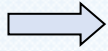


## PENILE EXTENDER DEVICE

### CONCEPT OF MECHANOTRANSDUCTION

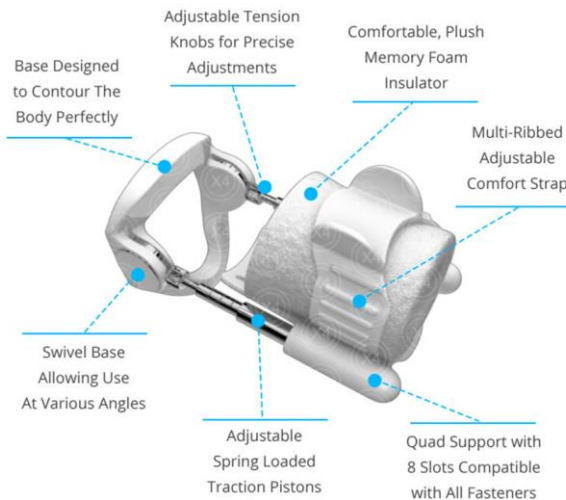
"Mechanotransduction is a process that converts mechanical stimuli to cellular biochemical responses."

**Mechanical traction**



- Cellular proliferation
- Extracellular matrix expansion

\* Ref: Chung et al 2013.



## SCIENTIFIC EVIDENCE

### 1) PRIMARY TREATMENT FOR LENGTHENING/DYSMORPHOPHOBIA:

Use 4-6h/day. During 3-6 months.  
Flaccid Penile Length: 1.7-2.3 cm  
Stretched Penile Length: 1.3-1.7 cm

### 2.1) PRIMARY TREATMENT FOR PD:

Means curvatures 33°-72°  
Use 2-8h/day. During 3-6 months.  
Stretched Penile Length: 1.3-1.7 cm  
Reduction in curvature from 4° to 31.2°  
(Curvature improvement: 12.9-41.1%)

### 2) TREATMENT FOR PEYRONIE DISEASE (PD):



### 2.2) PRIOR TO PD SURGERY:

N:2. Use 2 h/day, 2 months  
Penile length gain: 1.5-0.5 cm

### 2.3) AFTER PD SURGERY:

N:111 Use >2 h/day 3 months  
Penile length gain: 0.9-1.5 cm

### 3) BEFORE PENILE PROSTHESIS IMPLANT:

Use 2-4h/day, 4 months.  
Stretched Penile Length: 0.3-3 cm

PATIENT GROUP	DURATION OF TREATMENT	EFFICACY
TAP: 52; PTT(+): 27; PTT(-): 25; PEG: 59; PTT(+): 36; PTT(-): 23	>2 h/day; 3 months	SPL; TAP (PTT+): 0.85 cm; TAP (PTT-): -0.53 cm; PEG (PTT+): 1.48 cm; PEG (PTT-): 0.24 cm

\* Ref: Rybak et al 2012.

PTT: penile traction therapy; SPL: change in stretched penile length; TAP: tunica albuginea plication; PEG: plaque excision and grafting.

### 2.4) IN COMBINATION WITH INTRALESIONAL TREATMENT FOR PD:

Author/year	n	Type of therapy	MT average daily use (h)	MT average duration (m)	Gain in SPL (cm, p)	Mean curvature ° (SD)	Change in curvature °, (%)
Ziegelmann 2017	35	CCH + modelling +PTD	1.7	6	+0.4; p=0.25	67.4 (25.1)	19.6 (16.1) °, 32.6 (26.8) %
	16	CCH +modelling	0		-0.35; p=0.48	62.1 (24.9)	23.6 (19.9) °, 27.5 (30.1) %
Yafi, 2015	78	IFN a-2b	N/A	N/A	+1.3 (0.8)	42.3 (20.8)	9.9 (11.8)
	34	IFN a-2b + PTD	N/A		+2.4 (0.9) p=0.5567 (1 vs 2)	42.2 (14.6)	8.1 (16.0) p= 0.4894
Abern, 2012	39	verapamil, PTD, oral pentoxifylline and L-arginine	3.3	6	+0.3; p = 0.06	44.4 (40.0-48.7)	11 °
	35	verapamil, oral pentoxifylline and L-arginine	0		-0.7; p = 0.46	36.6 (33.5-39.7)	15.1 °
Fernández-Pascual, 2019	50	CCH + PNT +PTD modelling, tadalafil, pentoxifylline CCH +PTD	1. 6-8	2	+0.3 (0.5); p<0.001	55.3 (14.5)	19.2 (6.1) °, 36.2 (12.5)%
	94	modelling, tadalafil, pentoxifylline	2. 6-8		+0.1 (0.3); p<0.01	50.6 (15.7)	12.7 (5.0) °, 28.1(14.5)%
Alom, 2019	52	CCH+ modelling	0	6	-0.7	median (IQR): 60 (45-75)	20.3 °, 31.2%
	45	CCH modelling + PTD	1,9		-0.4	61.5 (45-75)	19.2 °, 30.2%
	16	CCH + modelling + RestoreX	0,9		+1.9	65 (50-85)	33.8 °, 49.4%

### CONCLUSION:

**PENILE EXTENDER** could enhance the efficacy of other PD treatments in reducing the penile curvature but there is a great heterogeneity in the study designs.

### SAFETY

#### LOW ADVERSE EVENTS

4-45% erythema/dyscoloration  
53% mild penile pain  
32% swelling

SD: standard deviation; PTD: penile traction device; CCH: collagenase clostridium histolyticum; PNT: percutaneous needle tunnelling; IFN: interferón; IQR: interquartile range