# *Aries:* Low Intensity Extracorporeal Shockwave Therapy for Erectile Dysfunction, Peyronie's disease and CPPS

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# ESWT Contraindications

**Absolute contraindications**

- Untreated coagulation abnormalities
- Pneumatized organs in the shockwave area
- Tumor in the shockwave area
- Aneurysms in the shockwave path
- Unclear pathological changes in the shock wave path

**Relative contradications**

- Coagulation disorders/ anti-coagulant therapy
- Infections in the treatment area
- Epiphyseal cartilage in the focal area during growth
- Spinal column in the focal area
- Cardiac arrhythmia, implanted pacemaker in the focal area
- Polyneuropathies
- Polyarthritis
- Pregnancy

# Aries for Erectile Dysfunction

# Aries for ED: Patient Selection

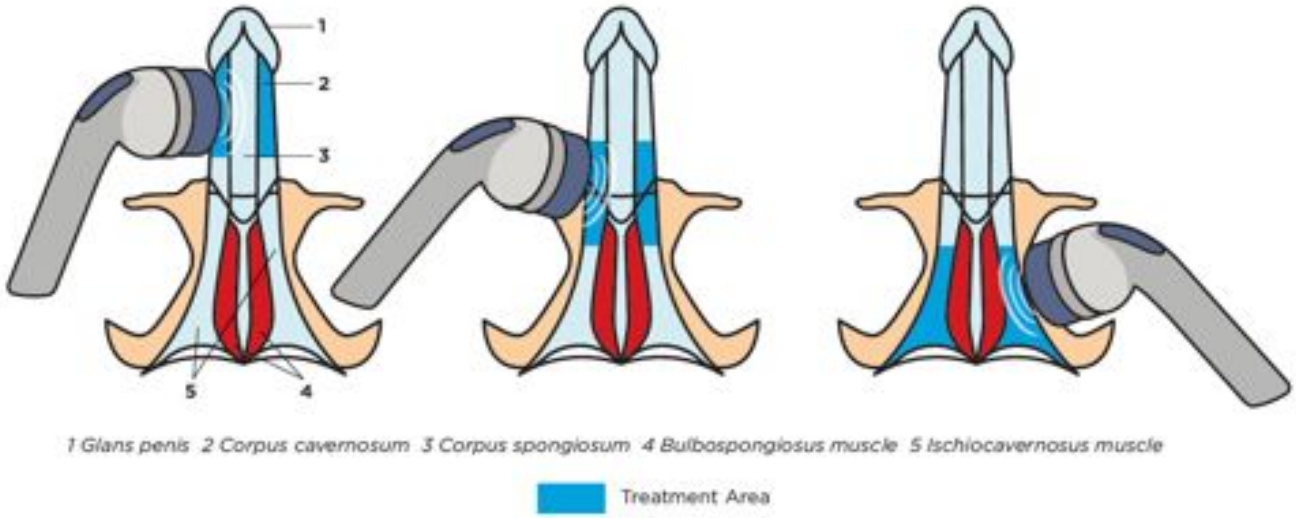
**Suitable for Aries-for-ED Protocol: Vasculogenic ED**

- Clinical history: vascular risk factors or vascular disease
- Penile Doppler: cavernosal artery peak systolic velocity < 35cm/s

**Require Different Protocol or Initial Treatment**

- Untreated hypogonadism (treat hypogonadism first)
- Uncontrolled diabetes mellitus (control HbA1c level first)
- Uncontrolled hypertension (treat hypertension)
- Significant penile anatomical abnormalities or fibrosis (for Peyronie's Disease, see PD/IPP protocol)
- Significant pelvic pain (for Pelvic Pain, see CPPS protocol)

# Aries for ED Protocol: Dr. Dimitris Hatzichristou




Energy Density: 0.10 mJ/mm$^2$ (Level 7)

Number of shockwaves: 5000 SW @ 5Hz (~15 minutes)

Mild Erectile Dysfunction: 6 sessions, 1x /week x 6wk

Mod/Severe ED: 12 sessions, **2x /week** x 6wk

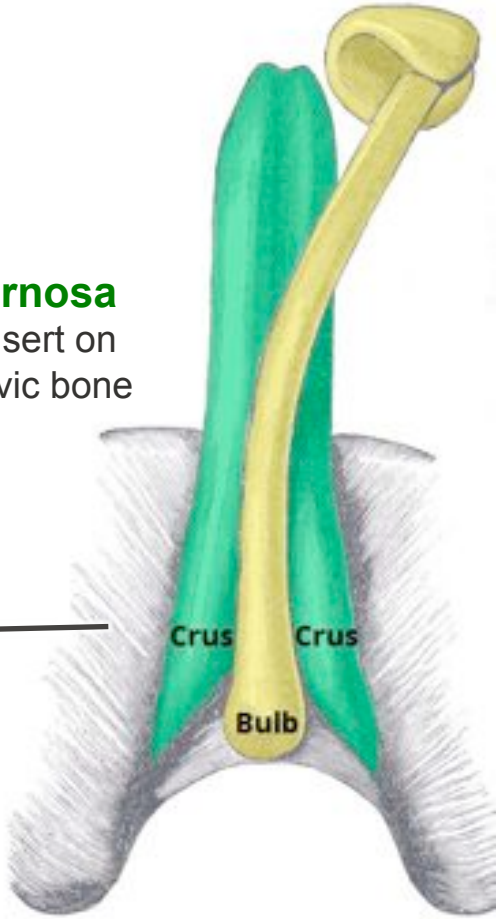
# Treatment Area: Bilateral Corpus Cavernosa

Cross section of the penis

**Corpus cavernosa**
separate and insert on
left and right pelvic bone

**urethra**

**Pelvic bone**

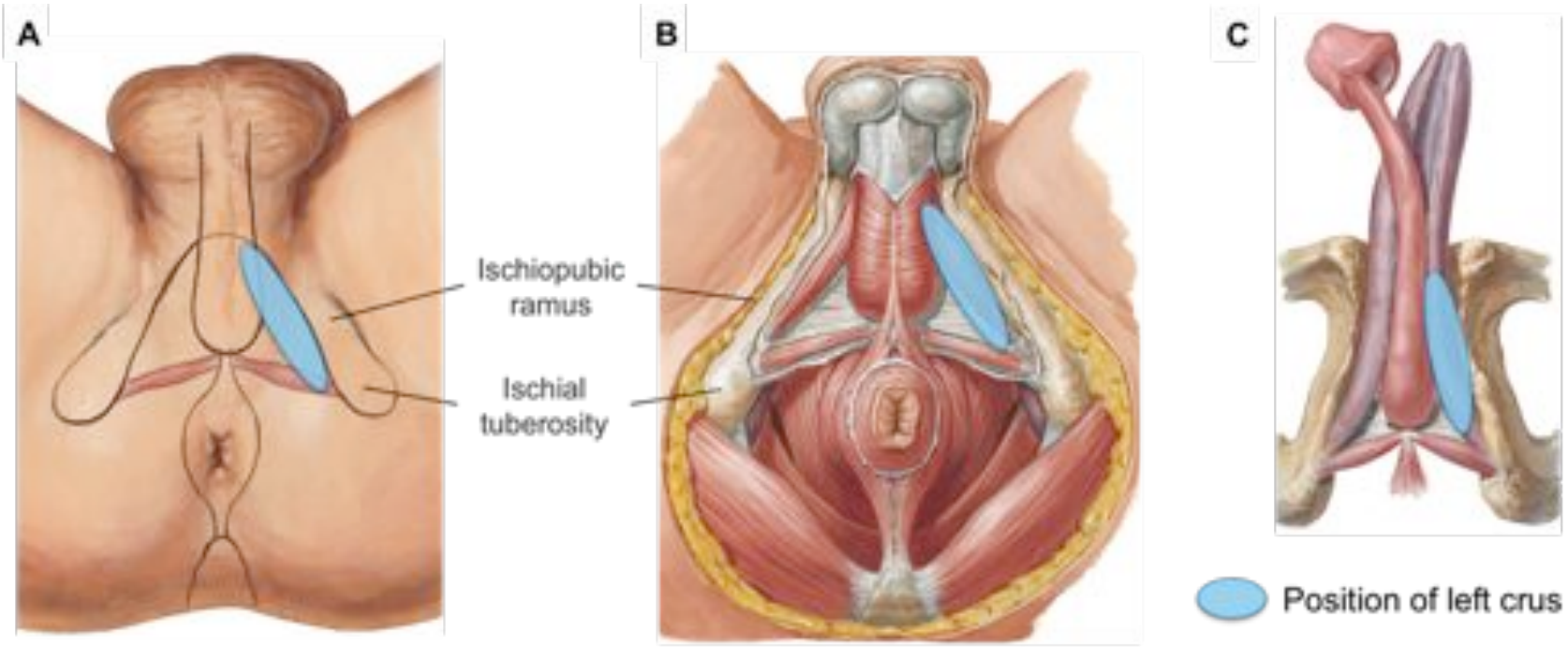



Male perineum
deep inferior view

Corpus cavernosa

Corpus spongiosum

# Locating the crura: Medial to ischiopubic ramus




(A) Surface, (B) superficial, and (C) deep view of the perineum. The position of the left crus is highlighted.

# Aries for ED: Expected Results

**Success rates*:**

- Mild ED: 85%
- Moderate ED: 70%
- Severe ED: 33% (SWT only); 50% (SWT + PDE5i)

**Timing:**

- Most patients feel improvement after 4-6 sessions, and continue to improve up to 3 months post-ESWT (tip: set patient expectations low to reduce anxiety)

**Durability:**

- 66% at 1 year; 50% at 2 years
- Advise patients to reduce cardiovascular risk factors for increased durability of effect

* Success rate defined as MCID in IIEF-EF score

# Response Rate (MCID) by Number of Sessions

Data from Prof. Dimitris Hatzichristou, Greece

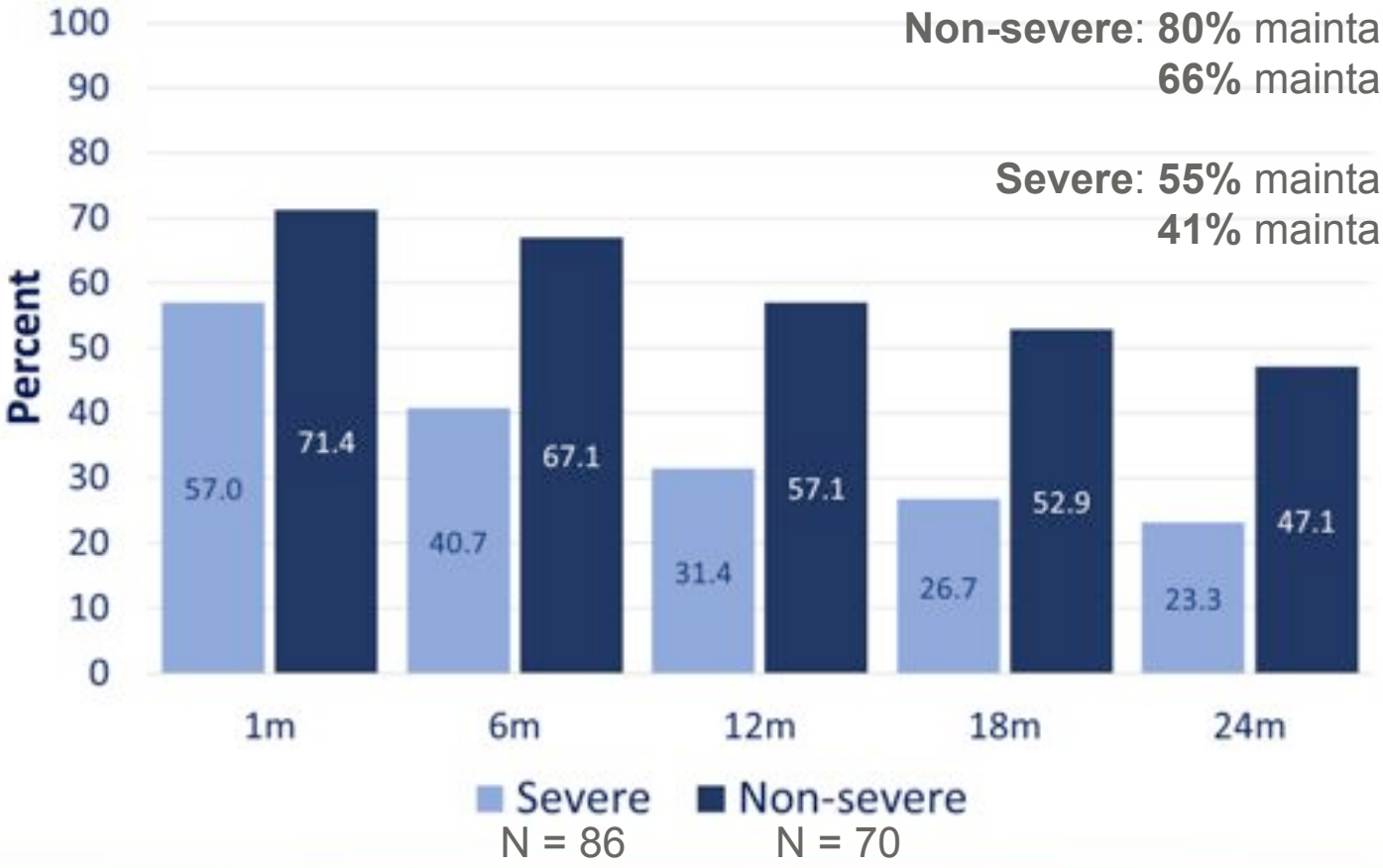
| | Mild (%) | | Moderate (%) | | Severe (%) | | Total (%) | |
|---|---|---|---|---|---|---|---|---|
| 6 sessions | 10/12 | (83) | 3/7 | (43) | 0/2 | (0) | 13/21 | (62) |
| 12 sessions | 18/20 | (90) | 10/14 | (71) | 1/5 | (20) | 29/39 | (74) |
| 18 sessions | 8/8 | (100) | 5/7 | (71) | 2/3 | (67) | 15/18 | (83) |

* IIEF-EF MCID, at 6 months after final ESWT session
** Mix of patients receiving ESWT sessions at different time intervals
*** Results from treatment with ESWT alone (no other erectogenic aids)

Kalyvianakis et al. J Sex Med. 2018 Mar;15(3):334-345

# Durability of Response after ESWT

% Subjects who meet IIEF-EF MCID




**Non-severe**: **80%** maintain at 12 mth
**66%** maintain at 24 mth

**Severe**: **55%** maintain at 12 mth
**41%** maintain at 24 mth

Kitrey et al. J Urol. 2018 Mar 1. pii: S0022-5347(18)39376-5.

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# Low-intensity shockwave therapy: why therapy didn't work?

## Pseudo-non-responders

### Protocol/technical factors

- **Too early**: some patients need 1 - 3 months to see an effect
- **Patient anxiety**: set expectations low to reduce stress during intercourse
- **Not enough sessions**: some patients need 12 or 18 sessions
- **Not enough energy**: some patients may need more pulses or higher energy due to larger anatomy
- **Scheduling**: > 8 days between treatment sessions may reduce efficacy
- **Shockwave coupling**: any air between the applicator and target tissue will prevent energy delivery. Use a generous amount of ultrasound gel, and hold the penis firmly against the applicator.

## Non-responders

### Patient selection

- **Untreated comorbidities** eg.diabetes,hypogonadism
- **Severe cavernosal fibrosis**, loss of smooth muscle
- **Cavernosal artery occlusion**

### Psycho-sexual factors

- **Patient** intrinsic issues
- **Relationship** issues

**Adjust Treatment (personalized protocol)**

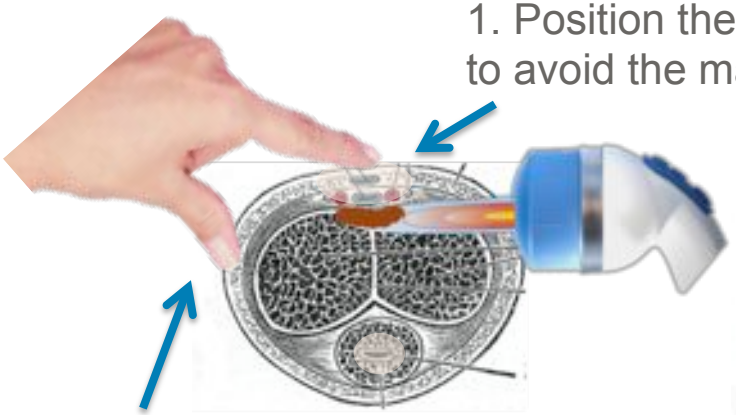
- **Treat co-morbidities (eg. testosterone supplementation)**
- **+ PDE5i or ICI**
- **Counseling – sex therapy**

# Peyronie's Disease

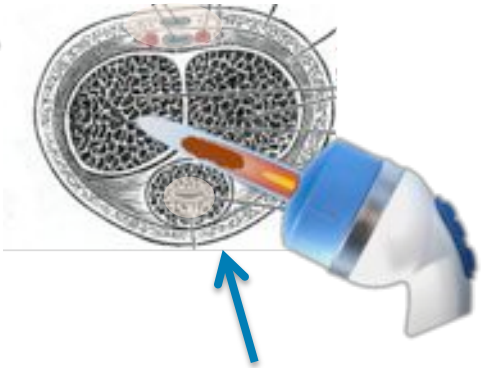
Information provided have been collected from literature sources and user feedback. Protocol recommendations have not been tested in sham-controlled trials, and are subject to change as more information becomes available.

# Safe and effective targeting of Peyronie's plaque

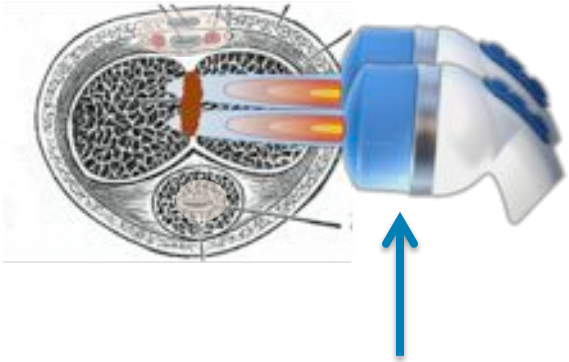
1. Position the applicator to avoid the major vessels



4. Use fingers to 'press the plaque against the applicator'. Use tissue or gauze to protect fingers.



2. Position the applicator to avoid the urethra



3. For larger plaque > 15mm diameter, move the applicator to treat the whole plaque

Peyronie's plaque

Avoid the dorsal vasculature and urethra