

# Subspecialty training in andrology

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The field of andrology has evolved significantly in both Europe and the United States over the past 30 years. Although andrology fellowship training programs in these two regions share some common aspects, there are substantial differences as well. Andrology is a broader field in Europe, with andrology fellowship training incorporating topics such as prostate disease, testicular cancer, and genitourinary infection/inflammation. In the United States, these issues are more commonly taught during urology residency, with andrology fellowship training focusing more commonly on male sexual and reproductive health. Finally, European and American fellowship training is compared and contrasted in terms of certification and accreditation procedures, with a look toward the future in each region. (*Fertil Steril*® 2015;104:12–5. ©2015 by American Society for Reproductive Medicine.)

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Clinical training in male infertility is most commonly part of andrology training, although the specific clinical conditions covered often differ between training programs and between Europe and the United States. All training includes male reproduction and thus covers male infertility, which is the emphasis of this manuscript. However, most andrology training also includes male sexual dysfunction, which is intimately linked to reproduction. Sexual dysfunction encompasses a variety of conditions including erectile dysfunction, Peyronie disease, priapism, ejaculatory disorders, such as premature ejaculation and retrograde ejaculation, and disorders of sexual desire. Because both sexual dysfunction and male infertility require a proper hormonal milieu, andrology training also encompasses male hypogonadism and hormone replacement. The management of andrologic problems may require medical management and/or surgical management. Owing to

differences in background training, some andrologists manage medical andrologic conditions and refer cases requiring surgery to others. In the United States, most, but not all, andrologists are urologists. Moreover, there are medical andrologists, the majority of which subspecialists are trained in internal medicine and endocrinology. As described subsequently, basic andrology training in the United States is part of urologic residency training requirements. Urologists that want to specialize in male infertility go on to post-residency fellowships in male reproduction/andrology. European training in andrology is filled by a wider variety of specialists that may participate in andrology certification training. While this series focuses on infertility training, it is important to realize that andrology training in Europe covers all andrology-related topics including sexual dysfunction, testis and prostate tumors. In the United States, general urology residencies cover benign and malignant diseases

of the prostate as well as testicular cancer, and therefore patients with these conditions are commonly managed by general urologists or, for the malignant diseases, urologists that are fellowship trained in urologic oncology.

## HISTORY OF MALE INFERTILITY TRAINING United States

Organized reproductive medicine in the United States can be traced back to the founding of the American Society for the Study of Sterility in Chicago, Illinois, June 12–13, 1944 (1). This group was the precursor to the American Society for Reproductive Medicine. Twenty-five physicians attended that meeting, and the scientific program was composed of three sessions covering a breadth of male and female reproductive topics. The final session, which was dedicated entirely to male reproduction, was entitled, "Semen Examination and Evaluation." The attendees of the meeting consisted predominantly of obstetricians/gynecologists, urologists, and primary care physicians. Walter Williams, M.D., widely regarded as "the founding father" of the American Society for the Study of Sterility, was neither a urologist nor an obstetrician/

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gynecologist, but rather, he was trained as a primary care physician. Dr. Williams is credited with emphasizing the importance of evaluating both the male and the female partners in infertile couples. For physicians interested in practicing andrology at the time, meetings such as those held by the American Society for the Study of Sterility were a critical source of andrologic education and training.

Andrology progressed as a distinct scientific field of study over the next several decades, in large part owing to increasing interest in the agricultural science of animal husbandry/breeding. However, clinical training for physicians wishing to practice andrology lagged behind significantly. Pioneers in clinical andrology attained their training through a number of creative mechanisms, including “ad hoc” elective time spent with medical endocrinologists, obstetrician/gynecologists, and microsurgeons. Many of these early andrologists also relied heavily on self-instruction. A large percentage of these individuals were committed to advancing the emerging field not only clinically, but also within the realm of basic science. Some pursued basic science training through programs such as the American Urological Association Research Scholars program (precursor to the American Foundation for Urologic Disease Research Scholars program and the Urology Care Foundation Research Scholars program). Some of these individuals subsequently established their own basic science laboratories, and others forged productive relationships with basic scientist partners in their quest to characterize normal male reproduction, elucidate the pathophysiologic mechanisms underlying impaired male reproductive health, and discover new medical and surgical therapeutic modalities to treat the infertile male.

In the 1980s, the first formally designated andrology fellowships were established in the United States. These programs were typically 1–2 years in length and covered the full extent of clinical male reproductive medicine and surgery, as well as male sexual health. Most of these early fellowships remain in existence, and some are still headed by their founding fellowship directors. Although many of the initial andrology fellowship graduates pursued employment in private practice settings, a high percentage of fellowship graduates took faculty positions at academic institutions. Demand was high for these formally trained individuals to staff academic urology departments, train urology residents in this emerging field, and provide male partner care as reproductive medicine overall continued to grow as a medical discipline. Through the 1990s and into the 2000s, the number of andrology fellowship programs continued to grow gradually. These programs have been characterized by heterogeneity in terms of clinical patient volume, surgical caseload, and the presence or absence of a year of bench research. Furthermore, programs also exhibit variability regarding the percentage of fellowship training dedicated to male reproductive health versus male sexual health. It is worth noting that while sexual dysfunction is sometimes linked to impaired male reproduction, the overall patient population suffering from male infertility is quite different from the population suffering from sexual dysfunction. The issues facing these patient populations are often quite disparate as well.

The next major advancement in andrology training in the United States came in 2007 with the establishment of the

“Andrology Fellowship Match Program,” which was developed by a group of andrology fellowship program directors and coordinated through the American Urological Association. Since its inception, there has been significant variability in the number of applicants submitting a rank list per year (range 3–15, median 8, mean 7.5). There has also been substantial variability in the number of programs submitting a rank list per year (range 3–15, median 5.5, mean 6.1). Thirty-eight applicants have secured andrology fellowship positions through this program. Thirty-one of these individuals are male, and seven are female. To date, the cumulative percentage of men submitting rank lists who matched is 57.4% (31/54), whereas the cumulative percentage of women submitting rank lists who matched is 87.5% (7/8). There is no doubt that a higher overall number of male versus female urology residents apply for andrology training, but the exceptionally high placement of female candidates into fellowship programs should be encouraging to female urologists considering andrology fellowship training. The field of andrology is growing steadily in the United States, based on the number of applicants and the number of institutions offering andrology fellowships. In 2007, the first year of the match, four applicants and four programs participated. In 2014, the year of the most recent match, eight applicants and ten programs participated. It is important to note that there are some programs offering andrology fellowship training in the United States that do not participate in the match. A full listing of programs participating in the current andrology match is provided online by the American Urological Association at [www.auanet.org/education/residents-fellowships.cfm](http://www.auanet.org/education/residents-fellowships.cfm).

The Accreditation Council for Graduate Medical Education (ACGME) provides oversight and accreditation for all United States residency programs, including urology and obstetrics and gynecology. Urology fellowships in the United States are, in contrast, highly heterogeneous in their oversight, certification, and accreditation. “Pediatric Urology” and “Female Pelvic Medicine and Reconstructive Surgery” fellowships are both accredited by the ACGME, which provides comprehensive oversight to participating programs. The ACGME stipulates criteria for specific aspects of these fellowships, including the length and scope of training, qualifications of the program director and participating faculty, eligibility criteria for prospective fellows, the educational program (including the curriculum, procedural skills, core competencies, and medical knowledge), and fellow supervision criteria. “Urologic Oncology” fellowships are accredited by the Society of Urologic Oncology, and “Endourology” fellowships are certified by the Endourology Society. In brief, these two organizations monitor the quality of their respective fellowships in a fashion overall similar to the oversight provided by the ACGME. The Society of Genitourinary Reconstructive Surgeons is now in the process of implementing standards for “Genitourinary Reconstructive Surgery” fellowship “qualification” and “requalification,” which include parameters similar to those mentioned above. At this time, andrology fellowships in the United States are neither accredited by the ACGME nor are they accredited, certified, or qualified by any professional society. However, in most instances, these fellowships are certified by their respective institutions, which

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