# High-power magnetotherapy: a new weapon in perineal pathology?

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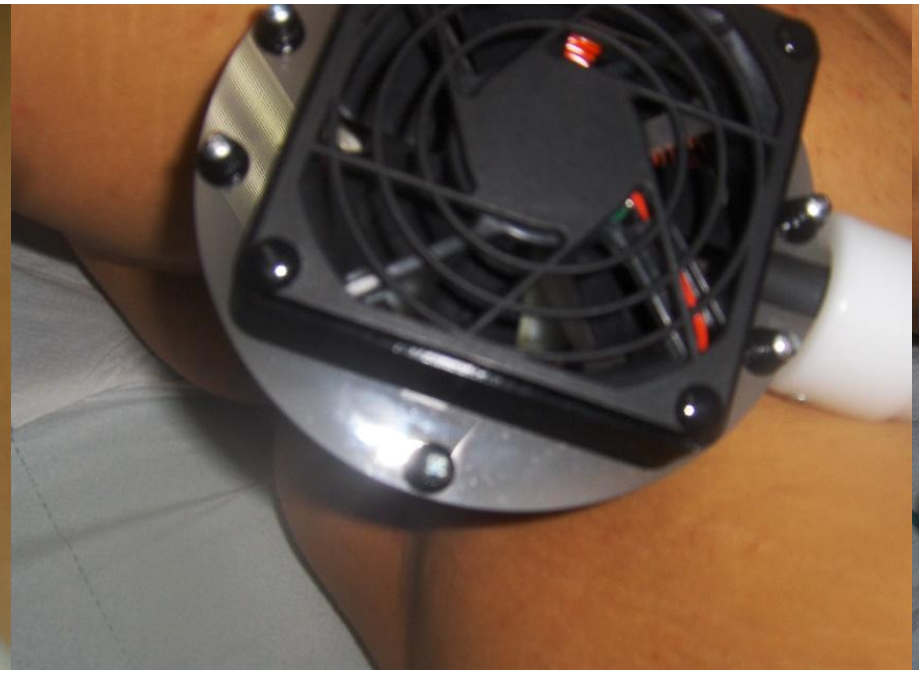
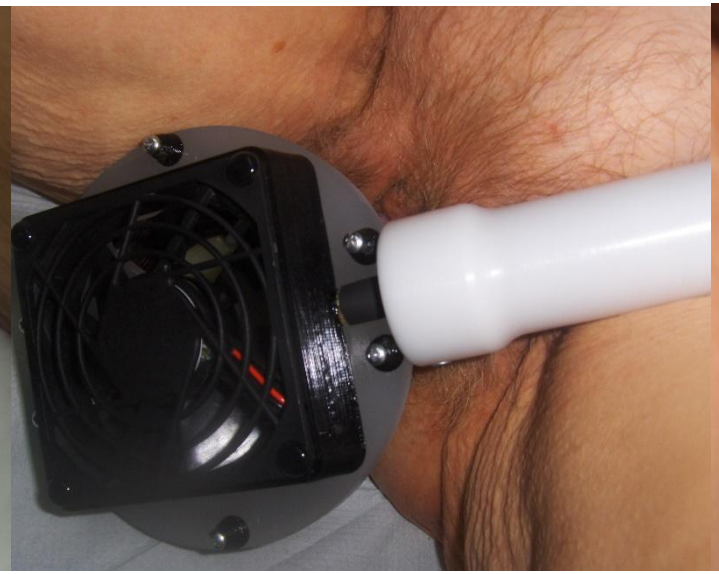
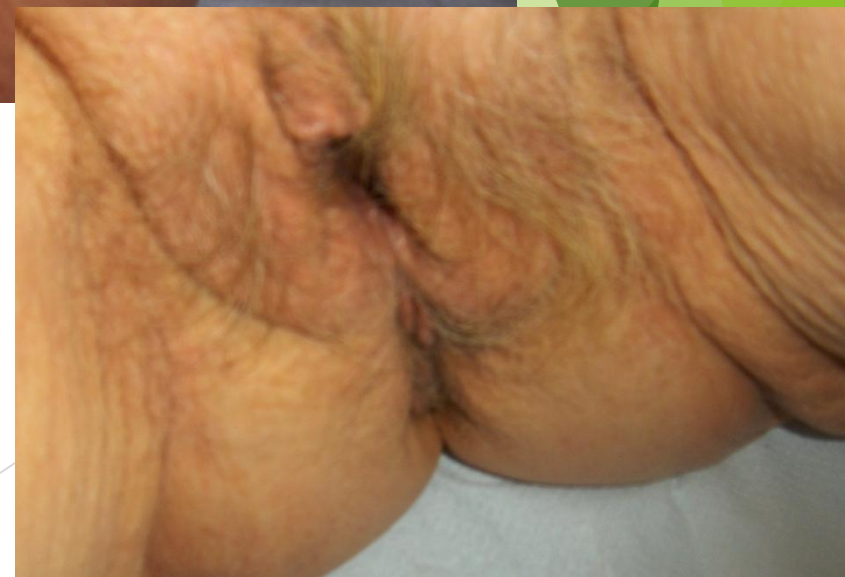
# Functional Magnetic Stimulation (FMS) Administration in the Perineal area

details of the treatment







# MagnetoSTYM Technical Data

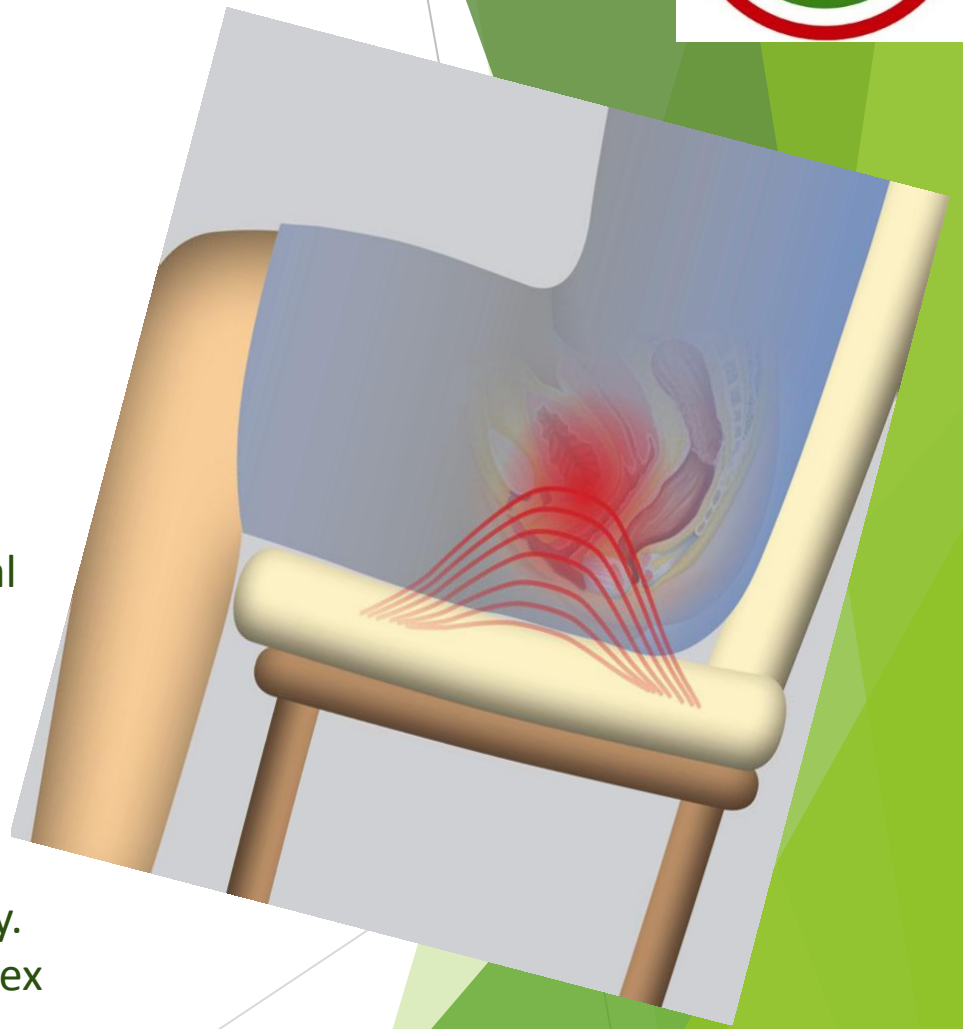
| Parameters | Data |
|---|---|
| Magnetic field strength | Max 2 Tesla |
| Therapy frequency | From1 to 80 Hz |
| Active time | From 1 to 20 s |
| Pause time | From 1 to 30 s |
| Therapy duration | From 1 to 60 min |
| Manual programs | 72 |
| IEC 60601/1 classification | Class I, Type BF |
| Mechanism of Action | Functional Magnetic Stimulation (FMS) |
| Pain | No |
| Invasively | No |

Functional Magnetic Stimulation (FMS) has been developed for stimulating the brain, and has been used to **stimulate phrenic nerves, spinal nerves and the cerebral cortex**.
**the muscles innervated by these nerves are triggered by the therapeutic FMS.**

# MagnetoSTYM CHAIR Mechanism of Action

Patient dressed, sitting comfortably

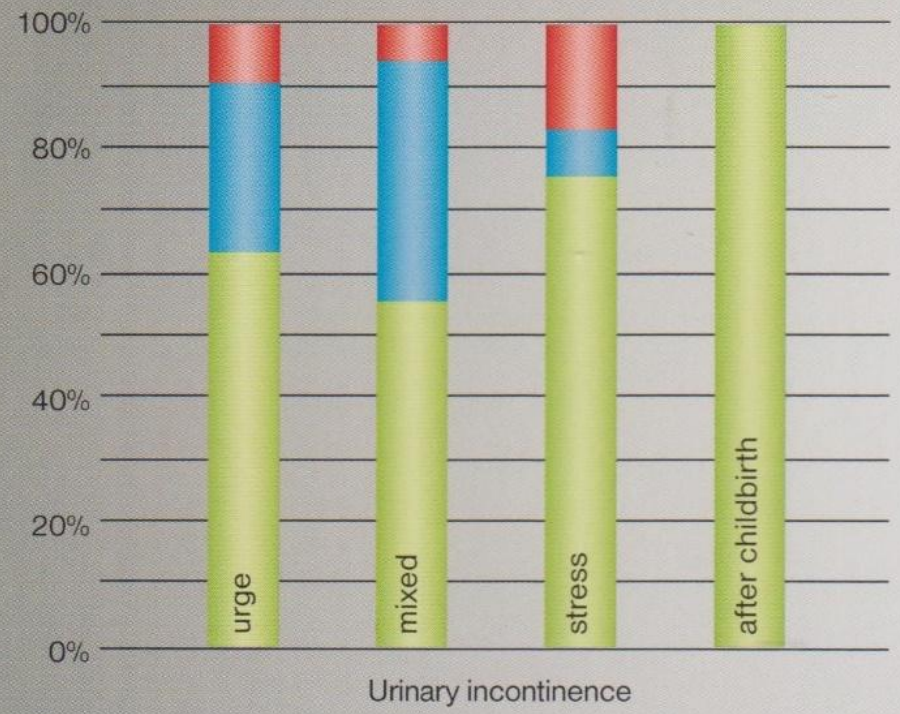
- **During stimulation THE PELIVIC MUSCLES RYTHMICALLY TRAIN**
- **The treatment is pleasant, not-invasive, painless and without side effects**
- **Treatment programs are tailored upon the patient's pathology**



the mechanism of FMS on the sacral roots is not known. However, the functional electrical stimulation (FES) and FEMS ARE PUTATIVELY SIMILAR involving eddy electrical currents induced by the pulsed magnetic fields. In fact, electrical afferent stimulation of the sacral nerves has been reported to provide central inhibition of the preganglionic bladder motor neurons, resulting in increased bladder capacity. Furthermore, animal experiments showed that sacral nerve stimulation decreased bladder hyperreflexia by inhibiting afferent c-fiber activity. In this context, FMS of the sacral roots can effectively activate the inhibitory reflex pathway to the detrusor via a mechanism similar to
that of FES.

# Results of FMS after 16 sessions (20 minutes/session)

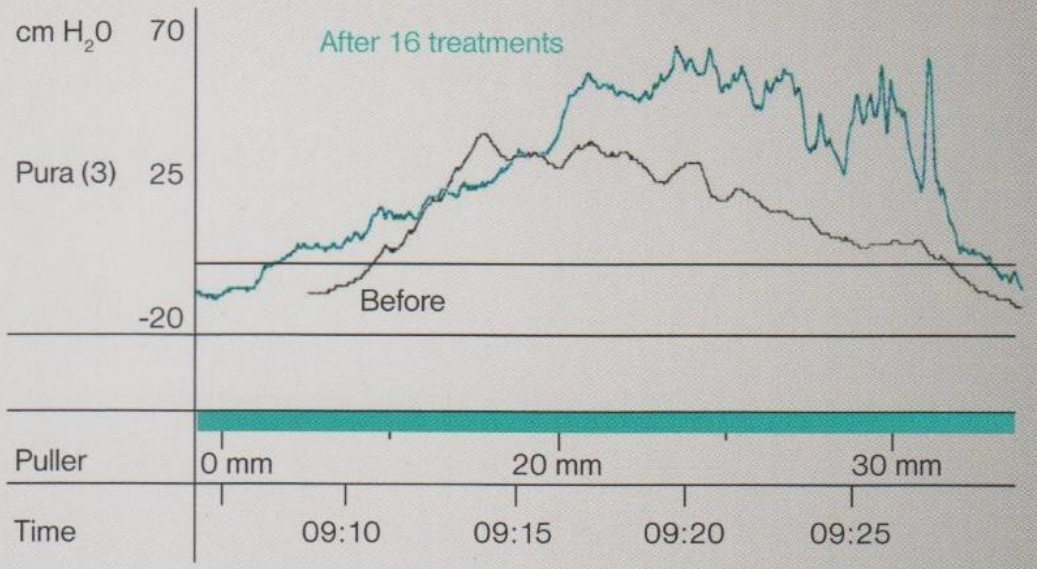
**78 female patients** affected by **urinary incontinence** (UI): 11 treated for urge UI, 23 treated for mixed UI, 30 treated for stress UI, and 14 treated for UI after childbirth.
Multientric study run by Dr TADEJA STRUMBELL (authorized by the Author)




*Legend:*

- No improvement or insignificant improvement
- Significant improvement
- Fully dry

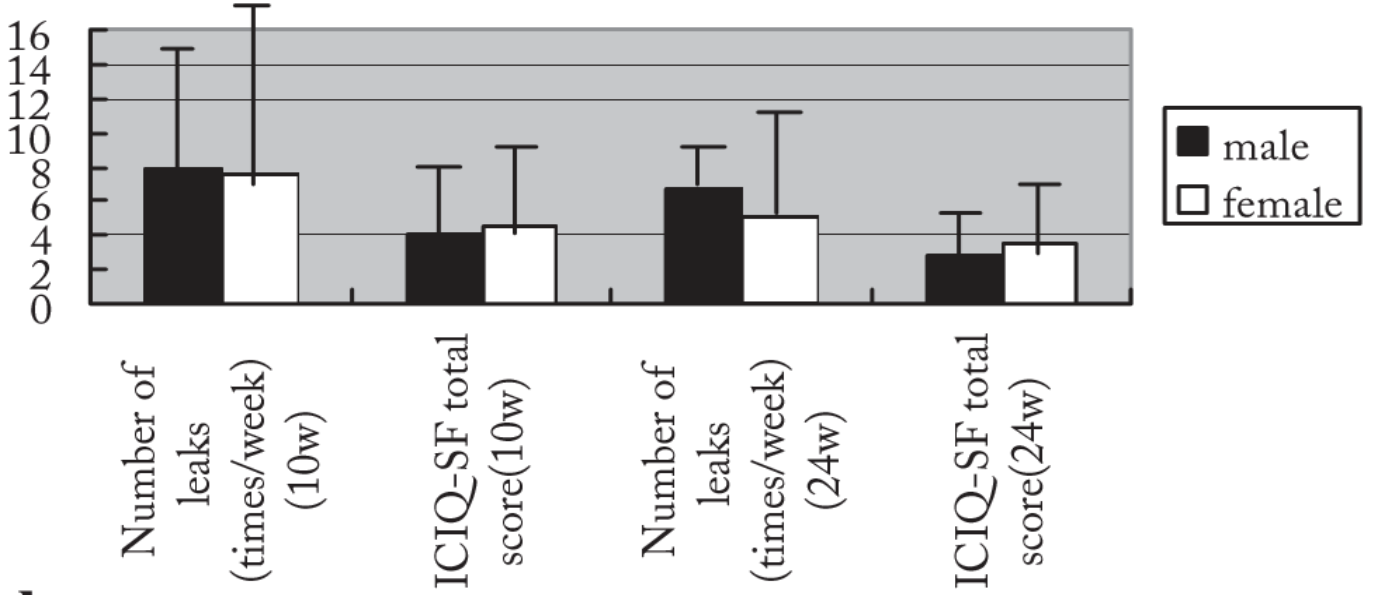
**MEASUREMENTS OF URODYNAMICS** were performed on a female patient before and after 16 treatment sessions.

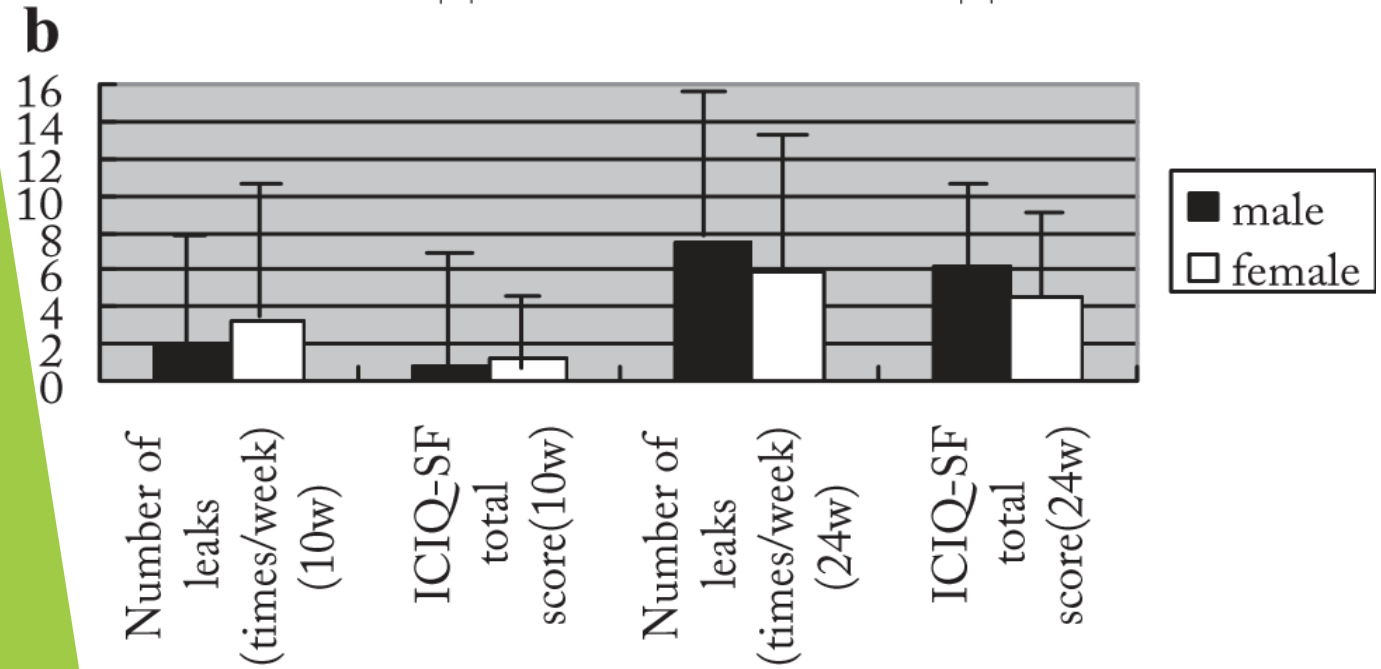



*Legend:*

- Measurement of the pressure within the bladder, before using the Magneto Stym device
- Measurement of the pressure within the bladder, after using the Magneto Stym device

## Results of Randomized, Double-Blind, Sham-Controlled Evaluation of the Effect of Functional Continuous Magnetic Stimulation in Patients With Urgency Incontinence. Suzuki T et al., 2007; Neurour and Urod; 26: 767-72




- **ICIQ-SF=** Incontinence-Questionnaire: Short Form

- **16 males patients** and **23 female patients**

- **A= GROUP AS=** 10-week active treatment, followed by 4-week non-treatment interval and then by 10-week sham treatment (n= 20)

- **B= GROUP SA** performing the sham treatment first followed by 10-week active treatment (n=19) sham

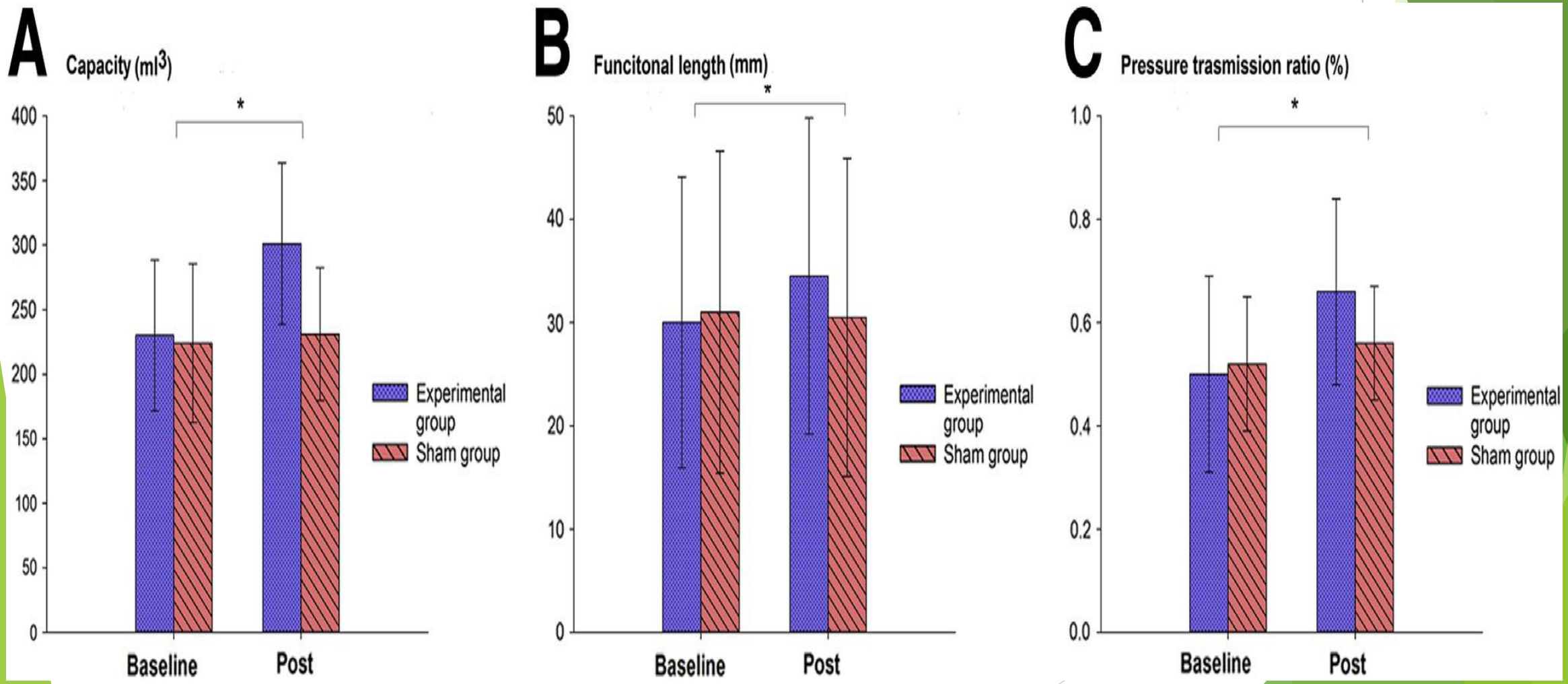
## Results of Long-Term Sacral Magnetic Stimulation for Refractory Stress Urinary Incontinence

Po-Yi Tsai, Chih-Pin Wang, Chin-Yi Hsieh, Yun-An Tsai, MD, Shih-Ching Yeh, Tien-Yow Chuang. Archives of Physical Medicine and Rehabilitation 2014;95:2231-8.

**Experimental group** was associated with significantly **increased of the bladder capacity** (P= .033).

**Experimental group** was associated with significantly **increased of the urethral functional length** (P= .028).

**Experimental group** was associated with significantly **increased of pressure transmission ratio** (P= .009).



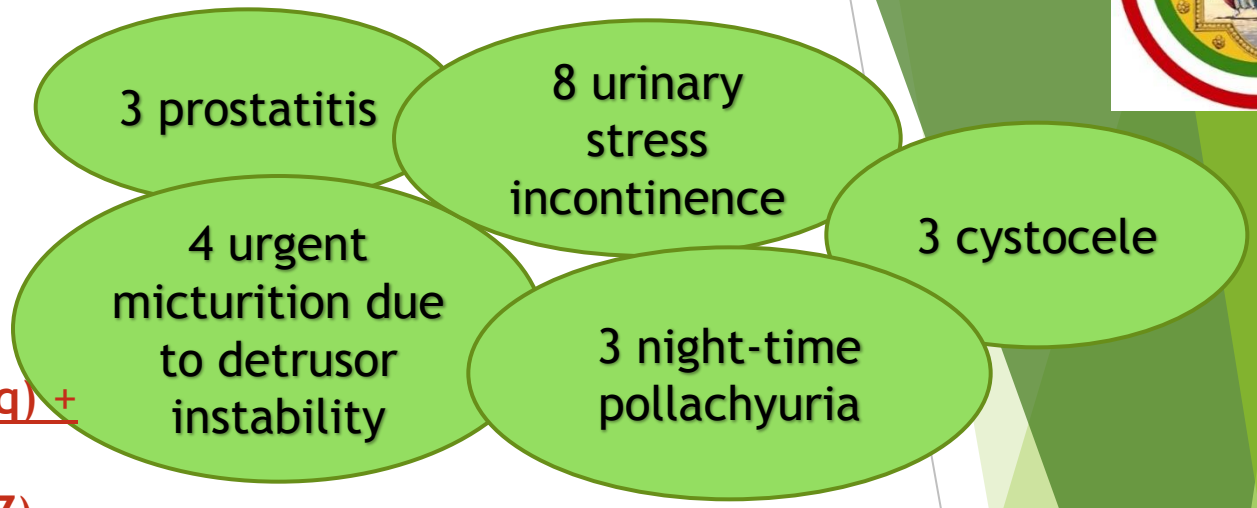
# Materials and Methods

- **20 patients** (10 males and 10 females aged
- Between 38 and 74 years,average 55 y.o.

Each session **lasted 20 minutes 10 Hertz**

- Treatment protocol: **2 times weekly, for 5 weeks**

- Overactive bladder symptom questionnaire (**OAB-q**) + Urogenital distress inventory short for (**UDI-6**) + incontinence impact questionnaire short form (**IIQ-7**)




# Results

Improvement of symptoms started by the **fourth** MagnetoSTIM session in 18/20 patients (**90%**).

1 patient with an indwelling catheter (benign prostatic obstruction) relapsed with urine block after removal, 24 hours later (**5%**).

1 female patient with 3° degree cystocele denied any benefit of the treatment (**5%**).

Benefits of the treatment were prolonged at 1 month follow-up.

# Therapeutic application of FMS

# Conclusions

**FMS** of **peripheral nerves** and **muscles** is based on the principle of **electromagnetic induction**.
Functional magnetic field is generated by a pulse of current created through a wire inside a coil in the applicator of TESLA Stym® device.
**Dynamic magnetic field up to 2 T and low-frequency** inside the body **induces electric current** that is responsible for **triggering action potential on motor nerve system**. This direct stimulation of motor neurons activates **contraction of a single or a group of muscles**, depending on number of axons sprouted from the nerve trunk.
Key advantage of direct nerve FMS stimulation is metabolic turnover induction ,trophic perineural circulation enhancement with benefit to nerve and muscles .Thus FMS **prevents muscle atrophy increases** blood circulation as well .

# Thank you for your attention

Any questions?