

combining both treatment groups together, one woman out of two was still continent according to pad testing. Incontinence-specific signs, symptoms and quality of life remained better than before treatment although not as good as immediately after. An observed reduction of the effect of physical therapy over time, was not unexpected, especially as only 19/35 (54 %) of the participants continued to practice PFM exercises regularly. In spite of the worsening of all outcomes at the 7-year follow-up compared to immediately after treatment, pad test, IIQ and VAS outcomes were still significantly better than at baseline.

Concluding message

According to this small follow-up RCT, the addition of deep abdominal training does not appear to further improve the outcome of PFM training in the long term. However, benefits of physical therapy for persistent postpartum SUI, although not as important as immediately after the intervention, seemed to be present seven years post-treatment. Further research with larger groups, is required in order to compare the long-term impact of PFMT programs, as well as whether and how post-treatment benefits can be maintained.

Table 1. Comparison of the combined treatment group between baseline, post-treatment and seven-year follow-up

	Baseline Mean and SD (Min/Max)	Post-treatment Mean and SD (Min/Max)	Seven year follow-up	Friedman rank test	Post hoc comparisons
Pad test (g) (n =26)	31.46 + 60.99 (3/309)	3.35 +8.20 (0/41)	7.54 + 13.99 (0/69)	32.49 *	B-PT **, B-F **, PT-F **
UDI (n =35)	11.37 + 5.71 (0/30)	5.91 +5.44 (0/22)	9.68 + 7.03 (0/26)	17.96 *	B-PT **, B-F **, PT-F **
IIQ (n =35)	22.46 + 15.64 (0/57)	9.20 +8.20 (0/28)	14.60 + 13.42 (0/49)	30.24 *	B-PT **, B-F **, PT-F **
VAS (n =35)	6.80 + 2.13 (1/10)	3.74 + 2.78 (0/10)	4.75 + 2.69 (0/10)	23.40 *	B-PT **, B-F **, PT-F **

B = baseline; PT = post-treatment; F = 7-year follow-up; * $p \leq 0.05$; ** $p \leq 0.01$

References

1. Physiotherapy for persistent postnatal stress urinary incontinence: a randomized controlled trial. *Obstet Gynecol.* 2004 Sep;104(3)

Specify source of funding or grant	Funding from the Canadian Institute of Health Research Fonds de la recherche en santé du Québec
Is this a clinical trial?	Yes
Is this study registered in a public clinical trials registry?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	Ethics committee of Ste-Justine's hospital where subj recruited originally Ethics committee of the Montreal Geriatric Institute follow-up visit were done (where we have our lab)
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes

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Shelly E¹, Krum L²

1. Beth Shelly Physical Therapy, 2. Regis University

METHODS USED BY PHYSICAL THERAPISTS TO LEARN PELVIC FLOOR MUSCLE EXAMINATION

Hypothesis / aims of study

To investigate current methods by which physical therapists (PTs) in the United States learn how to perform pelvic floor muscle (PFM) examination and the methods they employ in assessing PFM function.

Study design, materials and methods

One thousand one hundred and seventy five (N=1,175) women's health PTs were invited to participate in a 38 question web-based survey that had been validated using four content experts. Subjects were solicited from the APTA Section on Women's Health, BCIA EMG courses, and personal PT contacts. All students, PTAs and international PTs were excluded from participation. Questions addressed professional (entry-level, post-professional, and continuing) education in PFM dysfunction (hours, types of diagnoses, types of assessments discussed and practiced); and current type of assessments used in physical therapy practice. Descriptive statistics were used to examine the data.

Results

Two hundred and three (n=203) PTs completed the survey (17.3% response rate). Seven subjects (7.7%) reported practicing the vaginal palpation of the PFM in their entry level education with 42.7% of subjects reporting some discussion of the topic. The most common method of learning PFM examination is post professional continuing education (96.1%). One hundred and twenty eight (62.1%) of subjects reported more than nine days of continuing education in PFM therapy. When learning PFM assessment, most PTs and PT students practice on class mates (84.5%). PT who specialize in PFM dysfunction provided the majority of this education (99%). Respondents reported which PFM examination techniques they received hands-on instruction in and practiced as part of their educational experience (Figure 1). In clinical practice, most PTs used vaginal palpation (73.9%) and perineal observation (68.5%) to examine the PFM. Other examination techniques reported included EMG with vaginal sensor (19.7%) and external sensors (21.2%). In contrast assessment techniques rarely used included real-time imaging ultrasound (3%) and pressure biofeedback (3.4%).

Interpretation of results

Treatment of PFM dysfunction is a growing specialty in physical therapy. There is no scientific evidence that identifies the methods by which PTs learn to perform PFM examination. Compared to reports of previous authors [1,2] there appears to be increasing exposure to PFM dysfunction in entry level professional education. Jacobs has studied nursing education in urology. Based on that research, nurses and physical therapists are similar in their use of continuing education (84% and 99% respectively). However they vary greatly in their usage of on the job training (nurses 97% and physical therapists 47%). [3] Most PTs are receiving instruction in PFM examination in post professional continuing education courses. Most PTs are using vaginal palpation to examine the PFM. Currently US PTs are using very little real-time ultrasound to assess PFM. This may be related to financial and reimbursement constraints. Given a recent surge of interest in real-time ultrasound and evidence to support its use in clinical practice, future studies may reflect increased usage of this assessment technique.

Figure 1: PFM Examination Techniques Performed in Different Educational Programs

	Entry-Level professional education	Post-professional college education	Post-professional continuing education
None	78 (85.7%)	19 (36.5%)	3 (1.4%)
Examination of the PFM by observation of perineal mobility	7 (7.7%)	30 (57.7%)	193 (95%)
Examination with vaginal and or rectal palpation by the therapist	7 (7.7%)	29 (55.8%)	195 (96.1%)
EMG biofeedback assessment with intra-vaginal sensor	10 (11%)	28 (53.9%)	184 (90.6%)
EMG biofeedback assessment with external sensor	8 (8.8%)	26 (50%)	160 (78.8%)
Assessment with real-time ultrasound	0 (0%)	5 (9.6%)	21 (10.3%)
Pressure biofeedback assessment	5 (5.5%)	18 (34.6%)	79 (38.9%)
Assessment of pelvic floor muscle pain	6 (6.6%)	26 (50%)	174 (85.7%)

Concluding message

PTs are participating in increasing hours of formalized education and are using a variety of validated examination techniques and tools to perform PFM assessment. Documentation of current US physical therapy practice allows comparison with other professions in the US and other PTs around the world. In addition, future studies may show changes in practice patterns and educational methods.

Specify source of funding or grant	No funding of grant money was used for this project.
Is this a clinical trial?	No
What were the subjects in the study?	HUMAN
Was this study approved by an ethics committee?	Yes
Specify Name of Ethics Committee	St Ambrose University Davenport IA USA
Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	Yes

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Xu Y¹, Song Y¹

1. Department of Obstetrics and Gynecology, Fuzhou General Hospital

TRANSPLANTATION OF MUSCLE-DERIVED STEM CELL PLUS FIBRIN GLUE RESTORES URETHRAL FUNCTION IN A PUDENDAL NERVE-TRANSECTED RAT MODEL

Hypothesis / aims of study

Most muscle-derived cell(MDC) regenerative approaches can restore injured urethral rhabdosphincter. In this study, we investigated if fibrin glue(FG) could improve muscle-derived stem cells(MDSCs) restore urethral function in a pudendal nerve-transected rat model.

Study design, materials and methods

The pudendal nerve-transected adult female SPF Wistar rats were used to make stress urinary incontinence models. The gastrocnemius muscles of normal three-week-old female SPF Wistar rats were used for the purification of the muscle-derived stem cells. The animals were randomized into five recipient groups: normal (N), denervated (D), denervated+Fibrin Glue-injected rats(F), denervated +MDSCs-injected rats(M), and denervated +MDSCs+FibrinGlue-injected rats(FM). Each group (n = 10) was also split into two subgroups according to the time; 1 week (n = 5) and 4 weeks (n = 5). In the F, M, FM groups injection of FG and/ or MDSCs was made into the proximal urethra two weeks after pudendal nerve transection. One and four weeks after transplantation, leak point pressure (LPP) and closing pressure(CP) were used to assess urethral rhabdosphincter function. PGC-FU-GFP-Lentivirus was performed to infect MDSCs to track the implantation and immunohistochemical staining was used to detect the neovasculature formation at four week after transplantation.

Results

Both LPP and CP were lower in D group at each time compared with those of N, F, M and FM groups (P<0.05). Both LPP and CP in the F group were slightly higher than those of D group after one week (P<0.05) but no difference between the two groups after four weeks(P>0.05). Both LPP and CP in FM as well as M groups were slightly higher than those of D group at one week(P<0.05) and significantly at four weeks(P<0.001) but no difference compared with those of N group at each time(P>0.05). Both LPP and CP in FM group were slightly higher than M group but no difference between the two groups at each time(P>0.05).