**Hypothermic Robotic Prostatectomy**

**Cooling to prevent surgical injury**

**COMpletely novel technique for reducing inflammation injury to the bladder sphincters and nerves for sexual function.**

*Technique ‘Hypothermic cooling and improvement in urinary continence.’*  
Prior work by Dr. Ahlering and his associates has formed the basis for a better understanding into the mechanisms responsible for delaying return of urinary and sexual following surgery (see next section). If a surgeon performs ideally and avoids any injury to the sexual nerves and the sphincters responsible for urinary control, still most men take weeks to months to recover. There is much evidence to suggest that the normal trauma of surgery plays a major role in this problem. Drs. Ahlering and Finley have taken well established lessons from cardiac and neurosurgeons in using cooling to stop the inflammatory cascade common to all surgical procedures. Think of it as icing (or not) one’s ankle immediately upon severely spraining it. Actually, we can preemptively cool the region before the injury occurs. Hence, urinary continence demonstrated a reduction from 60 to 40 days to be free of urinary pads. These promising initial results validate the wisdom of preemptive cooling to satisfy the Hippocratic ‘Do no harm’. The impact on sexual function is also a high priority and is being studied but will likely take six to twelve months to mature.

**Background research from UCI has lead to a better understanding of mechanisms which appear to inhibit return of sexual function.**

Since 2002 when we started our program, we have published multiple scientific (9 peer-reviewed) papers laying the ground-work leading to hypothermia. Our first 3 publications dealt with the damage to nerves from thermal energy (heat) and how to avoid it. However, we learned that thermal energy did not kill the nerve but rather injured it. This injury is recoverable as long as the nerve sheath is still intact.

However, even when we avoided thermal injury there was evidence of a stretch injury (pictured here). With stretch injury some men recovered within 2-3 months (grade I), whereas others take 9-24 months (grade II) because the nerve has to grow from the prostate to the end of the penis. If the nerve was transected, the nerve function is lost because the nerve can’t re-grow (grade III). Another important finding is that the sexual nerves have a lot of redundancy. What this means, practically speaking, is that the sexual function which we normally think requires two nerves will recover with just one nerve 80% of the time (very similar to removing one kidney). Hence sparing every last little nerve is not as important for sexual function as is reducing inflammatory stretch injury. You might wonder how I thought of cooling... Well it came via ESPN. I was listening the night the Buffalo Bill football player fractured his cervical spine. Well needless to say as events unfolded I was glued to the updates. I thought if the cooling worked for Mr. Everett maybe it would help prevent the inflammatory injury of prostate surgery. We started right around the time of the Super Bowl...coincidentally with Everett’s walk at half-time...

HYPOTHERMIC robotic prostatectomy. We devised an endorectal cooling balloon, pictured above, to locally cool the pelvic region to 60-68°F. The cooling balloon is placed and removed while the patients are asleep. It is safe, easy, painless and remarkably simple. Results on
Recent Findings in Prostate Cancer
AWARDS & HONORS FOR THE UC IRVINE

Internationally recognized, Dr. Thomas Ahlering has helped pioneer the use of the Da Vinci Robot for prostate cancer surgery in the United States, Europe and Australia. In fact, he performed the first robotic prostatectomies in Denmark, Canada and Australia. Now in its 7th year, the University of California, Irvine robotics program is one of the most respected with more than 750 robotic prostatectomies performed and more than 55 scientific publications and book chapters. We have published more than 15 abstracts and papers on the principles of nerve sparing technique. 8 papers listed below formed the background for cooling. Further, surgeons continue to come from around the United States, Canada, Europe and South America to visit and learn these techniques, via week long Mini-Residencies and Scientific programs sponsored the American Urological Association.

Dr. Ahlering’s honors include American’s Best Doctors Designation, Who’s Who, Physician of Excellence, Orange Coast Magazine, and Intuitive Surgical’s Pioneer of da Vinci Urology Surgery. Currently he is the President of the Western Section of the AUA.

Potency References: (8)

Prostate Weight and Early Potency in Robot-Assisted Radical Prostatectomy. Urology 71 e-pub Aug 2008

UC Irvine Introduces Hypothermic Robotic Prostatectomy

Prostate Cancer

In the Hippocratic oath, the surgeon must balance invasive surgery with the words “I will prescribe regimens for the good of my patients according to my ability and my judgment and never do harm to anyone”. New work by UCI has shown that specific surgical damage affecting long term quality of life in men, can be avoided, and a new innovative technique of hypothermia can be used preemptively to prevent surgical injury.

Now ranked 18th in the country by US News and World Report, the research interests of the University of California, Irvine urological surgeons continue with new innovations in surgical techniques, cancer control, and cancer prediction diagnostics for long term prostate cancer survival. Three UCI surgical innovations for reducing surgical margins has produced rated margin rates to one of the lowest reported in the literature. However it is a basic tenet that excellent oncological control should not come at the expense of quality of life.

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(New University Hospital opens January 2009)