

Emerging Therapies: Shock Wave and Platelet Rich Plasma: What's the Truth?

Brian Christine, *M.D.*

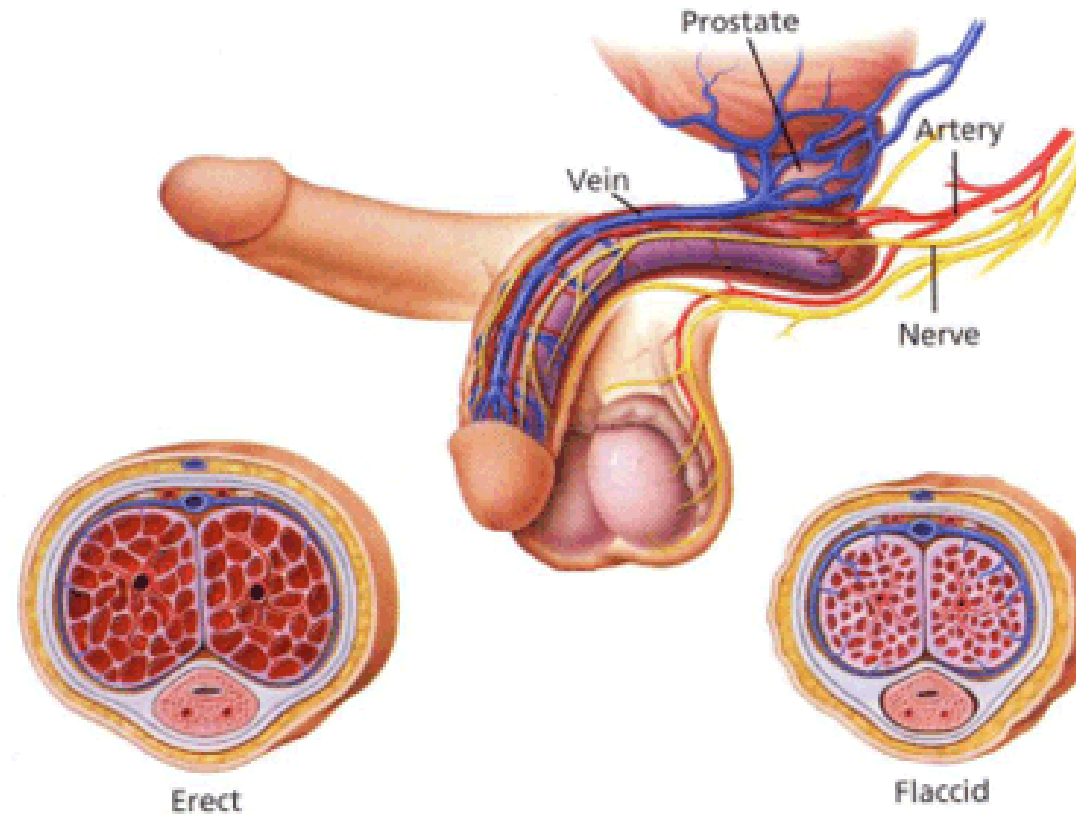
Dr. Christine is a compensated consultant for Boston Scientific and Coloplast corporations

• Shock Wave Therapy

Erectile Dysfunction

- Estimated 30 million men in USA
- 52% men age 40 >
- Etiologies: advancing age, hypertension, diabetes, cardiovascular disease, medications, smoking, pelvic surgery, penile trauma (ie, penile fracture)
- Radical prostatectomy, Radical cystoprostatectomy
- Pelvic radiation therapy (Prostate cancer)

• Shock Wave Therapy



• Shock Wave Therapy

Erectile Dysfunction



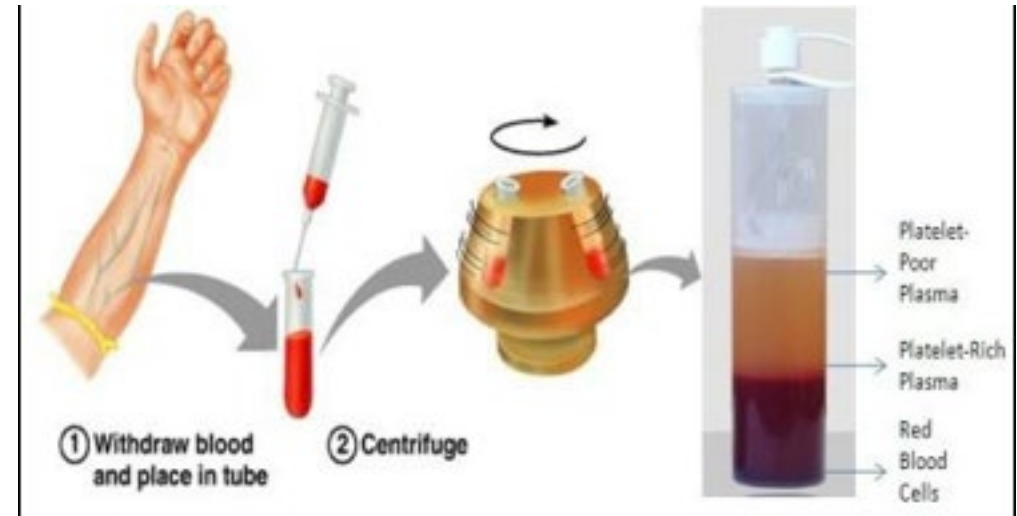
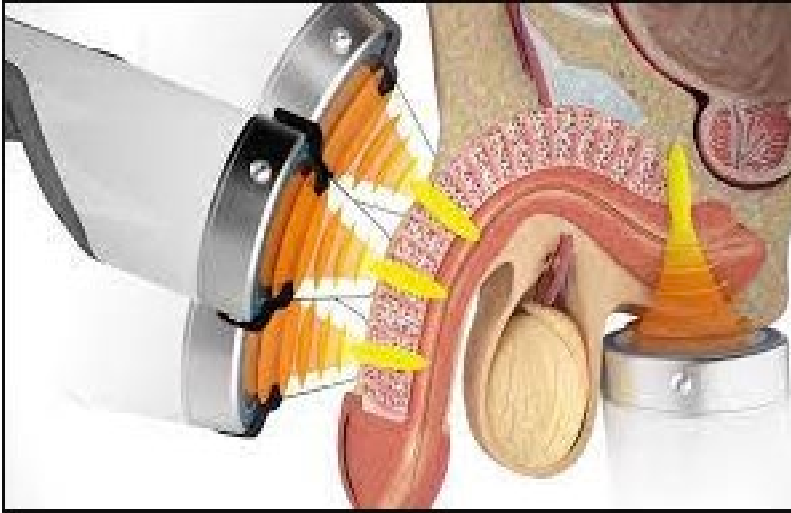
© Hesthwise, Incorporated



• Shock Wave Therapy

Erectile Dysfunction

- Restorative Therapies



Shock Wave Therapy

International Index of Erectile Function-Erectile Function (IIEF-EF)

The International Index of Erectile Function (IIEF-5) Questionnaire

Over the past 6 months:					
1. How do you rate your confidence that you could get and keep an erection?	Very low 1	Low 2	Moderate 3	High 4	Very high 5
2. When you had erections with sexual stimulation, how often were your erections hard enough for penetration?	Almost never/never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always/always 5
3. During sexual intercourse, how often were you able to maintain your erection after you had penetrated (entered) your partner?	Almost never/never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always/always 5
4. During sexual intercourse, how difficult was it to maintain your erection to completion of intercourse?	Extremely difficult 1	Very difficult 2	Difficult 3	Slightly difficult 4	Not difficult 5
5. When you attempted sexual intercourse, how often was it satisfactory for you?	Almost never/never 1	A few times (much less than half the time) 2	Sometimes (about half the time) 3	Most times (much more than half the time) 4	Almost always/always 5

• Shock Wave Therapy

- **IIEF scores: 5-25**

Mild 17-21

Mild-to-Moderate 12-16

Moderate 8-11

Severe 5-7

● Shock Wave Therapy

Erection Hardness Score (EHS)

GRADE 1 Penis is larger but not hard	GRADE 2 Hard but not hard enough for penetration	GRADE 3 Hard enough for penetration but not completely hard	GRADE 4 Completely hard and fully rigid
--	--	---	---

• Shock Wave Therapy

- **Low Intensity Extracorporeal Shock Wave Therapy (LIESWT)**
- **Diabetic foot ulcers, improves myocardial ischemia**
- **Shocks applied to shaft and crura (via perineum)**
- **An acoustic wave of energy, travels through tissue, produces rapid rise and fall of pressure at tissue interfaces: shockwave**

• Shock Wave Therapy

- **Mechanism of action: microtrauma which stimulates angiogenesis, stem cell recruitment.**
- **Focused shock waves: can be targeted to specific tissue depths (up to 12cm) allowing focused delivery of maximal energy and limiting energy dispersion. This is the shock wave therapy used for kidney stones.**
- **Radial shock waves: maximal point of energy at tip of device, rapid attenuation of energy, up to 3.5cm tissue depth.**

• Shock Wave Therapy

- Side effects: bruising, swelling, pain, paresthesia in treatment area
- Studies of mechanism of action have been performed with fLIESWL generators. Does rLIESWL produce same results?????
- It seems increased power of shock waves and number of waves is better
- No consensus as to power or number of waves (14HZ, 3.5; 200 R and L crus, 200 R and L base, 600 R and L shaft: 2000/once per week, 6 weeks)

• Shock Wave Therapy

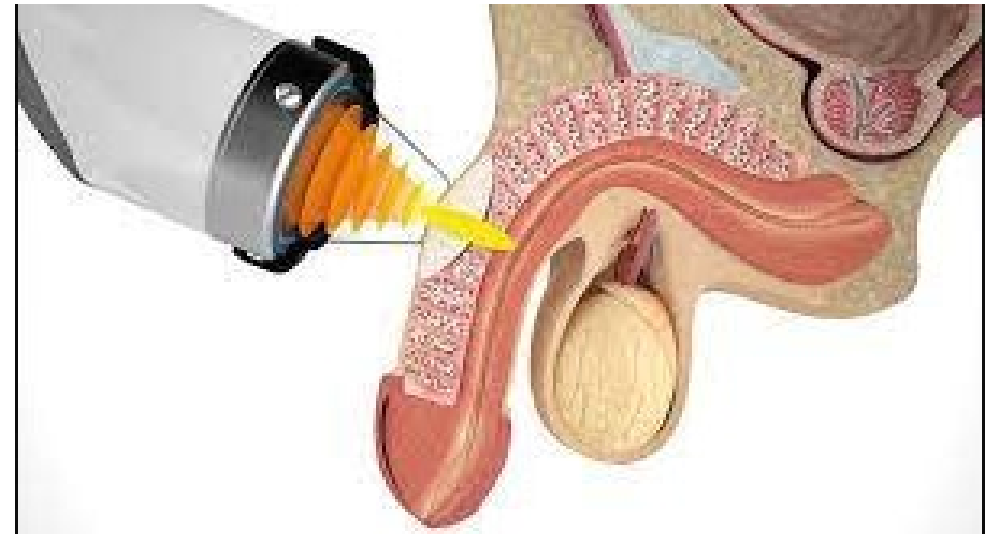
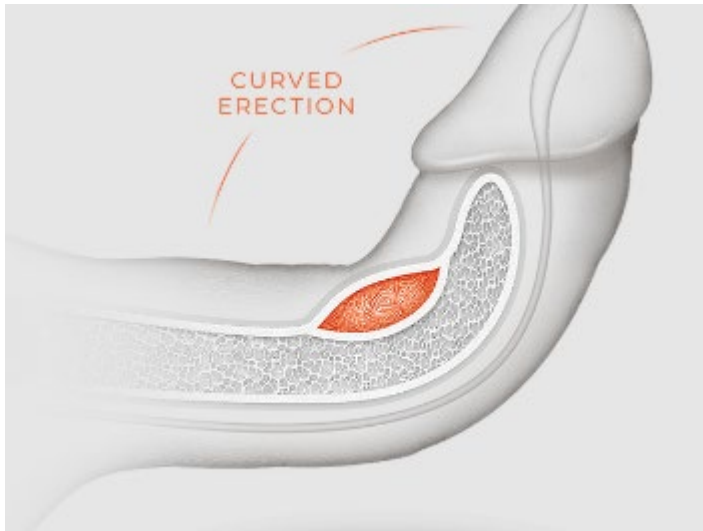
- **Over time, studies have produced data showing positive benefit of LIESWT for erectile dysfunction.**
- **Increase in IIEF and EHS scores reported in several studies**
- **Best results in patients with mild-to-moderate ED of vascular origin (hypertension, Diabetes, cardiovascular disease).**
- **Less results in severe ED, or neurogenic ED (post-prostatectomy)**

• Shock Wave Therapy

- **Men who might occasionally need a PDE5 inhibitor can improve rigidity and reliability of erections**
- **Men who rely on oral medicines can perform without medication**
- **Positive effects may be temporary requiring repeat treatments**
- **About 40-45% of men treated will respond positively**
- **No evidence of negative effect**

• Shock Wave Therapy

- **Emerging evidence of benefit in acute phase of Peyronie's Disease**



- **Improvement in pain**

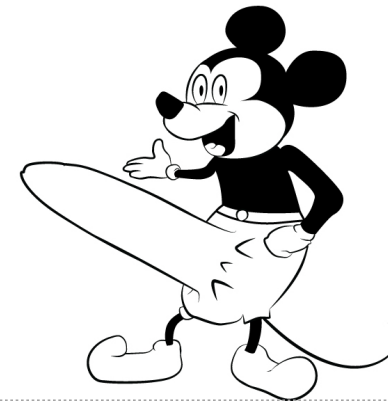
• Platelet Rich Plasma

- Platelets contain growth factors
- Can these factors improve ED?



• Platelet Rich Plasma

- **The Neuroprotective Effect of Platelet Rich Plasma on Erectile Function in Bilateral Cavernous Nerve Injury Rat Model (Taipei Medical University)**
- **Increased number of myelinated axons, evidence for recovery of erectile function.**



• Platelet Rich Plasma

- **Single prospective study in humans published 2021 showed a “minimal clinically important difference” in 69% of men with mild-to-moderate ED who received intracavernosal PRP vs 27% of control at 1 and 3 months.**
- **No adverse effects reported.**

Too early to give patients legitimate counseling that PRP improves erectile function in humans.

THANK YOU

UCA | **UROLOGY CENTERS
OF ALABAMA**

UCA | **WOMEN'S CENTER**

UCA | **VAN SCOTT
CANCER CENTER**

UCA | **MEN'S HEALTH
CENTER**