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Video Demonstration

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Title (type in CAPITAL LETTERS)	REPRODUCIBILITY OF VOIDING IN A NORMAL MALE POPULATION

AIMS OF STUDY:

The reproducibility of voiding in a normal (asymptomatic) male population in untested. A test-retest variation has been shown to exist in urine flow rate measurement in men with symptoms of bladder outflow obstruction (1,2). The aims of the study were to determine the intra-individual variability of uroflowmetry and residual urine volume measurement in a normal male population.

METHODS:

Fifty male volunteers, median age 33 years (range 18-49), were deemed to be normal for the study. They denied previous bladder surgery (including cystoscopy), any current medications, a history of more than one urinary infection, the symptom of urgency and any of the following symptoms of voiding difficulties: hesitancy, poor stream, need to strain to void, sense of incomplete emptying and the need to revoid immediately. Forty-five men were hospital staff whilst five men were husbands of antenatal patients awaiting obstetric ultrasound and/or clinical review at a public hospital outpatients department. A further 4 men with positive urinary symptomatology were excluded from further study.

A premicturition bladder volume was obtained on each volunteer by a male investigator using a Bladder Scan (BVI 2500+), an external (suprapubic) ultrasonic scanner, the accuracy of which has been previously verified (3). Each man then voided in a completely private toilet, lockable from the inside and out of hearing range of other staff and volunteers. A Urodyn 1000 Mictiograph was used. Residual urine volume measurements (2) were obtained again using the Bladder Scan in the period between 20 and 60 seconds following voiding, with the average used for subsequent calculations. The renal input into the bladder between voiding and residual urine measurement was thus minimised. Maximum and average flow rates for each void were corrected for voided volume into urine flow rate centiles (4).

Each man present for a second voiding study at a time convenient to them but no sooner than 24 hours from the first study. Uroflowmetry and residual urine volume measurement was again performed. Urine flow rate data were again converted to equivalent urine flow rate centiles (4).



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RESULTS:

Table 1 shows the test (Void 1) and re-test (Void 2) uroflowmetry and residual urine volume data for the 50 asymptomatic men. The mean time interval between Void 1 and Void 2 was 8.6 days (Range 1-34 days). Figure 2 shows the changes in urine flow rate centiles between the two voids.

<u>TABLE 1:</u>	VOID 1	p	VOID 2
MEAN VOIDED VOLUME	276mls (Range: 73-580mls)	0.888	268mls (Range: 34-600mls)
MEAN MAXIMUM URINE FLOW RATE CENTILE	51.9 (Range: 1-99)	0.033	59.1 (Range: 1-99)
MEAN AVERAGE URINE FLOW RATE CENTILE	49.0 (Range: 1-99)	0.065	54.6 (Range: 1-99)
MEAN RESIDUAL URINE VOLUME	5mls (Range: 0-68mls)	0.0573	6mls (Range: 0-129mls)

<u>TABLE 2:</u>	n
CHANGE IN MAXIMUM URINE FLOW RATE CENTILE:	31 - Increase by mean 20.7 centiles 19 - Decrease by mean 15.9 centiles
CHANGE IN AVERAGE URINE FLOW RATE CENTILE:	32 - Increase by mean 19.2 centiles 16 - Decrease by mean 19.3 centiles 2 - Unchanged

CONCLUSIONS:

Uroflowmetry and external ultrasonic measurement of residual urine volume are simple non-invasive tests of voiding function well-tolerated by male volunteers. There is an overall improvement in urine flow rate data for the second void consistent with results published for symptomatic men. However, the urine flow rates of around one third of asymptomatic male volunteers actually declined in the second study. The results for the first voids are consistent with published nomograms (mean urine flow rate centile of 50)(4). The variability of urine flow rate results emphasises the need to repeat abnormal results. Residual urine measurements in asymptomatic volunteers are small. Little change was noted between the two voids.

REFERENCES:

- (1) Brit. J. Urol., 1996, 77: 813-818
- (2) Urology, 1997, 50: 221-228
- (3) Urology, 1997, 50: 341-347
- (4) Brit. J. Urol., 1989, 64: 30-38