Latest Treatments for an Enlarged Prostate

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Boulder Community Health

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UNDERGRADUTE EDUCATION:

Columbia University

MEDICAL EDUCATION:

Columbia University College of Physicians & Surgeons

INTERNSHIPS & RESIDENCY:

Thomas Jefferson University Hospital, Philadelphia

PRACTICE:

Boulder Medical Center

HOBBIES

Rock climbing, mountain biking

Today's Agenda

Boulder Community Health

Overview of Benign Prostatic Hyperplasia (BPH)

Diagnosing BPH

BPH Treatment Options

The UroLift™ System Procedure

Aquablation Procedure



Understanding Benign Prostatic Hyperplasia



Not actual patient

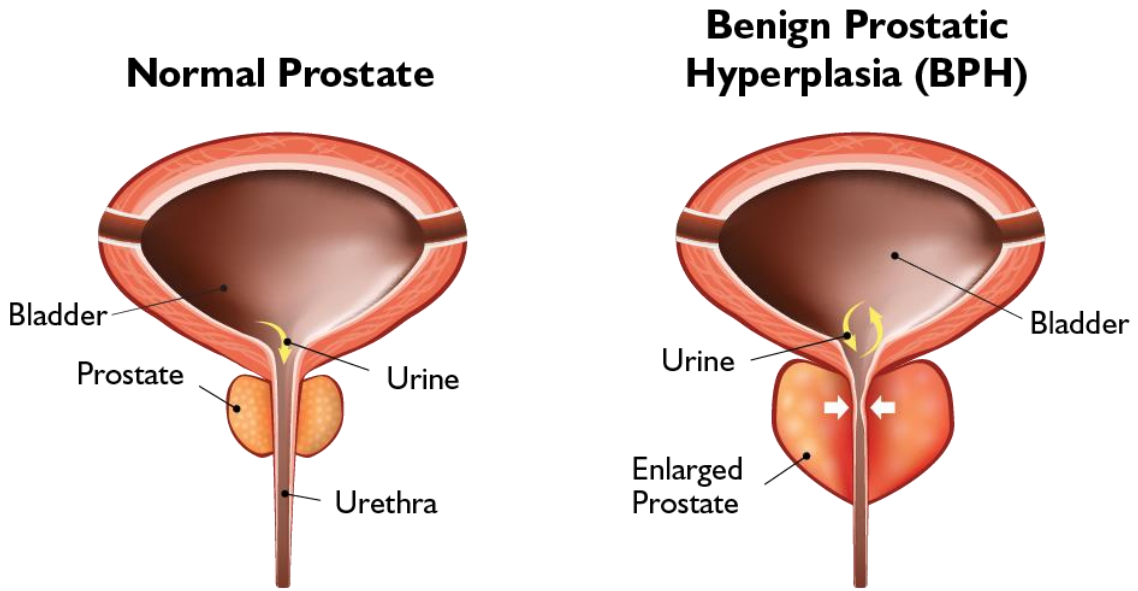
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Benign Prostatic Hyperplasia

Benign prostatic hyperplasia (BPH), also known as an enlarged prostate, is a progressive condition in which the prostate gets bigger as men get older.

While BPH is *not* prostate cancer, it can greatly affect a man's quality of life.

Over 40% of men in their 50s and **over 70%** of men in their 60s have BPH.



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DEFINING THE SYMPTOMS OF BPH

TWO CATEGORIES OF LOWER URINARY TRACT SYMPTOMS (LUTS)

AQUABLATION® Therapy by PROCEPT BioRobotics

1 ABILITY TO HOLD URINE

Urgency: the need to urinate immediately or urgently

Frequency: the need to urinate more often than normal

Nocturia: the need to urinate frequently while sleeping

Incontinence: complete loss of the ability to hold urine

2 EMPTYING THE BLADDER

Straining: the need to push to start or complete urinating

Dysuria: pain or stinging while urinating

Hesitancy: difficulty starting to urinate

Weak Stream: gentle instead of a strong stream of urine

Intermittency: a urine stream that starts and stops

Retention: complete loss of the ability to empty the bladder

RESULTING IMPACT ON QUALITY OF LIFE

Disrupted Sleep: related consequences to interrupted sleep

Limited Activities: restricted by proximity to a bathroom

Sexual Dysfunction: impact on erectile or ejaculatory function

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Protecting Bladder Health Through Earlier Intervention

If left untreated, BPH can get worse and over time may lead to permanent bladder damage due to the obstruction[1]



Healthy Bladder → Bladder worsens[2] → Permanently Damaged[1]

Intervening earlier with treatments that address the blockage may preserve bladder health.[2]

1. Tubaro, Drugs Aging 2003;
2. Flanigan, J Urol 1998

Diagnosing BPH



Not actual patient

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How Can BPH Be Diagnosed?

Physicians may use a variety of tests and examinations to diagnose BPH



Diagnosis of BPH

Medical history	Physical exam which may include a digital rectal exam (DRE)	Blood work/PSA	Urinalysis is a test of your urine	Frequency volume chart is a record of your fluid intake and your urine output
Uroflowmetry measures how fast urine flows	Additional imaging that can include ultrasound, MRI and/or CT	Cystoscopy is an exam used to look at the urethra or bladder with a scope	Post void residual (PVR) measures urine left in the bladder after passing urine	Urodynamic pressure flow study tests pressure in the bladder during urination

Based on 2021 AUA BPH guidelines and Urology Care Foundation

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International Prostate Symptom Score (IPSS)

Help determine severity of your urinary symptoms

- Urgency
- Frequency
- Incomplete emptying
- Intermittency
- Weak stream
- Straining
- Frequent nighttime urination

Assess quality of life

How is the IPSS scored?

0-7 | Mild

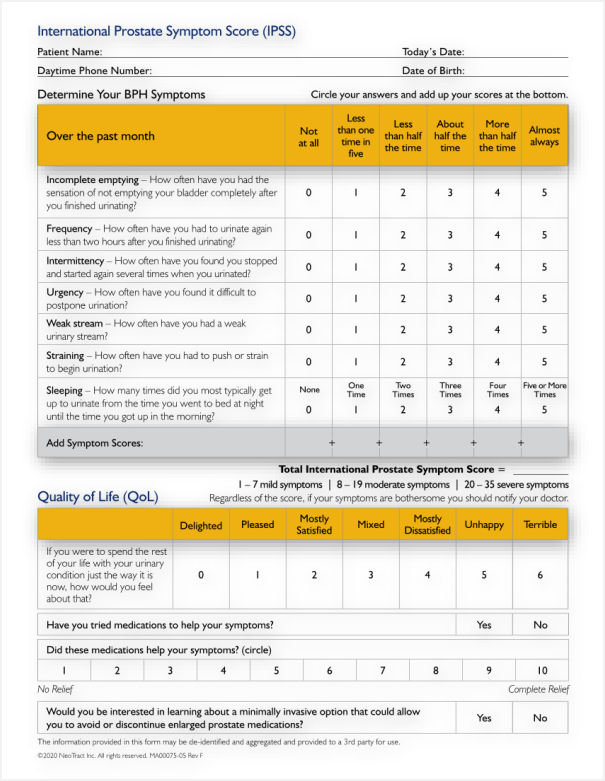
8-19 | Moderate

20-35 | Severe

How is Quality of Life scored?

0-6

Regardless of the score, if your symptoms are bothersome, you should notify your doctor



International Prostate Symptom Score (IPSS)

Patient Name: Today's Date:

Daytime Phone Number: Date of Birth:

Determine Your BPH Symptoms — Circle your answers and add up your scores at the bottom.

Over the past month	Not at all	Less than one time in five	Less than half the time	About half the time	More than half the time	Almost always
Incomplete emptying – How often have you had the sensation of not emptying your bladder completely after you finished urinating?	0	1	2	3	4	5
Frequency – How often have you had to urinate again less than two hours after you finished urinating?	0	1	2	3	4	5
Intermittency – How often have you found you stopped and started again several times when you urinated?	0	1	2	3	4	5
Urgency – How often have you found it difficult to postpone urination?	0	1	2	3	4	5
Weak stream – How often have you had a weak urinary stream?	0	1	2	3	4	5
Straining – How often have you had to push or strain to begin urination?	0	1	2	3	4	5
Sleeping – How many times did you most typically get up to urinate from the time you went to bed at night until the time you got up in the morning?	None 0	One Time 1	Two Times 2	Three Times 3	Four Times 4	Five or More Times 5
Add Symptom Scores:		+	+	+	+	+

Total International Prostate Symptom Score = _____

1 – 7 mild symptoms | 8 – 19 moderate symptoms | 20 – 35 severe symptoms

Regardless of the score, if your symptoms are bothersome you should notify your doctor.

Quality of Life (QoL)

	Delighted	Pleased	Mostly Satisfied	Mixed	Mostly Dissatisfied	Unhappy	Terrible
If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?	0	1	2	3	4	5	6

Have you tried medications to help your symptoms?	Yes	No
Did these medications help your symptoms? (circle)		

1	2	3	4	5	6	7	8	9	10

No Relief *Complete Relief*

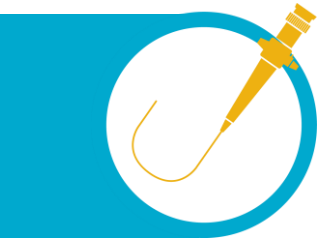
Would you be interested in learning about a minimally invasive option that could allow you to avoid or discontinue enlarged prostate medications?	Yes	No

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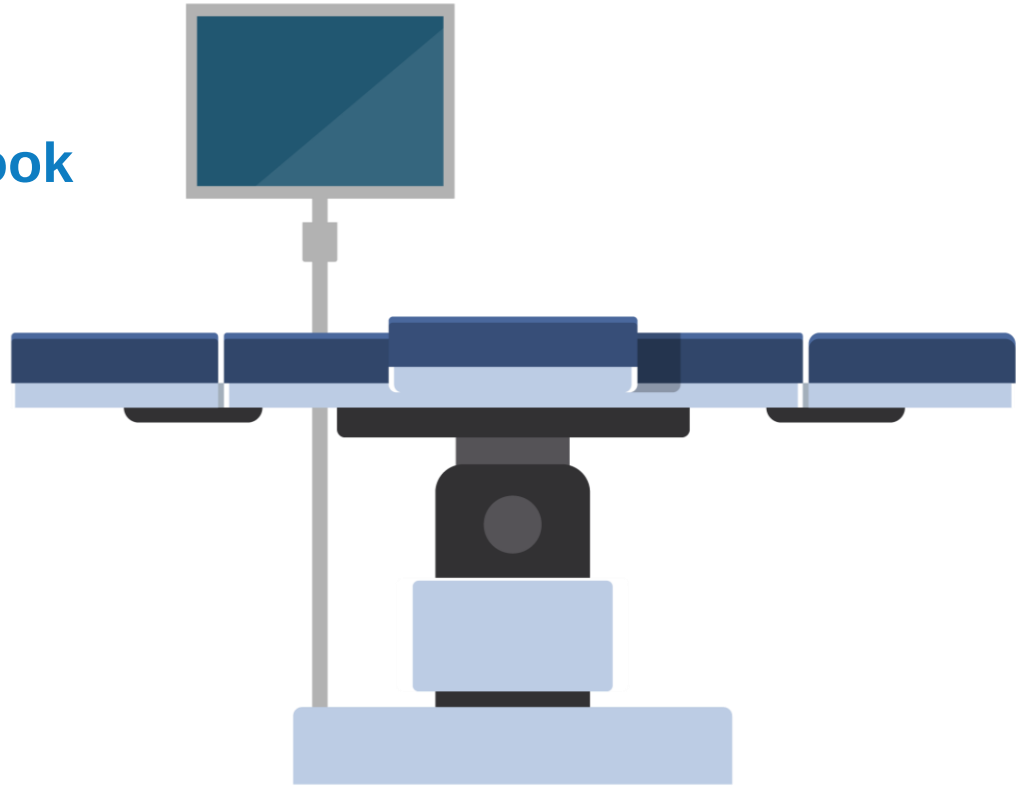
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Cystoscopy – A Valuable Diagnostic Tool



This brief procedure typically takes about 5 minutes. It uses a thin, lighted tube to look inside your bladder and urethra to:

- Assess bladder health
- Diagnose an enlarged prostate (BPH)
- Assess which BPH procedure may be most appropriate for you
- Rule out other bladder conditions



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Treatment Options



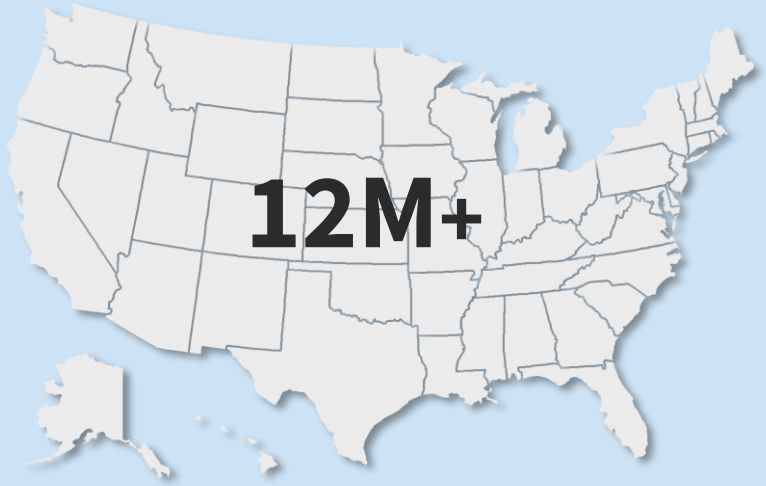
Not actual patient

BPH SURGICAL MARKET IS UNDERSERVED & EXPECTED TO GROW

US EXAMPLE

AQUABLATION® Therapy by PROCEPT BioRobotics

U.S. men actively **MANAGED** for BPH each year



4.3M

WATCHFUL WAITERS

- Choose to do nothing and suffer BPH symptoms

6.7M

PHARMACEUTICALS

- Suffer dosing adjustments and side effects

1.1M

PHARMACEUTICAL FALLOUT

- Delay surgery despite medication failure

400K

SURGERIES PER YEAR

- Compromise between safety and efficacy outcomes

Vuichoud, C, Loughlin, K. Benign prostatic hyperplasia: epidemiology, economics and evaluation. Can J Urol. 2015 Oct;22 Suppl 1:1-6.
Emberton, M, et al. Understanding patient and physician perceptions of benign prostatic hyperplasia in Europe; the Prostate Research on Behaviour and Education (PROBE) Survey. Int J Clin Pract, January 2008, 62, 1, 18–26
Kaplan, SA. Factors in Predicting Failure with Medical Therapy for BPH. Rev Urol. 2005;7 Suppl 7:S34-9.

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Treatment Options



Watchful waiting

Monitor your condition before considering other treatments



Medications

Your doctor may prescribe one or more medications, such as an alpha blocker and/or a 5-alpha reductase inhibitor, to manage your symptoms



UroLift™ System

Uses small implants to lift and hold the enlarged prostate tissue out of the way



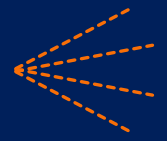
Thermotherapies

Uses heat energy such as microwave, radiofrequency, or steam/water vapor to destroy obstructing prostate tissue



Laser

Concentrated light is used to generate precise, intense heat to destroy excess prostate tissue



Waterjet ablation

A high-velocity waterjet is used to destroy excess prostate tissue, using an image-guided robotic arm



Surgery

Surgical procedure that involves cutting away a section of the prostate

Least invasive → **Most invasive**

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Medications

Boulder Community Health

- Alpha Blockers (Tamsulosin, Alfuzosin)
  - Work quickly
  - Doesn't shrink prostate
  - SE: dizziness, retrograde ejaculation, nasal congestion
- 5-ARI (Finasteride, Dutasteride)
  - Shrink prostate
  - Take 6 months to work
  - SE: decreased libido and erections
- Tadalafil
  - Improved symptoms
  - Added benefit of helping with ED
  - SE: headaches, acid reflux

How the UroLift™ System Works



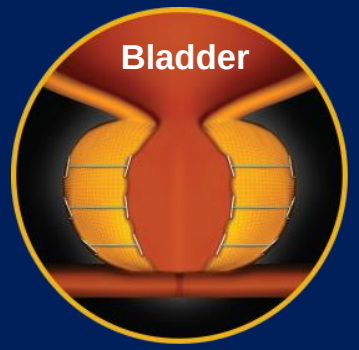
Step 1

The UroLift™ Delivery Device is placed through the obstructed urethra to access the enlarged prostate.



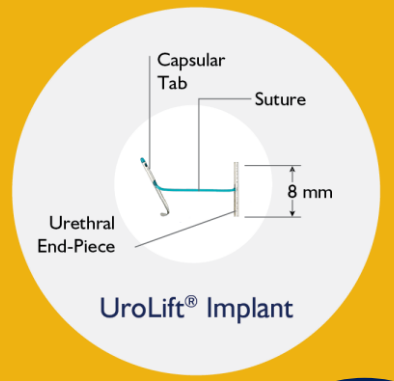
Step 2

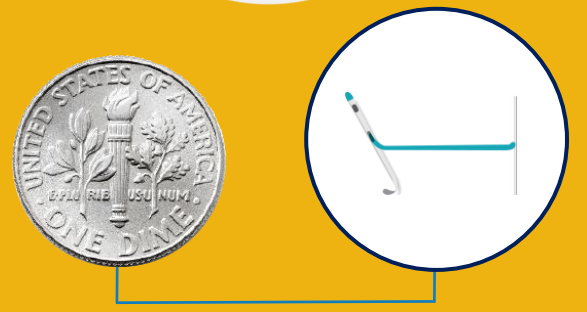
Small implants are permanently placed to lift and hold the enlarged prostate tissue out of the way and increase the opening of the urethra.



Step 3

The UroLift System procedure provides symptom relief by opening the obstructed urethra.





Size Comparison

Typically, 4-6 implants are used per patient

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AQUABLATION®

Therapy by PROCEPT BioRobotics

THE BPH TREATMENT OF CHOICE FOR ALL PROSTATES



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DT0077.B

PATIENTS ARE COMPROMISING OUTCOMES DUE TO TECHNOLOGY CONSTRAINTS

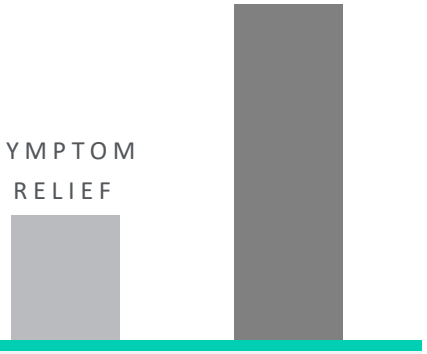
AQUABLATION® Therapy by PROCEPT BioRobotics

PROSTATES COME IN ALL SIZES & SHAPES



small (30-40mL) | **medium** (40-80mL) | **large** (80-150mL) | **extra large** (150mL+)

PRIORITIZE SEXUAL FUNCTION & CONTINENCE PRESERVATION



NON-RESECTIVE

CONSTRAINTS

Minimal symptom relief

May require retreatment

Size & shape limitations

76% Men feel BPH surgery requires a tradeoff between safety & efficacy

TURP & PVP

Enucleation & Simple

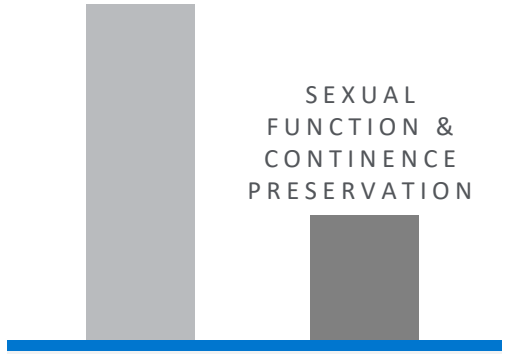
Water Vapor & PUL

AQUABLATION®

THERE IS AN UNMET CLINICAL NEED TO

Eliminate the tradeoff between safety & efficacy and predictably treat all prostate sizes and shapes

PRIORITIZE SYMPTOM RELIEF



RESECTIVE

CONSTRAINTS

Variable complication rate

Time intensive & learning curve

Size & shape limitations

Men are not willing to sacrifice sexual function for symptom relief 83%

BPH size ranges: AUA Guidelines: Surgical Management of BPH/Lower Urinary Tract Symptoms Published 2018, Amended 2019, 2020.
76% and 83% Statistics: Data on file at PROCEPT BioRobotics
Aquablation therapy offers long-term symptom relief with low rates of irreversible complications

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AQUABLATION THERAPY

ONLY IMAGE-GUIDED ROBOTIC THERAPY FOR BPH

AQUABLATION®
Therapy by PROCEPT BioRobotics

REAL-TIME IMAGE GUIDANCE

Intraoperative ultrasound imaging combined with cystoscopic visualization provide a multidimensional view of the treatment area

PERSONALIZED TREATMENT PLANNING

Advanced planning software allows the surgeon to map the treatment contour by identifying tissue to preserve and resect

AUTOMATED ROBOTIC EXECUTION

Robotic execution of the waterjet along the treatment plan results in standardized outcomes and operative experience

HEAT-FREE WATERJET RESECTION

Heat-free waterjet precisely removes prostate tissue and minimizes thermal damage to surrounding tissue



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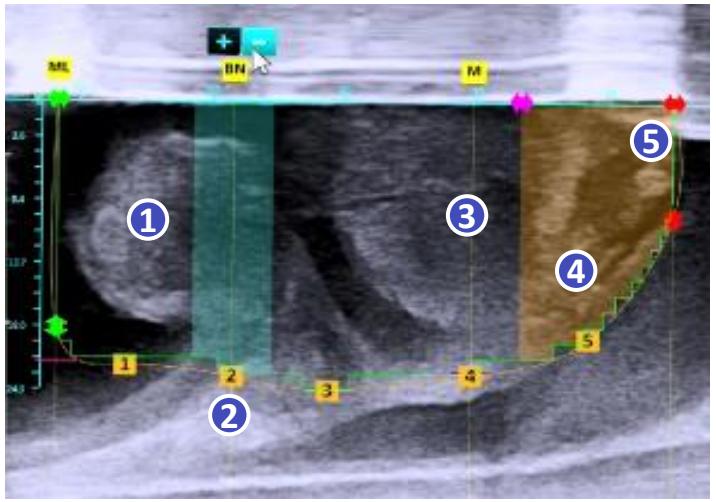
PERSONALIZED TREATMENT PLANNING

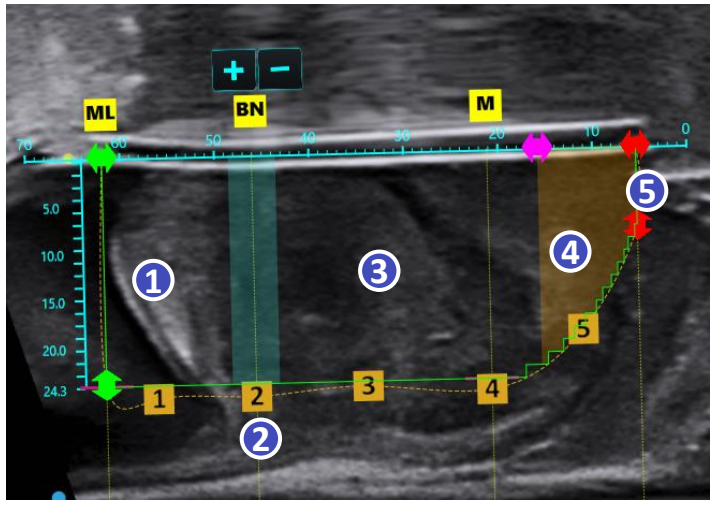
AQUABLATION®
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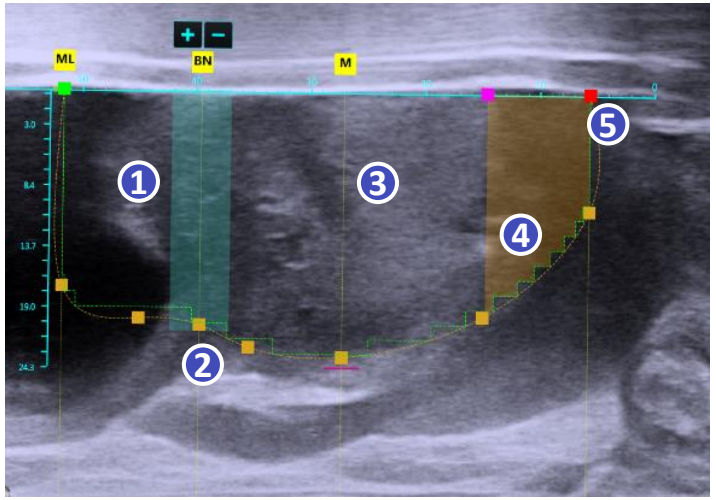
IDENTIFY CRITICAL ANATOMY

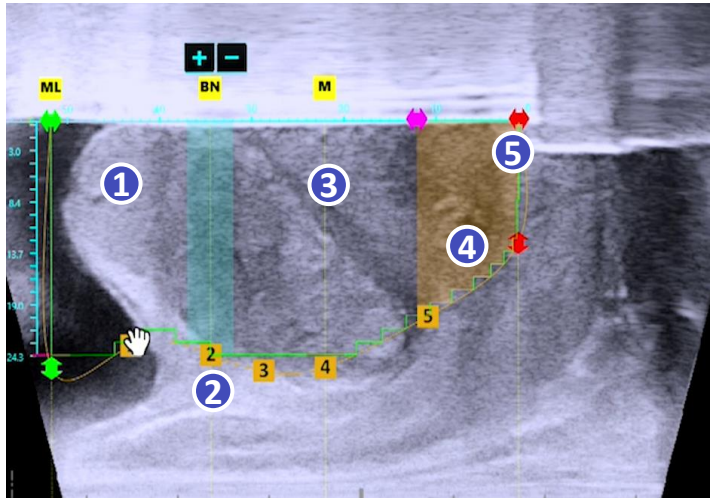
1. MEDIAN LOBE | RESECT
2. BLADDER NECK | PRESERVE
3. LATERAL LOBE | RESECT
4. VERUMONTANUM | PRESERVE
5. EXTERNAL SPHINCTER | PRESERVE

CREATE TREATMENT CONTOUR





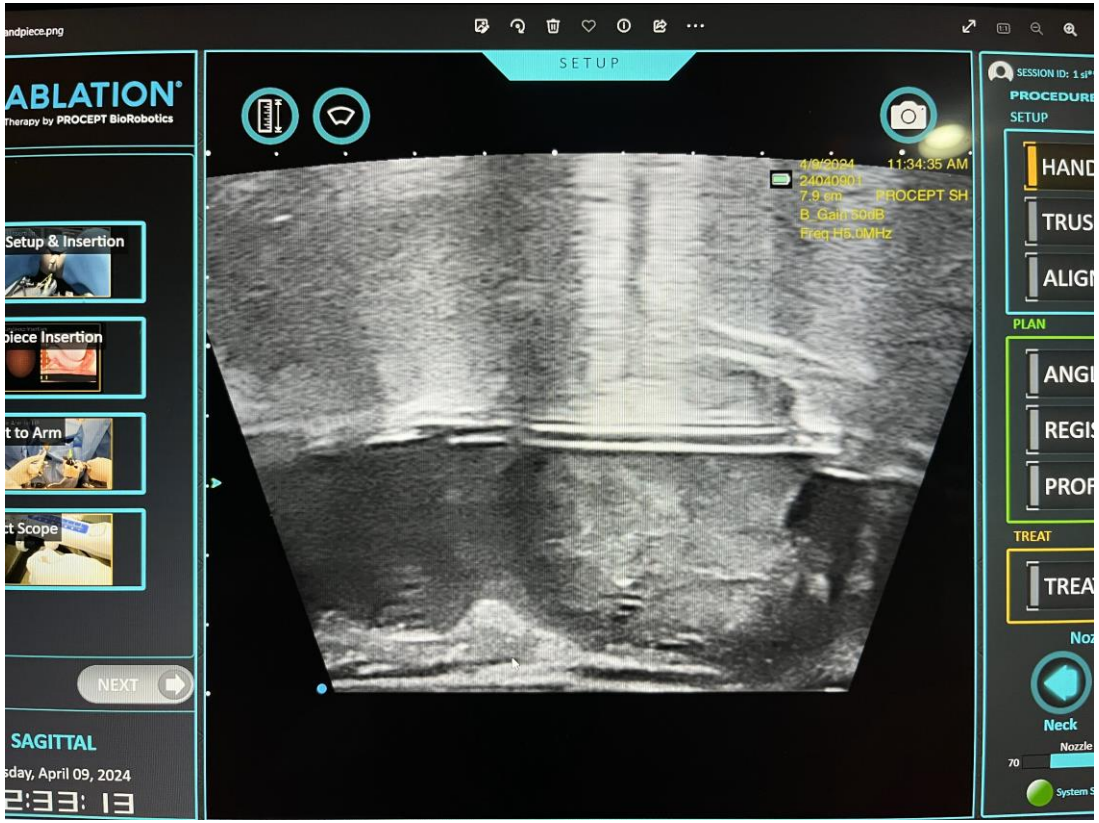




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Aquablation Before and During

Boulder Community Health





AQUABLATION THERAPY PROCEDURE | ANIMATION

AQUABLATION®
Therapy by PROCEPT BioRobotics



Note: Animation does not represent full draping required during Aquablation therapy.

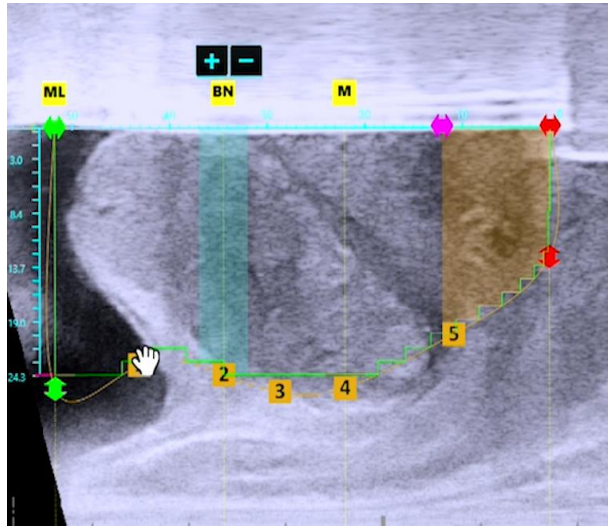
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AQUABLATION THERAPY RESULTS

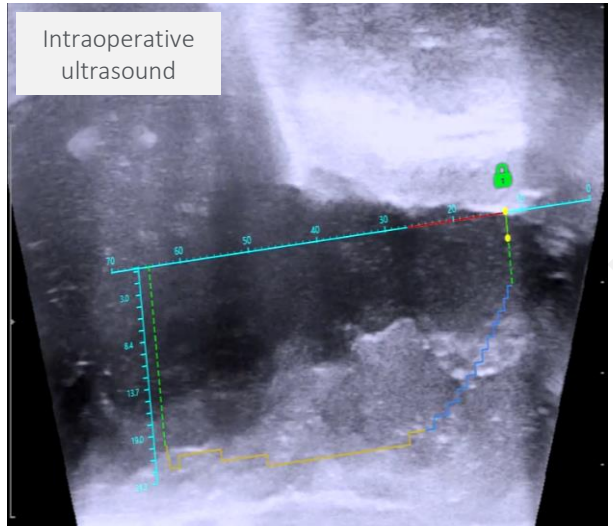
AQUABLATION®
Therapy by PROCEPT BioRobotics

BEFORE
Obstructed Prostatic Urethra









AFTER
Open Prostatic Urethra

Sample results shown here

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NOTE ON RECOVERY

AQUABLATION®
Therapy by PROCEPT BioRobotics

- Patient will wake up with a catheter.
- Patients may stay one night in the hospital or go home the same day.
- Most Aquablation therapy patients end up leaving the hospital without a catheter.[1,2,3]
- Some patients may experience mild burning during urination for the first few weeks.
- Blood in urine is expected for a few days to a few weeks
- Patients may resume normal activities once approved by their doctor.

1. Gilling et al. Five-year outcomes for Aquablation therapy compared to TURP: a randomized controlled trial in men with LUTS due to BPH Can J Urol 2022; 29(1):10960-10968.
2. Zorn KC, Bidair M, Trainer A,Arther A, Kramolowsky E, Desai M, et al. Aquablation therapyin large prostates (80–150 cc) for lower urinary tractsymptoms due to benign prostatic hyperplasia: WATER II 3-year trial results. BJUI Compass. 2022;3(2):130–138.
3. Data on File at PROCEPT BioRobotics

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Other Surgical Treatments for BPH

Boulder Community Health

- Rezum
  - Uses steam injected into prostate. Fast, minimally invasive
  - Downsides: painful/irritating for several weeks. Not long lasting
- TURP (Transurethral Resection of Prostate)
  - Has been performed for ~100 years. Effective at reducing symptoms
  - SE: incontinence, retrograde ejaculation, scarring
- Laser Enucleation
  - Highly effective
  - SE: incontinence, retrograde ejaculation
- PAE (prostate arterial embolization)
  - Minimally invasive
  - Downsides: Slow effect, may not reduce prostate size enough
- Simple Prostatectomy
  - Removes most prostate tissue
  - Downsides: very invasive, longer recovery, high risk of incontinence and sexual side effects

Why Aquablation?

Boulder Community Health

- Highly effective symptom relief- >90% of men off medications
- 90% preservation of ejaculatory function
- Can be done in wide range of prostate sizes
- <1% risk of incontinence
- Long lasting effects (retreatment rate 5% vs 15% or more for others)
- Balances effectiveness, invasiveness, and side effects

Protecting Bladder Health Through Earlier Intervention

If left untreated, BPH can get worse and over time may lead to permanent bladder damage due to the obstruction[1]



Healthy Bladder → Bladder worsens[2] → Permanently Damaged[1]

Intervening earlier with treatments that address the blockage may preserve bladder health.[2]

1. Tubaro, Drugs Aging 2003;
2. Flanigan, J Urol 1998

Thank You!

Boulder Community Health

Questions?

Boulder Medical Center

Boulder Community Health Foundation

Over 40 Years of Community Impact

Enhancing the quality and availability of health care in our community

COMMUNITY

We believe everyone should have a fair and just opportunity to reach their full health potential, both physically and mentally.

PATIENTS

We believe providing the community with the highest value in health care requires an innovative, patient-centered environment.

WORKFORCE

We believe it's imperative to invest in the professional growth and physical and mental health of BCH's greatest asset—the staff and physicians providing care to the community.

Learn more at **bch.org/foundation**

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