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-

tients were examined prior to and on the average of 11 weeks (range 7-16) after the operation with perineal ultrasound. Aloka SSD-2000 and Hitachi EUB-405 real-time scanning machines with sector scanner with a frequency of 3.5 Mhz were used for both transducers. An upright coughing test at standing to objectively demonstrate urinary leaking was performed every time. Such ultrasound parameters as bladder filling pre- and postoperatively, descending of UV-junction (urethrovesical junction) at Valsalva pre- and postoperatively, elevating of UV-junction when constricting pelvic muscles pre- and postoperatively, PUV (posterior urethrovesical) -angle both at rest and Valsalva pre- and postoperatively, and the change in degrees. Moreover, the funneling of vesical neck was ultrasonographically studied pre- and postoperatively. Bladder wall thickness was measured pre- and postoperatively, too.
The operative procedures were performed according to previously described by Ulmsten et al. Local anesthesia was used in all operations.

Results
All 34 women with symptoms of SUI presented clear objectively documented urinary leakage with coughing at upright position with the mean preoperative bladder filling of 253 ml. Postoperatively no women had urinary incontinence. Cough test with the mean postoperative bladder filling of 238 ml was negative in all the patients. The mean UV-junction rotatory descending detected by ultrasound was preoperatively significantly greater (16.2mm) than postoperatively (9.1mm) ($P < 0.05$). With straining the mean widening of PUV-angle was preoperatively significantly greater (41°) than postoperatively (14°) ($P < 0.05$). The mean preoperative PUV-angle itself at rest (119°) was greater than postoperative one (111°). Moreover, preoperative ultrasound detected the funneling of vesical neck in all the women whereas the funneling was present in only one patient at postoperative examination. There was no statistical difference in bladder wall thickness pre- and postoperatively (5.0mm vs. 5.7mm).
All 34 patients were doing well at follow-up examination. Only three of seven women who had suffered from urgency preoperatively had urgency postoperatively. No one had urge incontinence. Two women had slightly delayed bladder emptying in the mornings after operation. No postoperative hematomas, infections, bladder, urethral or ureteral perforations or lacerations had been encountered in this series.

Conclusions
We conclude that urogynecological perineal ultrasound examination at rest and at Valsalva including such parameters uv-juntion rotatory movement measurement and PUV-angle measurement as well as verifying preoperative vesical neck funneling, gives a strong support to an anamnestic diagnosis of genuine SUI, so to avoid the need of urodynamics. TVT proved to be a safe and effective ambulatory procedure for surgical treatment of genuine SUI, too.

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VISUAL ANALOGUE SCORE FOR URINARY INCONTINENCE

It is important for clinicians to be able to record both objective and subjective outcome measures and demonstrate the efficacy of their treatment. Simple visual analogue scales (VAS) have been used to assess patients' perception of severity of urinary symptoms (Frazer et al 1987) and urinary loss (Frazer et al 1989), but these have correlated poorly with objective measures such as cystometry or the two hour pad test. Simons and colleagues (1999) noted that a simple VAS measuring the impact of leakage on lifestyle correlated poorly with two disease specific Quality of Life tests ie IIQ (Kendall's rank correlation, tau=0.278, p=0.001) and UDI (tau =0.252, p=0.004) and with a single one hour pad test (tau =0.154, p=0.03). One reason for this inadequate correlation could be that some patients, particularly the elderly, find the VAS difficult to understand. Moreover, urinary incontinence is such a multi faceted problem that a single VAS may not be sufficiently sensitive. The reliability of the VAS may be improved by increasing the number of items on the scale (Streiner and Norman 1995).
Current urinary incontinence scoring systems which employ Likert type scales, such as the Lago-Janssen, tend to be restrictive in their nature. We wished to devise a robust assessment system which would allow patients latitude in expressing the severity of their incontinence. We have designed a composite VAS, comprising four 10 cms items (assessing the frequency of episodes of stress and urge leaks, the number of pads used and the impact on lifestyle disturbance) based on a faecal incontinence scoring system (Jagro and Wexner 1996).