NFOG THESIS REGISTRY

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ABSTRACT

Pelvic floor muscles (PFM) play an essential role in the continence mechanism and therefore pelvic floor training (PFT) is widely used in incontinence therapy. Electromyography (EMG) serves as a method to investigate muscle performance. Due to their relative inaccessibility, PFM present a challenge for follow up of muscle function and training.

The present study was designed to evaluate the application of EMG-based home biofeedback training in stress urinary incontinence (SUI). The prototype of the hometraining device was tested with 11 female volunteers. The PFM activity of 66 women was measured with a new surface EMG device. In a randomized controlled pilot study, 35 urodynamically tested SUI women underwent intensive training with or without an EMG-based hometrainer during 1998-1999. Training lasted 12 weeks, and follow up was one year. In addition, 16 women were scanned with static and dynamic magnetic resonance images (MRI).

A strong correlation was found between the EMG values from consecutive measurements with all test probes. PFM activity values both in supine and standing positions were dependent on age ($p = 0.004$ and $p = 0.009$), but not on parity ($p = 0.116$ in supine, $p = 0.365$ in standing), episiotomies ($p = 0.728$, $p = 0.905$) or body mass index ($p = 0.056$, $p = 0.302$).

Primary results after 12 weeks of PFT were promising. There was a significant change over the time ($p < 0.001$) in the PFM activity values while standing in both groups. After one year the success rate, i.e.,cured or improved and thus avoiding surgery, in the PFT group with home biofeedback was quite good, 68.8%. The EMG- based hometrainer is a valuable method in pelvic floor training, offering a possibility to follow exercises performed at home.

In the MRI study the thickness of the distal part of pubococcygeal muscle correlated significantly with EMG values during maximal contraction. Several variations in the levator ani muscle configuration were detected. The most obvious defects seen in the pubococcygeal muscles were asymmetry in thickness and loss of fibre continuity.

National Library of Medicine Classification: WJ 146, WQ 320
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