



BIOELECTRICAL STIMULATION AND THE PELVIC FLOOR IN THE ERECTION FUNCTION

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DISCLOSURE:



ERECTILE DYSFUNCTION



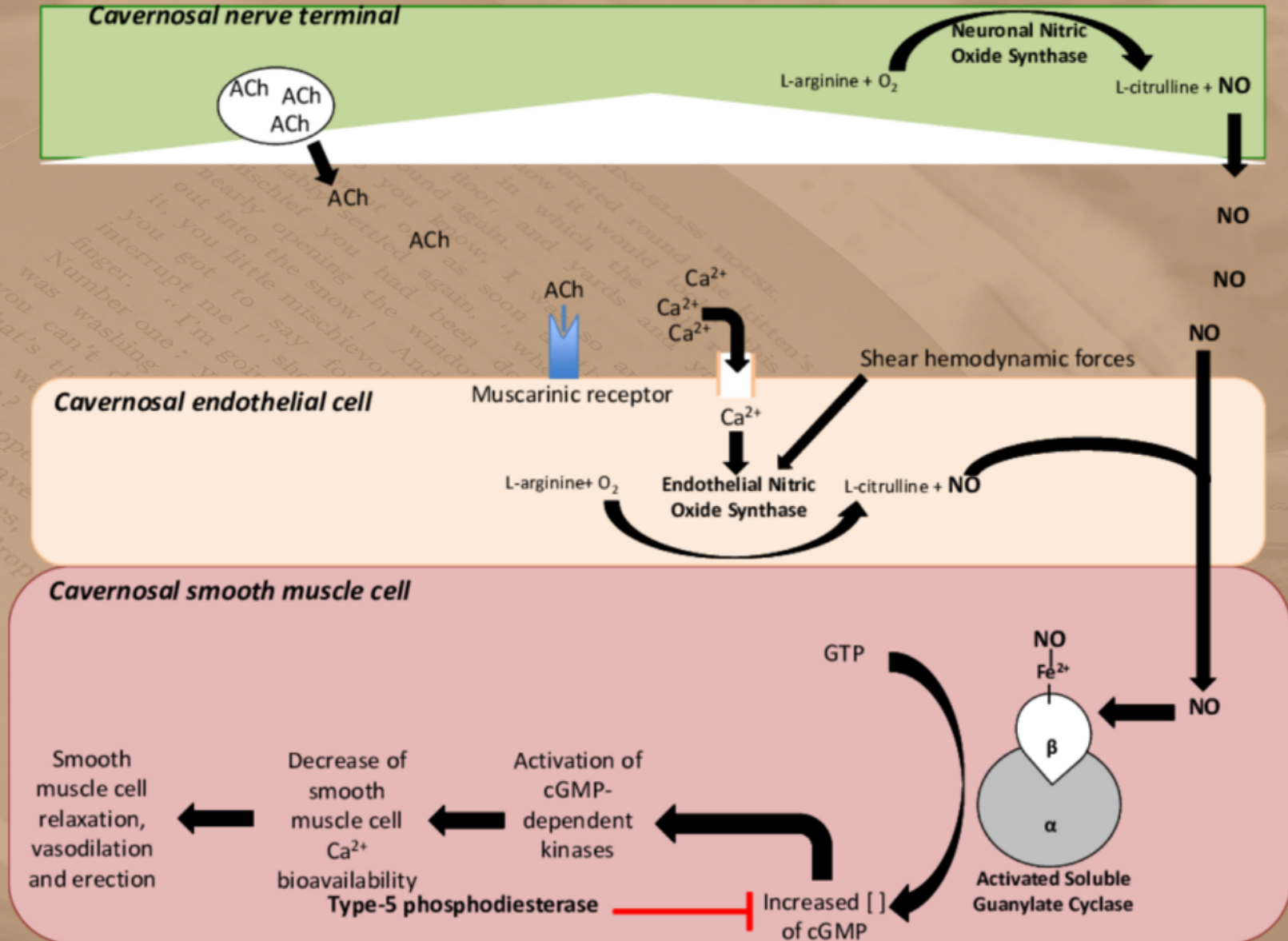
RISKS

- Erectile dysfunction (ED) is defined as the inability to obtain and maintain penile erection sufficient for a satisfactory sexual intercourse
- Affects approximately 150 million men worldwide

Although ED does not present risks to the individual's life, it can provoke a series of disorders, such as decreased self-esteem, increased anxiety, social relationship impairment and depression, among others.

Numerous therapeutic strategies exist to improve erectile function. While these therapies have proven to be safe and effective, they have their limited use prior to sexual practice and do not modify the physiological mechanism of penile erection





ERECTILE FUNCTION

ELECTRICAL STIMULATION

- In the different forms of ED, the main change that can occur is in the smooth muscle of the penis, secretion site of nitric oxide (NO).
 - Studies show that functional electrical stimulation has an endothelial regenerative effect in an animal model with increased release of NO.
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Functional electromyostimulation of the corpus cavernosum penis – preliminary results of a novel therapeutic option for erectile dysfunction*

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발기부전 환자에서 전기자극치료효과

동아대학교 의과대학 비뇨기과학교실

길명철 · 옥윤철 · 강태우 · 정경우

=Abstract=

The Effect of Treatment of Erectile Dysfunction with Electrical Stimulation

Myung-Cheol Gil, Yun-Chul Ok, Tae-Woo Kang and Gyung-Woo Jung

From the Department of Urology and the Institute of Andrology, Dong-A university, Pusan, Korea

Conclusions: We suggest that electrical stimulation is one of the treatment modalities in the treatment of no definite underling disease caused erectile dysfunction patients rather than vascular abnormalities as like venous leakage.

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NITRIC OXIDE AND CYCLIC GMP FORMATION UPON ELECTRICAL FIELD STIMULATION
CAUSE RELAXATION OF CORPUS CAVERNOSUM SMOOTH MUSCLE

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SUMMARY : In the presence of functional adrenergic and cholinergic blockade, electrical field stimulation relaxes corpus cavernosum smooth muscle by unknown mechanisms. We report here that electrical field stimulation of isolated strips of rabbit corpus cavernosum promotes the endogenous formation and release of nitric oxide (NO), nitrite, and cyclic GMP. Corporal smooth muscle relaxation in response to electrical field stimulation, in the presence of



An initial study on the effect of functional electrical stimulation in erectile dysfunction: a randomized controlled trial

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Abstract

Erectile dysfunction (ED) affects approximately 150 million men worldwide. Functional electrical stimulation (FES) therapy has shown a high regenerative capacity for smooth muscle cells and, therefore, is being increasingly adopted. FES can be a beneficial treatment option when the cause of ED is related to degeneration of cavernous smooth muscle. To evaluate the impact of FES on erectile function in men with erectile dysfunction. Twenty-two patients with ED participated in this randomized clinical trial. Participants were randomly assigned to two groups: intervention (IG) or control (CG). IG participants underwent FES therapy (50 Hz/500 μ s) for a total of 4 weeks, divided into two weekly sessions lasting 15 min each, with intensity lower than the motor threshold. CG participants were treated with placebo FES and followed the same



IJIR: Your Sexual Medicine 30th Anniversary Collection

IJIR: Your Sexual Medicine Journal is one of the leading journals in the field of sexual medicine and it has been a privilege to serve as Editor-in-Chief since 2018. I would like to express my sincere gratitude to our readers, authors, reviewers and editorial board members for their ongoing support to our journal.

This year, we are celebrating the 30th Anniversary of *IJIR: Your Sexual Medicine Journal* with a special collection of the top papers that revolutionized the sexual medicine practice. We think these articles are an indispensable resource for basic science researchers, urologists, endocrinologists, cardiologists,

Table 1 Characteristics of the sample

Variable	Total sample	IG (n = 11)	CG (n = 11)	p
Age	58.5 \pm 5.3	58.6 \pm 5.3	58.4 \pm 5.8	.940
Race				.534
White	19 (86.3)	10 (90.9)	9 (81.8)	
Black	3 (13.7)	1 (9.1)	2 (18.1)	
Scholarship	5 (4–8)	5 (4–8)	5 (4–8)	1.0
Smoker	12 (54.5)	5 (45.4)	7 (63.6)	.392
Alcoholic	5 (22.7)	3 (27.2)	2 (18.1)	.611

Table 2 Comparison between groups and intra groups regarding EHS and IIEF-5 questionnaire

Variable	Placebo			Intervention		
	Pre	Post	Diff	Pre	Post	Diff
EHS	1.64 \pm 0.19	1.82 \pm 0.17	.18	1.73 \pm 0.13	2.82 \pm 0.3*	1.1 [†]
IIEF-5	11.4 \pm 1.3	11.4 \pm 1.4	0	11 \pm 1.2	16 \pm 1.7*	5 [‡]

Value are Mean \pm SEM

Generalized Estimating Equations Model was used to test for significant differences at different visits and time points according to each treatment

EHS erection hardness score, IIEF-5 International index of erectile function-5, Diff mean difference post-treatment

* $p < .0001$ from Pre in each questionnaire, [†] $p < 0.05$ Comparison between questionnaire changes

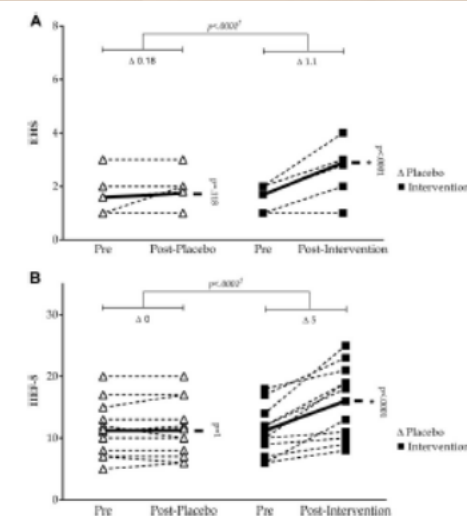
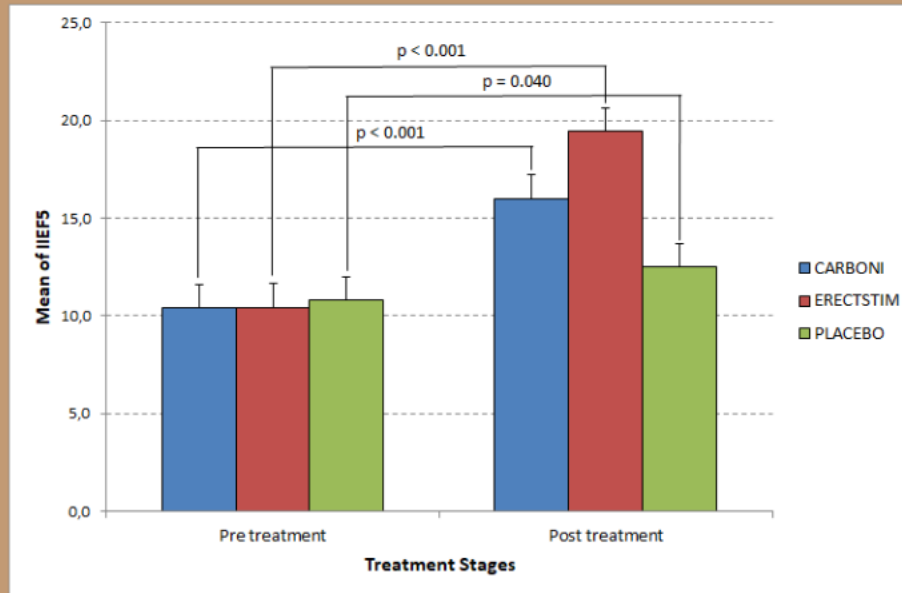
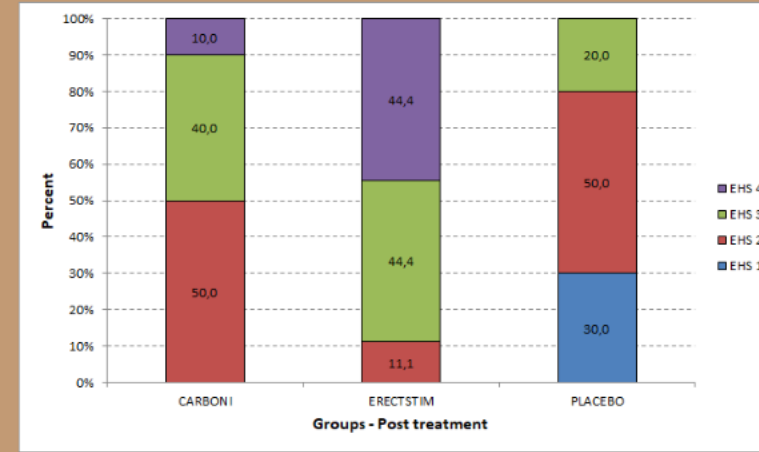
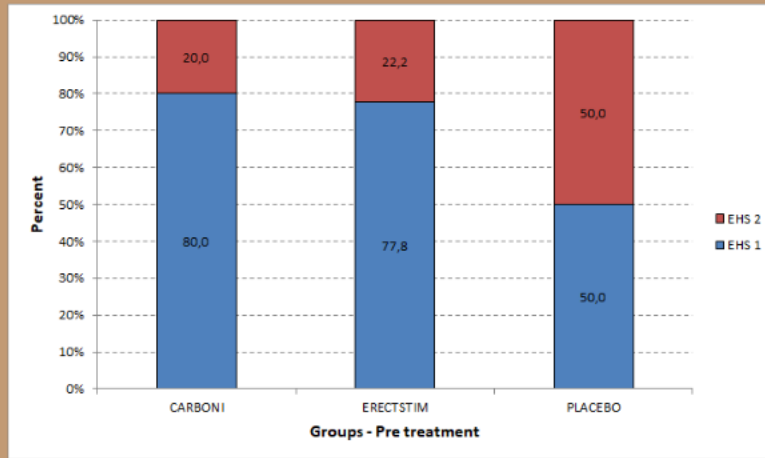


Fig. 2 Individual changes in the EHS score (a) and IIEF-5 score (b)

± 2 , $p < 0.0001^*$) and personal relationships (39.5 ± 3.5 pre-post 43.6 ± 4.5 , $p < 0.0001^*$) domains. Other domains showed no statistically significant difference.

Unpublished data n=30



VEGF
KLOTHO
SDF
PGDF
Follistatin
IGF

PD28-03

EFFECTS OF FUNCTIONAL ELECTROSTIMULATION ON ERECTILE FUNCTION RECOVERY FOLLOWING BILATERAL NERVE-SPARING RADICAL PROSTATECTOMY: A RANDOMIZED SHAM-CONTROLLED STUDY

Ana Paula Bispo*, Scheilla Nascimento, Roberto Soler, Sao Paulo, Brazil

INTRODUCTION AND OBJECTIVES: To evaluate the effect of functional electrostimulation (FES) as a penile rehabilitation procedure on the erectile function (EF) of patients following nerve sparing radical prostatectomy (NSRP).

METHODS: This was a prospective, blind, randomized, sham-controlled trial. The study included men ≤ 70 yr undergoing radical prostatectomy with bilateral preservation of the neurovascular bundle, with previous unassisted normal EF (International Index of Erectile Function, Erectile Function domain [IIEF-EF] score ≥ 26); total PSA < 10 ng/mL and Gleason score ≤ 7 . Patients were randomly assigned, in a 1:1 ratio, to undergo FES or sham procedure. Penile rehabilitation was performed for 6 months, twice a week, during 30 minutes. Patients were evaluated at 1, 3, 6, 9 and 12 months after the start of the procedures. The primary endpoint was proportion of patients with IIEF-EF score ≥ 22 after 12 months of the start of treatment. Secondary endpoints included rate of positive responses to Sexual Encounter Profile (SEP) questions 2 and 3 and to Global Assessment Question (GAQ) questions 1 and 2.

RESULTS: Twenty and three patients were randomized to FES and 26 to sham. After 12 months of the start of the study procedures 52.2% and 19.2% of patients reached IIEF-EF score ≥ 22 in FES and sham groups, respectively ($p = 0.016$). This effect was also observed in other endpoints (table 1). A significantly higher proportion of patients in FES group compared to sham group had positive responses to SEP2 and GAQ1 from the 6th month to the end of the study. There was numerical, but no statistical, difference in the rate of SEP3 and GAQ2 positive responses between the groups. No adverse events related to FES were reported by patients.

CONCLUSIONS: Functional electrostimulation was efficacious and safe as a penile rehabilitation procedure in improving recovery of unassisted EF in patients undergoing NSRP. The effect of FES was maintained after cessation of active therapy.

Table 1 – Proportion of patients with IIEF-EF ≥ 22 according to treatment group

Month	Treatment		P
	FES (n=23)	SHAM (n=26)	
1	16.7%	11.8%	1.000

PELVIC FLOOR MUSCLES AND ERECTILE FUNCTION

PELVIC FLOOR AND EF

The ischiocavernosus and bulbocavernosus muscles play the most important role. The ischiocavernosus muscle stabilizes and maintains the erect penis.



Whereas contraction of the bulbocavernosus muscle contributes to erection, ejaculation, and the contractions of orgasm



All PFM and sphincters show a significant increase in emg activity during the entire erectile period, increasing the intracavernous pressure through contraction



Lavoisier et al

87% of participants (n 230) had a positive outcome in treating their ED with PT

Sommer et al

(n 124) Men were randomized to one of three groups: PFME, sildenafil, placebo. At 3 months, PFME group showed greater improvement

Dorey

55 men randomize: one group received PFME and one group received lifestyle changes. At 3 months, the PFME group showed significant improvement

Prota et al

RCT trial of men with ED after radical prostatectomy. Significant return to potency in the intervention group at 12 months.

SOME RESULTS

Pelvic Floor Physical Therapy for Erectile Dysfunction—Fact or Fallacy?



Elna Rudolph, MD (FECSM),¹ Catriona Boffard, MA, MHSSH (ECPS),¹ and Cecilia Raath, BPhyst²

Pelvic floor muscles and erectile function



PFM X EE X PT

TAKE HOME MESSAGE

More RCT should be perform to show efficacy of PFMT and EE for ED.

More basic researches should be conduct to understand the mechanism of action of the EE for ED.

thank
you



SCHOOL OF PHYSIOTHERAPY

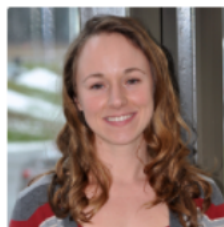


**Cristiane
Carboni**
Director

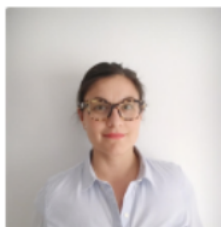
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