Indirectly calculated volumes (2D scan) were compared with directly measured volumes (3D scan) using the standard error of the mean (Table 2) and found to reach significance.

Table2. Comparison of 3Dmeasurement and calculated 2D measurement.

Urethral sphincter	3D measurement	2D measurement	difference %
Total volume	2.09 cm^3	2.46 cm^3	15%
Internal volume	1.13 cm^3	1.09 cm^3	4%
Rhabdosphincter	0.97 cm^3	1.37 cm^3	29%

A subset of 10 scans was reanalysed by a second observer blinded to the first measurements and these results were analysed using limits of agreement (Table 2) confirming a high degree of reproducibility.

Table 3. Reproducibility analysis using Limits of Agreement.

	Number	Mean	5th centile	95 centile	Mean difference
urethral sphincter length	10	20.02mm	19.22mm	21.22mm	-0.027mm
Sphincter diameter	10	12.89mm	12.49mm	14.19mm	0.27mm
Sphincter surface area	10	1.30 cm^2	1.2 cm^2	1.60 cm^2	0.063 cm^2
rhabdosphincter volume	10	0.92 cm^3	0.81 cm^3	0.99cm^3	<-0.00cm^3
internal sphincter volume	10	1.12 cm^3	0.86 cm^3	1.22 cm^3	-0.05 cm^3
total sphincter volume	10	2.03 cm^3	1.84 cm^3	2.15 cm^3	-0.05 cm^3

Conclusions. Three-dimensional ultrasound offers an accurate and non-invasive method of assessing the urethral sphincter with a high degree of reproducibility. Assessment of the urethral sphincter in all three planes allows a more accurate measurement of sphincter volume and would appear to be superior to conventional two-dimensional techniques. Whilst still a research tool at present three dimensional ultrasound may have a role in predicting the outcome of continence surgery and in its longitudinal assessment.

[1]Am J Obstet & Gynaecol. 1997; 177(2): 303-310.

[2]Neurourol & Urodyn. 1983; 2: 103.

[3] Int.Urogyn J Pelvic Floor Dysfunct. 1996; 7(1).

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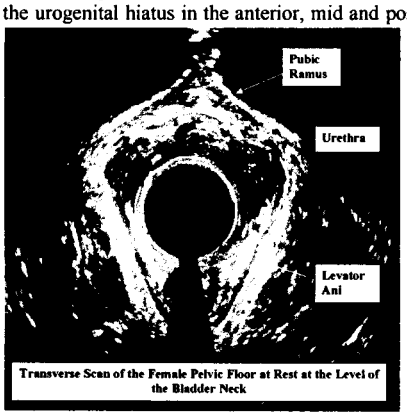
Title (type in CAPITAL LETTERS, leave one blank line before the text):

CAN ULTRASOUND IMAGING OF THE PELVIC FLOOR PREDICT CURE OF GENUINE STRESS INCONTINENCE?

Aim To assess the effect of pelvic floor physiotherapy on the levator muscle complex in women with genuine stress incontinence (GSI) using transvaginal ultrasound.

Method Women with GSI diagnosed on videocystourethrography were studied. Each woman had a transvaginal ultrasound (US) scan in the supine position, using a 7.5MHz mechanical sector endoprobe. The levator ani were visualised at the level of the bladder neck. The width of the urogenital hiatus in the anterior, mid and posterior thirds, its length and surface area were recorded. Measurements were taken at rest, during maximum valsalva and during pelvic floor contraction. Over a fourteen week period women were seen by a dedicated research physiotherapist six times and taught to perform pelvic floor exercises correctly. Following treatment stress incontinence was reassessed with a standard one hour pad test and the US measurements were repeated. Pre and post treatment measurements were analysed with Wilcoxon signed rank tests. Linear regression analysis was performed to identify pre-treatment variables associated with success. Cure was defined by a follow up pad test loss of less than 2 g combined with a standard symptom questionnaire.



Transverse Scan of the Female Pelvic Floor at Rest at the Level of the Bladder Neck

Results 38 women were recruited to the

study with a median age of 50 years (range 35 to 76). Changes in all dimensions of the urogenital hiatus at rest, on valsalva and during pelvic floor contraction were analysed. For clarity, only those results that were statistically significant are shown. Following pelvic floor exercises significant reductions in the width, length and surface area of the urogenital hiatus were noted. Regression analysis showed no pre-treatment dimensions to be predictive of subsequent outcome after pelvic floor exercises.

Urogenital hiatus measurements	**Cured Group n=19**		**p**	**Not Cured Group n=20**		**p**
	Pre-Rx (median)	Post Rx (median)		Pre Rx (median)	Post Rx (median)	
Width of anterior 1/3 at rest (mm)	35	32	**0.017**	33.3	31.9	0.267
Width of anterior 1/3 on valsalva (mm)	35	30.9	**0.015**	33.9	31.1	**0.033**
Length on valsalva (mm)	60	54	**0.017**	57.9	58.9	0.248
Surface area on valsalva (mm^2)	20	17	**0.012**	19.1	19.6	0.289

Conclusions

The mechanism of pelvic floor exercises in the treatment of GSI is still poorly understood. This study demonstrates that measurable changes to the urogenital hiatus occur in response to pelvic muscle training.

This study demonstrates that, in women successfully treated, the dimensions of the urogenital hiatus decreased both at rest and also during valsalva. In the group where pelvic floor exercises were not successful no such changes were seen. Whether this is due to failure of compliance or insufficient pelvic floor neuromuscular function is not clear.

One mechanism of pelvic floor exercises may be to increase support, both at rest and during stress, to the urethra and bladder neck in the anterior pelvic compartment. Furthermore, as success or failure of pelvic floor exercises seems not to be dependent on pre-treatment muscle function, they would appear to be a valuable first-line therapy for all women with GSI.

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ULTRASONOGRAPHIC IMAGING OF PELVIC FLOOR PRIOR TO AND AFTER ANTI-INCONTINENCE SURGERY (TVT-PROCEDURE)

The aims of the study were to test the suitability of certain urogynecologic ultrasound parameters in the diagnosis of stress urinary incontinence (SUI) and, to evaluate efficacy and safety of TVT (tension-free vaginal tape) for the surgical treatment of SUI.

Methods

TVT-operation was introduced in our institution in Jan 1998. Since then 165 women has been operated upon up to March 2000. Since Jan 1999 70 patients have undergone urogynecologic ultrasound examination as a tool to clarify the diagnosis of incontinence. By March 2000 34 consecutive women (mean age 61 years) with symptoms of SUI have undergone ultrasound study prior to and after TVT-operation, and were enrolled in this study. Seven patients out of 34 had also urgency symptoms. Mean BMI (body mass index) was 28 kg/cm^2, and the women had on the average of 2 vaginal deliveries. Patients had undergone 15 previous gynecologic operations in all. 12 of them were hysterectomies, of which nine were total abdominal, two vaginal and one subtotal hysterectomies. Six patients had been operated upon before for SUI with Burch colposuspension. The pa-