



Atrium Health
Wake Forest Baptist

Urology

Research & Clinical Update

MESSAGE FROM THE CHAIR

Dear Colleagues,

Best wishes to you and your families for 2023! As a new year begins, we are delighted to update you on our latest clinical and research news from Atrium Health Wake Forest Baptist Urology. The clinical work of our faculty is complemented by their research endeavors along with the research of our NCI-designated Prostate Cancer Center of Excellence, Urology Research Laboratory and the Wake Forest Institute for Regenerative Medicine. In this issue, we share highlights of our Men's Health program, including related clinical trials and translational research of interest, especially in the area of Klinefelter syndrome research. In other research news, we have study updates in the treatment of pain management for interstitial cystitis and more information on our emerging research focus for kidney disease and geriatric urinary incontinence. As our service area continues to grow, we have added six new faculty to provide clinical care with plans to hire more this year.

After a pandemic pause, our annual education activity Urology Today will be offered in the fall and we expect a good turnout in Asheville, NC. Please keep a check on the website for the announced dates and make plans to join us.

For us at Wake Forest Baptist, innovation is viewed as an essential element of a learning health system. This belief extends throughout all we do in the urology department to provide the latest clinical therapies to our patients.

We look forward to a new year of continued growth and positive challenges, and wish the same for you.

Anthony Atala, MD
William H. Boyce Professor and Chair

Innovations in Urology

The Kidney: Pursuit of the "Holy Grail" in Regenerative Medicine

While kidney transplantation is currently the most effective therapy for end-stage renal disease, Urology Department physician scientists and Wake Forest Institute for Regenerative Medicine (WFIRM) colleagues are looking for better options due to donor organ shortages.

"Recycling" Discarded Organs

One strategy is to use discarded human organs as a platform for organ engineering. The process starts by removing all cells, leaving the "shell" to create a scaffold. Crucial microvessels, vital to filtering contaminants, are left intact after the scrubbing process, while growth factors, needed to maintain function, are also retained. The patient's own cells can then be expanded and used to repopulate the scaffolds.

3D Bioprinting Replacement Kidneys

Another strategy is to print replacement organs using a 3D bioprinter. Our scientists have successfully bioprinted muscle, bone and cartilage that, when implanted in animals, developed a system of nerves and blood vessels. They are currently working on more complex structures, like kidneys.

Partial Augmentation Strategy

Researchers have shown the feasibility of bioengineering vascularized functional renal tissues for kidney regeneration, developing a partial augmentation strategy that may be more practical than creating whole organs. This also includes cell and molecular therapies. By isolating normal cells from end-stage failure kidneys, scientists have shown the cells can be expanded,

grown outside the body, and then delivered within a gel solution into the patient. This demonstrated positive functional improvement and structural recovery of the kidney. Currently entering Phase III FDA approved human clinical trials, this therapy is aimed at preventing patients with kidney failure from progressing to dialysis and transplantation.



Research News

Evaluation of a Novel Multimodal Opioid-Free Postoperative Pain Management Pathway Following Robotic-Assisted Radical Prostatectomy: A Pilot Series in the Veteran Population

Bercu C, Hemal A, Badlani G, Dutta R, Pathak R

Veterans have a disproportionate risk of opioid misuse and abuse compared to the civilian population. Managing acute postoperative pain without opioids is of the utmost importance for the Veteran patient population. This pilot study evaluated a novel multimodal opioid-free pain control regimen by assessing postoperative pain in Veterans undergoing robotic-assisted radical prostatectomy (RARP). Data was collected from 57 patients, 33 treated with opioids and 24 with the opioid-free pathway. There were no significant differences in demographics ($P > .05$) between cohorts. Researchers concluded that this treatment may be effectively utilized for postoperative pain and a randomized control clinical trial in the general population is warranted.

Clin Genitourin Cancer. 2022 Oct;20(5):e419-e423. doi: 10.1016/j.clgc.2022.05.002. Epub 2022 May 11

Unplanned Conversion From Partial to Radical Nephrectomy: An Analysis of Incidence, Etiology, and Risk Factors

Tsivian M, Joyce DD, Packiam VT, Lohse CM, Boorjian SA, Potretzke TA, Chow GK, Leibovich BC, Sharma V, Thompson RH

Conversions from partial to radical nephrectomy are uncommon and reports on this topic are rare. In this study, the researchers presented a detailed analysis of conversions from partial to radical nephrectomy in a single-institutional contemporary experience and provide an analysis of preoperative risk factors. A total of 168 cases (6.1% of all partial nephrectomies) were identified and matched on tumor size, year of surgery, and surgical approach to 168 controls. Conversion rates decreased from 13% in 2000-2003 to 4% in 2012-2015. Oncologic considerations, such as concern for upstaging and positive margins, were the most cited (56%) reasons for conversion. Preoperative characteristics such as hilar, posterior, and middle locations were significantly associated with conversions after controlling for tumor size, and offer guidance for operative planning and patient counseling.

J Urol. 2022 Jun 24;101097JU0000000000002837. doi: 10.1097/JU.0000000000002837

Morphometric and immunohistochemical analysis as a method to identify undifferentiated spermatogonial cells in adult subjects with Klinefelter syndrome: a cohort study

Deebel NA, Soltanghorae H, Bradshaw AW, Abdelaal O, Reynolds K, Howards S, Kogan S, Sadeghi MR, Atala A, Stogner-Underwood K, Sadri-Ardekani H

The researchers studied the prevalence of spermatogonia in adult subjects with Klinefelter syndrome (KS) using MAGE-A4 and UCHL1 (PGP9.5) immunohistochemistry as markers for undifferentiated spermatogonial cells. The authors aimed to compare this method to the gold standard of hematoxylin and eosin (H & E) staining with histologic analysis in the largest reported cohort of adult subjects with KS. CONCLUSION(S): The authors report a cohort of adult subjects with KS undergoing analysis for the presence of undifferentiated spermatogonia. UCHL1 and MAGE-A4 immunostaining appear to be an effective way of identifying undifferentiated spermatogonia in testicular biopsy specimens of subjects with KS. Despite observing deterioration in the testicular architecture, many patients remain positive for undifferentiated spermatogonia, which could be harvested and potentially used for infertility therapy in a patient with KS who is azoospermic and has negative testicular sperm extraction results.

Fertil Steril. 2022 Sep 15;S0015-0282(22)00464-2. doi: 10.1016/j.fertnstert.2022.07.015. Online ahead of print

Anesthetic Bladder Capacity is a Clinical Biomarker for Interstitial Cystitis/Bladder Pain Syndrome Subtypes

Plair A, Evans RJ, Langefeld CD, Matthews CA, Badlani G, Walker SJ

To further examine anesthetic bladder capacity (BC) as a biomarker for interstitial cystitis/bladder pain syndrome (IC/BPS) patient subtypes, researchers evaluated demographic and clinical characteristics in a large and heterogeneous female patient cohort. This was a retrospective review of data from women ($n = 257$) diagnosed with IC/BPS who were undergoing therapeutic bladder hydrodistention. Assessments included medical history and physical examination, validated questionnaire scores, and anesthetic BC. These data provided additional evidence that higher BC correlates with higher numbers of non-bladder-centric syndromes while lower BC correlates more closely with bladder-specific pathology. Taken together, the results support the concept of clinical subgroups in IC/BPS.

Urology. 2021 Dec;158:74-80. doi: 10.1016/j.urology.2021.07.009. Epub 2021 Jul 22

Pulsed Electromagnetic Field Therapy for Pain Management in Interstitial Cystitis/Bladder Pain Syndrome: A Proof-of-Concept Case Series

Wolff DT, Ross C, Lee P, Badlani G, Matthews CA, Evans RJ, Walker SJ

The objective was to evaluate the efficacy of pulsed electromagnetic field (PEMF) therapy for symptom and pain management in women with non-bladder centric interstitial cystitis/bladder pain syndrome (IC/BPS). METHODS: Women with non-bladder centric IC/BPS and a numeric rating scale score for pelvic pain ≥ 6 underwent twice-daily 8-minute full body PEMF therapy sessions for 4 weeks. The primary outcome metric was a reduction in pelvic pain score ≥ 2 points. A 7-day voiding diary (collected at baseline and conclusion), 3 validated symptom scores, and the Short Form-36 Quality of Life questionnaire (completed at baseline, conclusion of treatment, and 8-week follow-up), were used to assess secondary outcomes. Treatment effects were analyzed via Wilcoxon-signed rank test; $P < .05$ was considered significant.

The study showed that whole body pulsed electromagnetic field therapy is an alternative treatment option for women with chronic bladder pain syndrome that warrants investigation through comparative trials.

Urology. 2022 Sep;167:96-101. doi: 10.1016/j.urology.2022.05.021. Epub 2022 May 28

Mesh Exposure Following Vaginal Versus Laparoscopic Hysterectomy at the Time of Sacrocolpopexy

Woodburn KL, El Haraki AS, Sokol AI, Gutman RE, Matthews CA

Researchers compared vaginal mesh exposure rates, adverse events and composite failure within 1 year postoperatively in patients who undergo vaginal hysterectomy with vaginal mesh attachment (TVH) versus laparoscopic hysterectomy with abdominal mesh attachment (TLH) for minimally invasive sacrocolpopexy. This multicenter retrospective cohort study is a secondary analysis of data collected at one institution and the multicenter randomized control PACT trial. At 1 year, there is no significant difference in vaginal mesh exposure rates between vaginal hysterectomy with vaginal mesh attachment and laparoscopic hysterectomy with abdominal mesh attachment. Both groups have equal efficacy with low rates of complications.

Int Urogynecol J. 2022 Feb 14. doi: 10.1007/s00192-022-05093-w. Online ahead of print

Optimal timing of a second postoperative voiding trial in women with incomplete bladder emptying after vaginal reconstructive surgery: a randomized trial

Schachar JS, Ossin D, Plair AR, Hurtado EA, Parker-Autry C, Badlani G, Davila GW, Matthews CA

The optimal length of time for postoperative catheter drainage has not been clearly established. This study aimed to compare the outcomes of a second voiding trial performed 2-4 days (earlier group) vs 7 days (later group) postoperatively in women with incomplete bladder emptying after vaginal prolapse surgery.

Results showed that women with incomplete bladder emptying after multicompart ment prolapse repair had a 7-fold higher risk of an unsuccessful repeat office voiding trial if performed within 4 days of surgery than when performed within 7 days. In addition, requiring additional prescriptions for analgesia increased the risk of an unsuccessful follow-up office voiding trial.

Am J Obstet Gynecol. 2020 Aug; 223(2):260.e1-260.e9.

Examining the Role of Nonsurgical Therapy in the Treatment of Geriatric Urinary Incontinence

Parker-Autry C, Neiberg R, Leng XI, Matthews CA, Dumoulin C, Kuchel GA, Kritchevsky SB

In two separate studies, the research team first sought to characterize geriatric incontinence to establish its foundation in clinical practice. Sixty-one community-dwelling women aged 70 and older with bothersome symptoms participated. The co-existence of severe urinary incontinence (UI), physical disability, slower chair stand pace, and gait speed are indicators; prospective studies are needed to understand the impact to their clinical care.

The team also examined the role of physical function impairments on the change in urinary incontinence symptoms after pelvic floor muscle training in older women. A comprehensive pelvic floor and physical function assessment was done at baseline. Individualized pelvic floor muscle training prescriptions with behavioral management strategies to reduce incontinence episodes were provided for 12 weeks. Baseline physical function was determined using the Short Physical Performance Battery. The team found that behavioral therapy, including pelvic floor muscle training, may not significantly decrease UI symptoms to a degree that is satisfactory in women who are older than 70 years and are seeking treatment for UI, regardless of the presence of physical function impairments.

Obstet Gynecol. 2022 Aug 1;140(2):243-251. doi: 10.1097/AOG.0000000000004852. Epub 2022 Jul 6

Offering National Clinical Trials

► Tissue engineered neo-vaginal constructs for vaginal aplasia - PI: Catherine A. Matthews, MD

Wake Forest Institute for Regenerative Medicine (WFIRM) researchers received FDA approval for a Phase 1 trial of implantation of vaginal construct for patients with vaginal aplasia. This is a prospective, open-label, uncontrolled, single center, Phase 1 clinical trial to implant an autologous vaginal construct for patients with vaginal aplasia. Eligible females, ages 15-45 yrs, with a diagnosis of Mullerian duct anomaly that includes absence or obliteration of all or part of the vagina (as confirmed on pelvic MRI) will undergo vaginal tissue biopsy. Tissue harvested will be used for cell isolation and expansion to produce a neo-vaginal construct to be implanted in a separate procedure. Patients will be followed for 60 months post-implantation.

► Retropubic vs. single-incision mid-urethral sling - PI: Catherine A. Matthews, MD

A single-blinded, multicenter, randomized trial is designed to evaluate 280 women undergoing native tissue vaginal repair that compares a Single Incision Sling to a Retropubic Sling for treatment of stress incontinence.

► Evaluating INTIBIAä - PI: Catherine A. Matthews, MD

An investigational Implantable Tibial Nerve Stimulator to treat Urge Urinary Incontinence.



► What Matters Most? - PI: Candace Parker-Autry, MD

A qualitative study of women with geriatric incontinence syndrome.

► NextGen - PI: Majid Mirzazadeh, MD

Clinical implication of next generation sequencing of urinary bacteria in patients with low colony forming units of bacteria in traditional urine culture.

► The SfAP Study - PI: Candace Parker-Autry, MD

To apply gold-standard randomization to evaluate concomitant perineorrhaphy during a vaginal reconstructive pelvic organ prolapse surgery in order to understand its impact on female sexual function.

To learn more about our clinical trials or to refer patients, please contact BelInvolved at www.wakehealth.edu/BelInvolved.

Men's Health — a Focused Attention to Health

The Department of Urology at Atrium Health Wake Forest Baptist in Winston-Salem, NC, is a major referral center that brings together the best of patient and family-centered care and research. We offer expertise and the latest diagnostic techniques and treatments for a range of urologic conditions for children and adults. The urology service sees and treats patients in 15 locations across the region.



Men's Health services provided and supported by Dr. Sadri, Jakob Stapleton, LPN, and Dr. Terlecki.

Our clinics offer a wide range of services and treatments that focus on men's health and wellbeing. Expertise is provided by Ryan Terlecki, MD, who focuses on reconstructive urology, prosthetic urology for ED and male stress incontinence, and Peyronie's disease; Stuart Howards, MD, a nationally recognized expert in fertility; and Hooman Sadri, MD, PhD, a specialist in male reproductive medicine (andrology) and a fellowship-trained male infertility clinician. Dr. Sadri, director of the male fertility research program, has established the spermatogonia stem cell bank for fertility preservation of high-risk boys and men. This bank has rapidly become one of the largest worldwide bio-banking systems in the field.

The **Men's Health Clinic** provides clinical services in the following areas:

Sexual Health: Dr. Terlecki is one of the country's highest volume providers of penile implants for erectile restoration, with superior outcomes reported within the peer-reviewed literature. A full range of established and emerging treatment options from oral medications and injection therapies to low-intensity shockwave therapy are also provided.

Urinary Health: For men with BPH who have failed oral medications, a broad range of advanced therapies are available. Additionally, for those with stress urinary incontinence, we maintain the region's highest volume practice of anti-incontinence surgery with use of the male sling and artificial urinary sphincter.

Hormonal Health: Dr. Sadri oversees our Testosterone Replacement Clinic, which affords patients a personalized medicine approach to determine the optimal method for long-term hormonal management.

Cancer Screening: Within the Men's Health clinic, men are risk-stratified to determine their eligibility for prostate cancer screening with PSA and other biomarkers. Those found to be at risk may be referred for MRI evaluations to determine the need for biopsy. Physicians also provide reconstructive surgery for those men found to have tumors involving the genitalia (i.e., penis, scrotum), as well as radical orchiectomy for initial diagnosis of testicular tumors with consideration of placement of testicular prostheses. For those found to have tumors of the kidney, bladder or prostate, expedited care is provided by the oncology team. The Wake Forest Comprehensive Center is the only NCI-designated center in the region.

The **Andrology Clinic**, led by Drs. Sadri and Stuart Howards, provides services in the following areas:

- ▶ Medical and surgical – micro testicular sperm extraction (TESE) and vas reversal – and assisted reproductive technology treatments for infertile men
- ▶ Penile vibration stimulation and electroejaculation for spinal cord injuries and other anejaculation patients such as diabetics or after retroperitoneal lymph node dissection
- ▶ Fertility Preservation Program (clinical and experimental) for boys and men at risk of future infertility due to oncology/hematology, undescended testes and Klinefelter syndrome. Wake Forest is a national referral center via the Association for X and Y Variations
- ▶ Various testosterone replacement therapies (TRT) such as oral, nasal, and injections of testosterone and non-TRT options such as hCG, aromatase inhibitor and follicle-stimulating hormone treatments for hypogonadotropic patients of all ages, from peri-puberty to geriatrics
- ▶ The first and only US center to offer Round Spermatic Injection (ROSI) to treat TESE negative infertile men who are eligible
- ▶ Hormonal management of transgender male patients (female to male transition)
- ▶ Medical treatments for erectile dysfunction and pre-mature ejaculation such as oral medications, vacuum pumps and penile injection

th and Wellbeing

Related Clinical Trials of Interest:

▶ **Experimental round spermatid injection (ROSI) to treat infertile couples – PI: Hooman Sadri, MD**

To evaluate if special types of cells called round spermatids can be gathered from men with non-obstructive azoospermia and used to reliably and effectively create pregnancy with a procedure called round spermatid injection, a process similar to in vitro fertilization.

▶ **Artificial urinary sphincter clinical outcomes - PI: Ryan Terlecki, MD**

To observe how well the AMS 800 Artificial Urinary Sphincter fixes urinary incontinence in men who have a history of radical prostatectomy with severe urinary incontinence.

▶ **RAR: Prospective trial evaluating return to continence and potency following radical prostatectomy using umbilical cord allografts - PI: Ashok K. Hemal, MD**

To determine effectiveness of using human umbilical cord allografts to help improve erectile function and bladder control in patients following robot-assisted radical prostatectomy.

▶ **Normal ranges of testicular firmness in healthy children - PI: Hooman Sadri, MD**

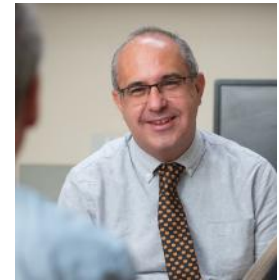
To utilize sonography to find the normal range values for testicular firmness among children.



Dr. Ryan Terlecki



Dr. Stuart Howards



Dr. Hooman Sadri

▶ **Bioengineered tissue constructs for damaged penile corpora - PI: Ryan Terlecki, MD**

To treat complex penile deformities, autologous endothelial and smooth muscle cells, obtained from enrolled subjects' corpora cavernosa biopsies, will be cultured, expanded in vitro and used to create autologous bioengineered constructs.

▶ **Tissue engineered urethras for stricture disease**

To create autologous tissue constructs by obtaining autologous urothelial smooth and muscle cells from patients.

▶ **iT MATTERS - PI: Ryan Terlecki, MD**

The Erectile Restoration Registry for erectile dysfunction.

Translational Research of Interest

- ▶ Whole testis cryopreservation for re-implantation
- ▶ Human hypothalamus and pituitary organoids formation (hypothalamus,-pituitary-testes axis modeling)
- ▶ Pathogenesis and potential intervention of emerging sexually transmitted virus models using human 3D testicular organoids (Zika, Ebola, SARS-COV2)
- ▶ Selection of spermatid like cells in differentiated human 3D testes organoids and testing their fertility potential
- ▶ Transplantation for in vitro propagated mouse Klinefelter syndrome spermatogonia stem cell to produce normal sperm
- ▶ Testicular tissue banking from boys and men at risk of infertility to ensure the stability of long term stored spermatogonial stem cells
- ▶ Determination of normal range values for testicular stiffness in the healthy pediatric population (elastography ultrasound)

Free, Online Continuing Medical Education Course: Klinefelter Syndrome in Adults

The Wake Forest Department of Urology and AXYS, the Association for X and Y Chromosome Variations, offers this online, self-paced CME course. Drs. Sadri and Howards are course directors. Upon completion, physicians earn 3 Hours AMA PRA Category 1 Credit. Wake Forest and AXYS are pleased to offer this online, self-paced course to help doctors with identifying, characterizing and managing Klinefelter Syndrome in adults, which is an underdiagnosed condition with serious consequences. More information can be found at <https://genetic.org/CME>

Meet Our Faculty



Anthony Atala, MD, FACS, professor and chair, is section editor for *Urological Survey*, for the *Journal of Urology*, and editor of the journals *Stem Cells Translational Medicine*, and *Bioprinting*. He is a recipient of the Gold Cystoscope Award, the Ramon Guiteras Award from the AUA, and the Barringer Medal from the American Association of Genitourinary Surgeons for his contributions to the field of urology. He is a member of the National Academy of Medicine and is one of 98 innovators named a charter fellow of the National Academy of Inventors. He is editor of 30 books and has published over 800 journal articles. Atala directs a team of more than 450 researchers and staff at the Wake Forest Institute for Regenerative Medicine. He serves as vice chair of the American College of Surgeons Board of Regents.



Gopal Badlani, MD, FACS, professor of urology and gynecology, vice chair for urology clinical affairs, and co-director of the Female Pelvic Health unit. He directs urology residency at the Salisbury VA Medical Center and is secretary of the Urology Care Foundation and the AAGUS. He is editor of several textbooks and author of 380 publications/book chapters. He is a recipient of the Karl Storz Lifetime Achievement Award from the Endourological Society and the B.C. Roy Medal from the President of India for humanitarian service.



Keith Ballentine, MD, clinical adjunct faculty, earned his medical and undergraduate degrees from the University of North Carolina School of Medicine at Chapel Hill. He is also a graduate of Wake's urology residency program. He has co-authored several research publications, and has been involved in teaching activities.



Brian J. Budzyn, MD, clinical adjunct faculty, earned his medical degree from and completed residency at Wayne State University School of Medicine in Detroit. He treats general urological conditions such as dysuria and urinary tract infection.



Marc Colaco, MD, assistant professor, joined the department in 2021 as a pediatric urologist following completion of a two-year fellowship at the Children's Hospital of Pittsburgh. He is a graduate of the Robert Wood Johnson Medical School in New Brunswick, NJ, as well as Wake's urology residency program. He has co-authored dozens of scientific papers, reviewed several book chapters and presented at national meetings.



Paul Coughlin, MD, clinical adjunct faculty, earned his medical degree from the University of North Carolina at Chapel Hill School of Medicine and completed his residency at Duke University Medical Center. He treats general urological conditions such as dysuria and urinary tract infection.



Ronald L. Davis, MD, MBA, FACS, associate professor, specializes in adult urology with an emphasis on urologic oncology. An experienced clinical investigator, he was part of one of the first teams in the nation to offer modern ultrasound-directed brachytherapy for prostate cancer. His expertise and research interests include minimally invasive prostate cancer surgery and novel therapies for bladder cancer. He serves on the NC Urological Society board and is a representative to the Urology Advisory Council of the ACS.



Robert J. Evans III, MD, FACS, professor of urology and gynecology, directs the department's clinic operations. He specializes in pelvic pain syndrome and serves on the medical advisory boards of the Interstitial Cystitis Association and the Interstitial Cystitis Network. He is involved in several clinical trials and NIH-funded studies evaluating new treatments for painful bladder syndrome, including investigation of pulsed electromagnetic frequency as a non-invasive treatment. Additionally, he is part of a genomics study looking at differences in subsets of interstitial cystitis patients.



Laura Foster, MD, assistant professor, practices general urology and has special interests in treating voiding dysfunction/incontinence, urinary tract infections and kidney stones. She earned her medical degree from the University of North Carolina School of Medicine at Chapel Hill, and completed her residency in General Surgery and also Urology at UNC.



Ashok K. Hemal, MD, MCh, FACS, professor, is director of the Robotics Program and chief of uro-oncology. Internationally known for his pioneering work in the field of uro-oncology, robotic and pure laparoscopic surgeries, he has developed several surgical techniques. He has published more than 400 scientific papers in peer-reviewed journals and edited nine books, including the 3rd edition of *Robotics in Genito-Urinary Surgery*. He is associate editor of *Journal of Endourology*, *International Urology & Nephrology* and serves on several editorial boards.



Steve Hodges, MD, associate professor, specializes in pediatric urology. His research interests include the prevention of luminal strictures and scar disease throughout the urinary tract, and dysfunctional elimination. He has developed several new treatments, including drug-coated catheters and stents designed to prevent or treat urethral strictures, and disposable wipes designed to prevent vulvitis and urinary tract infections in females. He has co-authored 10 books on toilet training and voiding dysfunction.



Stuart Howards, MD, FACS, professor, is a nationally recognized expert in male infertility. He specializes in microsurgery for varicocele repair, vasectomy reversal and sperm retrieval. Howards has edited four editions of the textbook *Infertility in the Male* and has performed more than 1,500 vasectomy reversals. Howards served as executive secretary of the American Board of Urology for 15 years, and at the NIH as the urologic advisor to the director of the National Institute of Diabetes and Digestive and Kidney Diseases. He is the recipient of the AAGUS Keyes Medal for outstanding contributions in the advancement of urology.



David Kunkle, MD, assistant professor, specializes in men's health, urological cancers, kidney stones, urinary problems and vasectomy. He serves as chief of urology for Atrium Health Wake Forest Baptist – Wilkes Medical Center. He earned his medical degree from the University of Virginia Medical School in Charlottesville after completing his undergraduate study at Wake Forest University. He completed his residency at Temple University Hospital in General Surgery and Urology.



Catherine A. Matthews, MD, professor of urology and obstetrics/gynecology, is the director of Female Pelvic Health Services and the Female Pelvic Medicine and Reconstructive Surgery Fellowship. She specializes in and is extensively published in urinary and bowel incontinence, pelvic organ prolapse, fistulae, sexual dysfunction and post-obstetric perineal injury. Internationally recognized for her expertise in robotic and vaginal surgery, she was the Invited Keynote lecturer for urogynecology societies in Israel, Australia and Ireland. She is the recipient of the 2022 Stubbs Urology Teaching Award for outstanding resident education and mentorship.



John D. McConnell, MD, FACS, is the Gordon Hanes Professor and Residency Program Director. He is a recipient of the AUA's Gold Cystoscope Award and the American Association of Genitourinary Surgeon's Barringer Medal for his contributions to the urology field. McConnell's research in the field of prostate disease and related health policy contributions led to his 2004 election to the National Academy of Medicine. He has served on the board of directors of the American Urological Association and as a Council member of the National Institute of Diabetes and Digestive and Kidney Diseases of the NIH.



Vance Merhoff, MD, clinical adjunct faculty, is a University of Tennessee Medical School graduate, and completed his General Surgery and Urology residency at Wake Forest. He was in private practice for 18 years in Salisbury before becoming a practicing urologist at the VA Medical Centers in Salisbury and Kernersville, NC.



Majid Mirzazadeh, MD, associate professor, serves as a referral surgeon for complicated urologic conditions including reconstructive surgeries and stone diseases. His research focuses on urinary tract infections as well as improving the design and safety of clinical and surgical instruments, including a syringe capable of safely delivering multiple doses of injection products.



Timothy L. Mullins, MD, is a clinical adjunct faculty with expertise in BPH, kidney stones and female urology. He earned his medical degree from West Virginia University and completed his residency at Tufts University School of Medicine.



Candace Parker-Autry, MD, assistant professor, is a graduate of Wake Forest University School of Medicine and specializes in urogynecology and geriatric incontinence. She did her residency in obstetrics and gynecology at the Hospital of the University of Pennsylvania, Philadelphia, and her fellowship in Female Pelvic Health and Reconstructive Surgery at the University of Alabama, Birmingham. She is the medical director of the Healthy Aging Continence Clinic, a subspecialty clinic focusing on incontinence in older women.



Molly E. Reissmann, MD, clinical adjunct faculty, earned her undergraduate degree from Washington University in St. Louis and her medical degree from Georgetown University School of Medicine. She completed her general surgery internship and urology residency at Boston Medical Center. She practices general urology and has special interests in minimally invasive BPH treatments, men's health, female incontinence surgery, and treating kidney stones.



Alejandro Rodriguez, MD, associate professor, is director of Minimally Invasive Surgery and brings 25+ years training in urological oncology, robotics and minimally invasive surgery. His training is extensive and includes a fellowship in urologic oncology, as well as robotics and minimally invasive surgery for malignant and benign diseases. He completed his urology residency at the University of South Florida. He serves as Secretary General of the Confederación Americana de Urología and as editor of the AUA News in Spanish. He has published 200+ peer-reviewed manuscripts and abstracts and received multiple awards.



Hooman Sadri, MD, PhD, assistant professor, is an andrologist who specializes in male reproductive medicine and directs the male fertility research program. He serves as MD director for the American Society of Andrology board of directors and is active in related societies. His expertise includes electro ejaculation, vas reversal, and microsurgical testicular sperm extractions. His clinic is a national referral for Klinefelter syndrome, other genetic causes of hypogonadism, and spinal cord injury infertility. He established and also directs the spermatogonia stem cell bank for fertility preservation of high-risk boys and men, one of the world's largest bio-banking systems.



Marshall Z. Schwartz, MD, FACS, FRCS-Eng (Hon), professor, is a pediatric surgeon whose clinical/surgical care has included general, urologic, and minimally invasive surgery. He has held leadership positions at many universities and teaching children's hospitals including Children's National Medical Center in Washington, D.C., and St. Christopher's Hospital for Children in Philadelphia. His research activities have led to more than 155 publications, 235+ presentations at national/international meetings, including several named lectureships, and four patents on specific intestinal growth factors.



Sigmund Tannenbaum, MD, FACS, clinical adjunct faculty, earned his undergraduate and medical degrees at Duke University and completed his residency at Duke University Medical Center. He was previously an attending physician at the Durham Veteran's Administration Medical Center. He has served as a clinical instructor and lecturer and conducted a variety of clinical research projects.



Ryan Terlecki, MD, FACS, professor and vice chair of urology research, is director of Men's Health and directs a GURS fellowship in urologic reconstruction. He is a recognized leader in urological reconstruction, Peyronie's disease, and prosthetic surgery for erectile dysfunction. Additionally, he is an investigator in novel therapeutics for treatment of urethral strictures and sexual dysfunction. Terlecki serves on the editorial board of the Journal for Sexual Medicine, AUA guideline panels and is the NC representative to the Southeastern Section of the AUA.



Matvey Tsivian, MD, assistant professor, specializes in urologic malignancies. His research interest is in clinical trials and cancer outcomes research. He completed his urology residency at Duke University and a urologic oncology fellowship at the Mayo Clinic. He has authored more than 120 papers and serves as a reviewer of multiple journals, including the Journal of Clinical Oncology. He serves on the NC Urological Society board.



Kate L. Woodburn, MD, assistant professor, joined the urogynecology team in Female Pelvic Medicine. Fellowship trained in Female Pelvic Medicine and Reconstructive Surgery, she treats a wide range of conditions, specializing in pelvic reconstructive surgery. She earned her medical degree from Rutgers – Robert Wood Johnson Medical School and her residency in obstetrics and gynecology at the Cleveland Clinic. She is passionate about medical education, currently serving as a FPMRS didactics coordinator and a resident educator and mentor.



Atrium Health Wake Forest Baptist

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11th Urology Today The Omni Grove Park Inn Asheville, NC

October 26 – 29th, 2023

In a course designed for the practicing urologist and healthcare provider, thought leaders discuss the latest evidence-based approaches to managing a wide range of urologic conditions, from stone disease to incontinence, pelvic health, sexual dysfunction, infertility, common pediatric conditions, and cancer. Urology Today 2023 is a presentation of practical topics, patient cases, and panel discussions, mixed with networking in the beautiful setting of the North Carolina mountains with its renowned fall foliage.

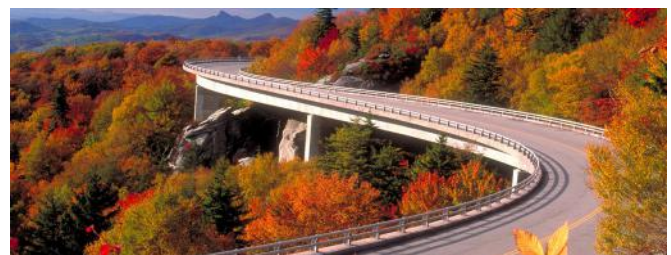
Asheville is a city known for its vibrant arts scene, historic architecture, the Biltmore Estate, premier golf courses, breathtaking scenic vistas and the highest peaks of the Appalachian mountains, making for an outdoor destination perfect for all-season exploration.



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