has been honored as a 'top doctor' by Castle Connolly in all its editions of *America's Top Doctors* and *Chicago's Top Doctors* (2001-2007). *Ladies' Home Journal* chose him as one of America's 'top infertility doctors' in 2002. *Chicago Magazine* chose him as a 'top infertility doctor' in the Chicago area in 2004 and 2006.

Contact: Laurence A. Jacobs M.D.

Laurence.Jacobs@integramed.com

www.TheInfertilityDoctor.com