

# Andrology Program

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## Overview of Fellowship Program

- **Program Name:** Andrology Fellowship
- **Program inception date:** 2019
- **Institution (s):** University of Utah Hospitals and Clinics
- **Andrology Fellowship Director:** James Hotaling, MD, MS, FECSM
- **Summary of the Program:**

Clinical: We have a busy infertility and men's health program. We are the only academic program for 300+ miles in any direction and have the only fellowship trained andrologist & reconstructive urologist in Utah. We have a unique structure whereby we have created an integrated practice unit in which the REI division of OBGYN, male infertility and men's health are all housed together and function as one unit of which Dr. Hotaling is one of the medical directors. We have historically had a shared reconstructive urology and andrology/men's health fellowship (shared equally between Drs Hotaling and Myers) which has taken one fellow a year since 2016 and are splitting the fellowship into two fellowships in 2019. The fellow will have robust clinical training in the medical and surgical management of male infertility, Peyronie's, prosthetics, and the clinical aspects of IVF and an andrology lab.

Research: We have a very active research program which spans basic, translational, epidemiologic and clinical trials research. The fellow will have exposure to expertise in the genetics and epigenetics of male infertility, translational research profiling spermatogonial stem cells and access to large volumes of data from NIH sponsored trials run out of Utah. Finally, the fellow will access to a statistician, database programmer, IRB coordinator and a demographer for research with the Utah Population Database (UPDB). The UPDB has been compared to the Hubble telescope for human health and consists of the entire Utah population with an IRB approved database to study male infertility with over 1,700,000 records.

- **Fellowship Faculty:**
  - Jeremy Myers, MD
  - Doug Carrell, PhD
  - Ki Aston, PhD
  - Tim Jenkins, PhD
  - Heidi Hanson, PhD
  - Sarah Berga, MD
- **Number of Positions per Year:** 1
- **Duration of Fellowship:** 1-year fellowship: 80% clinical/20% research
- **Accreditation:** University of Utah Graduate Medical Education
- **Who to contact regarding the program:**

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Ashlea Wilkes

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## **Overview of Fellowship Program:**

The andrology and men's health fellowship will enable the fellow to learn cutting edge medical and surgical techniques of all aspects of andrology and men's health. It will also encompass a broad spectrum of research, the administrative and business aspects of setting up a clinical program in infertility/men's health and exposure to reproductive endocrinology and infertility. It will facilitate the fellow's ability to set up a productive infertility/men's health practice after graduation and set them up to be a leader in research and clinical care in these fields. This will include:

- Understanding of the pathophysiology of male infertility
- Comprehensive medical management of male infertility with exposure to syndromes such as Klinefelter's and Kallman's
- Ability to understand female infertility, interface with REIs and optimize referral patterns
- Understanding the pathophysiology of erectile dysfunction and the nuances of medical management of ED (oral medications and penile injections)
- Understanding of the genetic and epigenetic basis of infertility and erectile dysfunction
- Comprehensive surgical training in male infertility with ability to perform numerous microTESE, TESE, varicocele, and vasectomy reversal procedures
- Performance of office-based procedures such as TESE, TESA and PESA under local anesthesia
- Performance of microsurgical cord denervations
  
- Surgical techniques for virgin and revision penile prosthetics with exposure to corporal excavation, adjunct maneuvers to optimize device placement and cases involving concurrent plication and grafting for Peyronie's disease.
- Ability to independently perform vasectomy
- Penile Doppler ultrasound training to enable the fellow to perform and interpret doppler studies
- Performance and interpretation of scrotal ultrasounds
- Understanding of the pathophysiology and progression of Peyronie's disease
- Management of complex Peyronie's cases in an office-based setting including penile injections and medical management of this condition
- Surgical management of Peyronie's disease including plications, grafting and concurrent penile prosthesis placement with these procedures
- Exposure to clinical trials in erectile dysfunction and male infertility
- Exposure to transgender surgery program developed by Drs Hotaling and Myers
- Exposure to placement of AUS and male slings with Dr. Myers
  
- Ability to mentor medical students, research fellows and residents from the inception to completion of research projects
- Understanding the inner workings of a clinical andrology lab and the performance and interpretation of a semen analysis

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## **Description of Program:**

- This program is designed to train leaders in male infertility/men's health through a mentorship style program with progressive surgical independence leading to the ability to perform all aspects of medical and surgical care for these patients.
- We have a high-volume clinic 1.5-2 days a week that functions with 2 APCs and have the benefit of having 2 APCs who perform most of the documentation and ongoing medical management of patients. Our practice typically sees approximately 90-100 patients (MD and APC clinic) a week and clinic consists of primarily new patients. We also do clinic and procedures at two private REI clinics in Salt Lake City.
- We spend 2-3 days a week in the operating room where the fellow will have the ability to operate independently with residents as the year progresses. The practice consists of little to no general urology.
- The fellow will be expected to take residents through cases, teach residents and medical students in clinic and mentor them through research projects as well as give occasional didactic lectures.
- Comprehensive training in the business, organizational and financial aspects of running an infertility/men's health program by mentorship and exposure to the inner workings of the integrated practice unit which encompasses male infertility, men's health and REI.
- Attendance of multidisciplinary conferences in REI, oncofertility and men's health with Dr. Hotaling.
- A dedicated structured educational curriculum with weekly discussion of journal articles, textbooks on male infertility.
- The fellow will assist Dr. Hotaling in 1-2 days a month of transgender surgery along with Dr. Myers. Additionally, the fellow will operate with Dr. Myers 1-2 days a month to learn the basics of AUS and male sling placement. [These are dependent on fellow interest]
- The fellow will take attending call approximately every 6-8 weeks and will have attending backup at all times. Our residents are highly independent and we typically only come in to do a few cases a week.
- Integration into one of the top andrology research program in the world consisting of 3 full time PhDs lead by Dr. Carrell, an international expert in the field.
- Ability to perform novel research projects with the Utah Population Database (UPDB). The UPDB contains over 22 million record and has data on the entire state of Utah, linkage to cancer registry data, driver's license data (BMI and address), all clinical data on 85% of the Utah population, pedigree data on 50% of the state going back to 1860, linkage to over 55,000 semen analyses, 6,000 IVF cycles, 10,000 IUI cycles and over 25,000 children from this population with linkage to fertile controls and associated pedigree data totaling over 1,700,000 people. This database is fully cleaned/IRB approved. The fellow will have access to a full-time research fellow, database programmer, statistician, and funding for ongoing research. This database is also linked to the andrology biobank and is fully cleaned/IRB approved.
- Access to EDGE, Erectile Dysfunction Genetics and the Environment, an R01 funded research project with Dr. Hotaling as a PI that is a collaboration with Hunter Wessells at the University of Washington and Stephen VanDenEden at Kaiser. This work relies on a large Kaiser database with clinical and genetic sequencing data on over 30,000 patients as well as a consortium of large academic institutions with EMR and genetic data to examine the genetic risk factors for erectile dysfunction.

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- Bioengineering exposure to a microfluidics sperm sorting program that has been funded by NIH/NSF funding totaling over \$2 million. This program is a joint venture with bioengineering and has developed microfluidic devices capable of sorting sperm for IUI and IVF as well as processing testicular tissue specimens.
- Ability to participate in research from the Folic Acid and Zinc Supplementation Trial (FAZST) research database from an NICHD trial run out of Utah which is the largest RCT on male infertility in the world and contains comprehensive medical/demographic data and four semen analyses on over 2300 men who were followed for a year.
- Ideally, we want to help the fellow have 1-2 main research projects and, if they are interested in pursuing academics, submit a grant application to try to fund research at their future institution.

## **Fellowship Summary**

Our fellowship is a busy clinical and research program that is designed to set the fellow up to have a successful practice and/or an academic career after completion. We strive to give the fellow exposure to all aspects of infertility and men's health and set them up to be a leader in the field.

## **Program Weighting:**

**Male Infertility/Men's Health:** 60%/40%

## **Education Program:**

Type of Experience	Weekly Structured
Surgery	2-2.5 days
Clinic	1.5-2 days

## **Unique qualities:**

Busy clinical fellowship with access to significant research resources encompassing both epidemiology, basic and translational research as well as bioengineering. We have world class expertise in andrology (Dr. Carrell) and we continually strive for innovation and welcome the fellow to pursue research projects that they design and execute. We are a regional quaternary referral center and serve as the only academic center for over 300 miles in any direction.

Utah is a beautiful place and the medical center is located in the Wasatch range with the ability to mountain bike or run for 20 miles out the back door of the clinic. We have world class skiing 30 minutes from the city, 5 national parks within easy driving distance and a low cost of living.

The exposure to an integrated practice unit that encompasses REI, infertility and men's health where Dr. Hotaling is the medical director gives the fellow significant insight into the organizational and business structure of the field.