

ADVANCES IN UROLOGY

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Comprehensive Programs Focus on Male Reproductive Health

For more than three decades, the Departments of Urology at NewYork-Presbyterian have contributed greatly to the growing body of knowledge about men’s sexual and reproductive health. Physicians at the Center for Male Reproductive Medicine and Microsurgery at NewYork-Presbyterian/Weill Cornell Medical Center and the program for Male Reproductive and Sexual Medicine at NewYork-Presbyterian/Columbia University Irving Medical Center offer the most advanced diagnostic technologies and treatment strategies to address male infertility, sexual dysfunction, and low testosterone.

Center for Male Reproductive Medicine and Microsurgery

Marc Goldstein, MD, is fond of saying, “I have a son and two granddaughters, but every time I get a call that one of my couples who I’ve treated is pregnant, it feels to me like it’s one of my own. So, when anyone asks how many children I have, I tell them I have 5,000!”

That is no idle claim for Dr. Goldstein, Director and founder of the Center for Male Reproductive Medicine and Microsurgery at Weill Cornell, who is internationally renowned for his pioneering work in vasectomy reversals and seminal contributions to the field of male microsurgery. Throughout his career, he has performed more than 1,000 microsurgical vasovasostomies and vasoepididymostomies. Dr. Goldstein’s technique of microsurgical vasectomy reversal yields the highest reported sperm return

and pregnancy rates. And he was the first American surgeon to be trained in, and perform, the Chinese method of no-scalpel vasectomy, which he subsequently taught to several generations of urology residents and practicing urologists. Today this technique is considered the gold standard approach of vasectomy.

“When I was a Fellow at Rockefeller University, there were no specialists in male reproductive medicine and microsurgery,” says Dr. Goldstein. “The major textbook of urology, then called *Campbell’s Urology*, put the chapter on male infertility at the very end. We know it takes one sperm and one egg to conceive, so logic dictates that half of the time the problem is with the female and half of the time it’s with the male.

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Male Reproductive and Sexual Medicine

Peter J. Stahl, MD, gravitated to the subspecialty of reproductive and sexual medicine for a simple reason. “This field provides an opportunity to make a big difference in someone’s life,” says Dr. Stahl, Director of Male Reproductive and Sexual Medicine at NewYork-Presbyterian/Columbia. “My job is to help people have sex and to have kids. Those are tremendously important quality-of-life issues for a lot of men, and problems in either of those arenas are particularly distressing. As it turns out, most of those problems are highly manageable.”

After completing his urology residency at NewYork-Presbyterian/Weill Cornell, Dr. Stahl pursued fellowship training in male reproductive medicine and microsurgery under the mentorship

of Dr. Marc Goldstein and Dr. Peter Schlegel at the Center for Male Reproductive Medicine and Microsurgery at Weill Cornell. He then gained additional training in male sexual medicine and penile prosthetic surgery at Memorial Sloan Kettering Cancer Center.

Dr. Stahl’s practice is focused on the medical and surgical treatment of male subfertility, sexual dysfunction, and low testosterone, with special interest and training in minimally invasive and microsurgical techniques for surgical sperm retrieval in obstructive and non-obstructive azoospermia, microsurgical varicocele-ctomy, vasectomy, vasectomy reversal, implantation of testicular and penile prostheses, treatment of Peyronie’s disease, and testosterone replacement therapy.

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NewYork-Presbyterian Urology ranks #8 in the nation.

Center for Male Reproductive Medicine and Microsurgery *(continued from page 1)*



Dr. Marc Goldstein

Although, when you look at the statistics, it breaks down that a third of infertility is pure male – a fact often ignored – a third is pure female, and the other third is a mixture of female and male.” Notably, for over 25 years, Dr. Goldstein authored the key chapter on surgery for male infertility in *Campbell-Walsh Urology*.

Dr. Goldstein joined the Department of Urology at Weill Cornell in 1982, establishing the Center for Male Reproductive Medicine and Microsurgery, the first university center in the United States devoted exclusively to male infertility treatment and research, and the first to join with the *in vitro* fertilization program at Weill Cornell to provide coordinated, collaborative care for the infertile couple.

A unique aspect of the Center is its close collaboration with the Ronald O. Perelman and Claudia Cohen Center for Reproductive Medicine of Weill Cornell Medicine and NewYork-Presbyterian – which specializes in female infertility – under the direction of **Zev Rosenwaks, MD**. “Unlike other programs that just focus on the female and only bring in urologists if they need to find sperm, we meet monthly and discuss the couples that we share,” says Dr. Goldstein. “Providing coordinated care for the couple, rather than isolating the males and the females, is one of the real keys to our ability to help couples that can’t be helped in most other centers.”

The Center’s team is comprised of five urological specialists in andrology with expertise in the full range of male reproductive medical approaches and surgical procedures. These include microsurgical retrieval of epididymal sperm, microsurgical varicocelectomy, vasectomy, vasovasostomy, assisted reproductive techniques, fertility preserving hernia repair, electroejaculation, as well as treatments for erectile dysfunction and Peyronie’s disease.

“**Dr. Peter Schlegel**, who is Urologist-in-Chief at Weill Cornell and a member of the Center, developed a technique for men who have no sperm because they’re not producing any,” says Dr. Goldstein. “He found that by using a microscope, he could find tubules that were a little bit thicker than the ones inside the testicle that lack sperm. The thicker tubules tend to have sperm. Dr. Schlegel has among the best success rates in the world using this approach.”

Of his own contributions to the field, Dr. Goldstein is proud of the technique he devised for repairing varicoceles and has performed over 4,000 microsurgical varicocelectomies with the lowest failure

and complication rates reported in the peer-reviewed literature. In addition, one of the benefits of this repair is an increase in a man’s own testosterone levels, which is a long-term health benefit. Dr. Goldstein, who also developed a new method of fixing blockages of the epididymis, says, “The success rate used to be dismal, but now we have an 80 percent return of sperm rate and a 50 percent pregnancy rate.”

The vasectomy reversal developed by Dr. Goldstein has success rates of over 95 percent for return of sperm, and he also developed a technique for the microsurgical removal of malignant testicular tumors without having to remove the whole testicle. In recognition of his pioneering microsurgical work, Dr. Goldstein received the 2016 Distinguished Surgeon Award of the Society of Reproductive Surgeons at the 2016 Annual Meeting of the American Society of Reproductive Medicine.

“We’ve been asked why we bother to evaluate the infertile male as long as he has any sperm and there are several very good reasons,” says Dr. Goldstein. “First, the incidence of genetic abnormalities is 30 to 100 times higher in the infertile male. The most common ones are Klinefelter syndrome, which is 47,XXY, in which a man has an extra X chromosome. There is also a much higher incidence of testis cancer. Research shows that the incidence of testicular cancer in men who have male factor infertility is 3 to 10 times higher than men the same age who don’t have infertility.”

“Every year I pick up three or four cases of testicular cancer in men that have already gone through IVF because they were told they didn’t need to see a urologist as they had enough sperm to get pregnant,” continues Dr. Goldstein. “If discovered early, the chances for cure and for preserving fertility are much higher. This is another reason why urologists should have patients with low sperm counts checked.”

Training the Next Generation

Over the years the Department of Urology has graduated more than 20 fellows in male reproductive medicine and also provides special training for international physicians. Eager to use each clinical encounter as a teaching opportunity, Dr. Goldstein gladly shares his expertise through informative discussions with residents and fellows at all levels of training. In recognition, the American Society of Reproductive Medicine awarded Dr. Goldstein the Kavoussi Family Outstanding Teacher Award at the ASRM 2017 Scientific Congress. Dr. Goldstein, who has authored or co-authored more than 300 journal articles and book chapters on male infertility, also wrote *Surgery of Male Infertility*, one of the first textbooks to focus directly on this subject.

Despite the accolades, Dr. Goldstein admits to being a bit “old school” in some ways. “Ninety percent of the time I can make a diagnosis and come up with a treatment plan by eliciting a good history and performing a good physical exam,” he says. “That’s one of the nice things about my field. The male reproductive tract is particularly amenable to examination as it is outside the body rather than inside as the female organs are. By talking to a patient and examining him, and then doing some of the simple semen testing myself, I can usually figure out what’s going on. Every year we help more and more couples to conceive than we ever could before. It is very gratifying.”

For More Information

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Male Reproductive and Sexual Medicine (continued from page 1)

According to Dr. Stahl, some form of sexual dysfunction affects roughly 20 to 30 percent of men over 40, about 30 to 40 percent of men over 50, and 40 to 60 percent of men over 60. “It is actually a huge public health issue that impacts the baby boomers who will need access to expert care,” he says.

A Focus on Male Infertility

Dr. Stahl’s particular interest centers on male infertility. “There have been recent articles on the declining semen quality in Western civilizations that is affecting men and their reproductive capacity,” he says. “There has also been increasing awareness that men are half of the equation in an infertile couple. The assumption that infertility is a female issue is just flat-out wrong. Men cause or contribute to 50 percent of couple-related infertility. So, the increasing recognition that men play a role in fertility, the societal shift in semen quality that we’re seeing for unclear reasons, and the willingness of men to recognize that they may be part of the problem and to seek treatment have made this an exciting time to be a male reproductive urologist.”

Male infertility in many cases, explains Dr. Stahl, is important to evaluate as it can be a sign of a medical or health-relevant issue. “Advanced reproductive technologies have improved and the instinct of a couple having difficulty in conceiving a child is to first seek the care of a reproductive endocrinologist. In some cases, this can result in bypassing the male evaluation and moving quickly to use of assisted reproductive technologies such as *in vitro* fertilization. While this approach is often effective, it omits the evaluation and treatment of potentially correctable male issues and limits a couple’s options.”

Initially, Dr. Stahl completes a comprehensive evaluation of subfertile men to see if there is something correctable. “This could be something as simple as stopping cigarette smoking or losing weight, which we know improves male reproductive health,” he says. “Or it can be recognition of a treatable physical condition, the most common of which is a varicocele that can impair sperm quality.”

While many urologists are trained in traditional varicocele repair, Dr. Stahl uses a microsurgical approach that is proven to have a lower recurrence rate and a lower side effects profile when compared to more conventional surgery.

The Severely Infertile Male

“In a very similar light, when you start getting into severe male infertility – very low sperm counts or azoospermia, where zero sperm is detectable in the ejaculate – it becomes increasingly important to use appropriate diagnostic algorithms and advanced surgical techniques to optimize outcomes,” says Dr. Stahl. “You want to make sure, for example, the appropriate genetic testing is done to identify if a patient has a genetic issue that might affect the health or fertility of his offspring. Action is taken to either ameliorate that or at least to counsel the patient about the potential impact of a genetic issue.”

In the severely infertile male population, a simple blood test will identify a set of genetic issues. If Dr. Stahl finds an abnormality, he either provides counseling or calls in a Columbia specialist in genetic medicine.

“An important part of this process is interdisciplinary collaboration with reproductive endocrinology colleagues at Columbia to improve



Dr. Peter J. Stahl

sperm quality and to enable natural conception, to facilitate the use of less-invasive forms of assisted reproduction, or to enhance outcomes of *in vitro* fertilization cycles. All of those things are possible when you take a team approach to infertility.”

As Dr. Stahl explains, “While there are a number of types of surgical sperm retrieval procedures available, if a patient with non-obstructive azoospermia, the most severe variant of male factor infertility, is producing sperm in just a couple of small randomly distributed areas in one or both testicles, the ability to use a microscope and carefully dissect through each testicle and find the one area that looks the most promising is a really effective and important approach.”

The difference is clinically important. Conventional sperm retrieval techniques find sperm in roughly 20 to 25 percent of men with non-obstructive azoospermia, whereas advanced microsurgical techniques allow the physician to find sperm 45 to 50 percent of the time. “That 20 to 25 percent increase in the likelihood of finding sperm can be the difference between a patient having and not having his own biological children.”

The ability to differentiate between non-obstructive azoospermia and obstructive azoospermia is also critical, says Dr. Stahl. “A non-specialized urologist will be very successful in doing a sperm retrieval for somebody with an obstruction, but an individual with a very severe sperm production issue should be triaged to a tertiary care center where the appropriate procedures can be performed in conjunction with an IVF team,” he says.

Dr. Stahl notes that reproductive and sexual conditions also may be associated with other health-relevant issues. “The man who comes in with erectile dysfunction shouldn’t just be given a prescription for Viagra, but should be tested for cardiovascular disease or testosterone deficiency,” he says. “Give him the Viagra, but also make sure you don’t miss an opportunity to do something that’s going to be important for his life or health.”

For More Information

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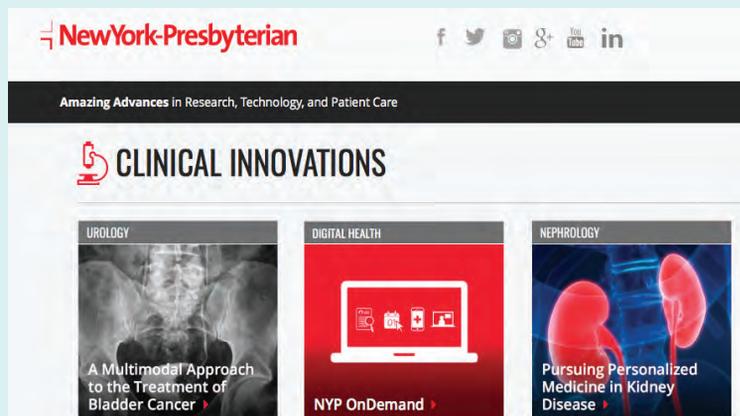
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The screenshot shows the top portion of the 'Amazing Advances in Research, Technology, and Patient Care' website. At the top is the NewYork-Presbyterian logo and social media icons for Facebook, Twitter, Instagram, Google+, YouTube, and LinkedIn. Below the navigation bar is a dark header with the text 'Amazing Advances in Research, Technology, and Patient Care'. The main content area is titled 'CLINICAL INNOVATIONS' with a magnifying glass icon. There are three featured articles: 1. 'UROLOGY: A Multimodal Approach to the Treatment of Bladder Cancer' with an image of a pelvic scan. 2. 'DIGITAL HEALTH: NYP OnDemand' with an image of a laptop displaying various icons. 3. 'NEPHROLOGY: Pursuing Personalized Medicine in Kidney Disease' with an image of two kidneys.