

## VACUUM DEVICE

By generating a negative pressure inside the tube, an erection is achieved by bringing venous blood, not oxygenated, to the corpora cavernosa and maintaining it thanks to the constrictor rings at the base of the penis.

## MECHANOTRANSDUCTION

"Mechanotransduction is a process that converts cellular mechanical stimuli."

Mechanical traction  **Cell proliferation**  
**Extracellular matrix expansion**

## THE DEVICE



## CLINICAL EVIDENCE

### 1) TREATMENT FOR PEYRONIE'S DISEASE (PD)

| Author/year           | N  | Study design     | Tt. duration (months) | Methods/Treatment  | Significant Findings  |
|-----------------------|----|------------------|-----------------------|--|---|
| Lue et al. 1999       | 4  | Case series      | 6                     | Severe PD men with penile shortening-daily VED use for 6 mo starting 1 month after circumferential tunical incision and circular venous grafting | Greater penile length increase (2 inch), 6 mo post-op usage of VED vs 1 patient (1 in.) who did not use VED (not statistically significant).                                |
| Yurkanin et al. 2001  | 22 | Case series      | 3                     | VED use following plaque incision and saphenous vein grafting  | Mean length increase of +2.1 cm. 96.2% of men had curvature improvement (mean 17.36°).  |
| Raheem et al. 2010    | 31 | Case series      | 3                     | VED for 10 min/twice daily for 12 weeks  | 35% of men experienced a >0.5 cm length increase (P < .05)  |
| Abdel et al. 2017     | 53 | Case series      | 3                     | CCH injection every 4 wk for 12 wk with twice daily VED use  | Average length gain of 0.4 cm (P < 0.05).   |
| Macdonald et al. 2020 | 53 | Controlled study | 14                    | No VED (n = 33) vs used VED used for at least 10 min twice/day with a minimum follow up of 3 mo (n = 20).  | VED users: Mean curvature improvement: 23° (P < .05). Only 9 of the 33 untreated patients had an improvement in curvature 3.6°. Treated group had improvement in SHIM score |

VED: Vacuum Erection Device CCH: collagenase clostridium histolyticum; SHIM: Sexual Health Inventory For Men

### 3) POST RADICAL PROSTATECTOMY:

As a treatment for erectile dysfunction (ED) (penile rehabilitation)

Onset 1-3 months post-surgery, use BV 10 minutes per day for 6-12 m.

RESULTS: Penile length preservation (-0.4cm - +0.6 cm)

Improved penetrative ability, orgasm and +9.4 SHIM points.

### 5) POST POSTERIOR URETHROPLASTY

↑ Stretched penis length: **+0.4 cm.**  
Significant improvement in SHIM and QEQ (Quality of Erection Questionnaire)

\* Zhang et al 2019.

### 4) PRIMARY TREATMENT FOR PENILE LENGTHENING :

20 minutes/day, 3 times/week, for 6 months.

↑ Stretched penile length: **+0.3 cm.**  
(not statistically significant)  
Satisfaction rate: 30%.

\* Aghamir et al 2006.

### 6) TREATMENT OF ERECTILE DYSFUNCTION:

Used for more than a century as a treatment for ED

(1917 Otto Lederer)

Success rates: 58%-85%.

Satisfaction rates: 35%-92%  
(highly variable)

## METHODS OF USE

**DE tt:** activate the pump until sufficient rigidity and place a constrictor ring at the base of the penis.

**Rehabilitation:** we keep the pump activated for several minutes (10) twice a day for several months

## 2) TOGETHER with PENILE PROSTHESES:

**PRE-IMPLANT:** (10-15 min. 2 times/d) for 1-3 months.

- Improves corporal fibrosis and facilitates prosthesis placement.
- ↑ Stretched penile length: **0.8 -0.92 cm.**

**POST-IMPLANT:** improvement of erectile **rigidity** and **girth** when BV is used concomitantly with penile prosthesis during sexual intercourse.

## SAFETY

### FEW ADVERSE EFFECTS

- 7-15% Pump malfunction, maladaptation
- 5-8% Painful venous insufflation
- 4-7% Preputial or penile edema
- < 5%: Ecchymosis, petechiae
- Ejaculodinia and/or anejaculation

## CONCLUSION:

The **VACUUM DEVICE** is useful in the treatment of ED and could improve the efficacy of other treatments for PD and post-RP penile rehabilitation.