

**536 Abstracts**

2. Gesell A. Infant and child in the culture of today. Harper and Bross, New York 1943.
3. Hoebeke P, VanDeWalle J, Theunis M, DePaepe H, Oosterlinck W, Renson C. Outpatient pelvic floor therapy in girls with daytime incontinence and dysfunctional voiding. Urology 1996; 48: 923-927.

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Title (type in CAPITAL LETTERS, leave one blank line before the text):  
THE VOIDING PATTERN OF NORMAL ELDERS

Aims of Study: Voided volumes and frequencies are routinely used in the diagnosis, management, and monitoring of diseases such as prostatic obstruction and heart failure. However, few normative data are available for the elderly, and none of those data account for comorbid conditions, medications, and bladder dysfunction. As well, the true meaning of "normal" as it relates to the elderly remains undefined. This study aims to determine, among continent older persons: (1) the normal voiding pattern, including frequencies and volume; (2) the influence of sex, age, and lower urinary tract dysfunction on voiding patterns; (3) the differences in voiding patterns which occur with use of more stringent definitions of "normal."

Methods: We obtained data from continent volunteers over the age of 65y (mean age = 77y). All were healthy, independent, and continent by both self-report and clinical evaluation. All completed >48 hr frequency/volume voiding diaries and underwent multichannel videourodynamics which included medium fill cystometry and pressure flow studies.

Results: The data of all subjects (n=46, 25M, 21F) are summarized in Table 1.

Table 1. Voiding Data (± standard deviation)

	Frequency (# voids)	Maximum Void (ml)	Minimum Void (ml)	Average Void (ml)	Total Output (ml)	Diuresis (ml/min)
Awake	6.7±2.3	313±157	85±54	170±75	901±485	1.0±0.5
Asleep	1.4±1.1	377±179	147±95	256±121	545±227	1.1±0.4

No significant differences were seen by sex. Those aged >75y (n=21) had less total output/day (721 vs 1051 ml, p=0.007), increased total output/night (619 vs 483 ml, p=0.04), and increased nocturia (2.0 vs 0.8 voids, p=0.0001). The rates of fluid excretion (ml/min) were similar across all subjects for day and night, and no circadian pattern was identified. Interestingly, those aged > 75y had a lower daytime rate of excretion (0.8 vs 1.1 ml/min, p=0.02) despite a similar nocturnal rate (1.1 vs 1.0 ml/min). Subjects with urodynamically normal bladders (n=6) had larger nocturnal voided volumes (maximum, minimum, and average, p<0.05), than those with overactive (n=25), underactive (n=4), or obstructed and overactive (n=11) bladders. Rates of diuresis and total output were similar across all urodynamic diagnoses. To consider the effect of aging alone, subjects were stratified into three groups defined by progressively more stringent criteria, by: (1) symptoms, (2) relevant disease or medications, and (3) urodynamic normality. Asymptomatic subjects (n=22) had less nocturia (1.1 vs 2.0 voids, p=0.002). Asymptomatic

subjects, without relevant disease or medications (n=17) also had less nocturia (1.1 vs 1.8, p=0.008). The most "normal" group (asymptomatic, without confounding disease or drugs, and with normal urodynamics) (n=6), also had less nocturia (0.8 vs 1.7, p=0.03).

**Conclusions:** These data, obtained for the first time from normal, continent, and urodynamically assessed elderly, suggest: (1) Continent elderly lack the usual circadian pattern of decreased nocturnal urine production of younger adults. (2) Volume related nocturia increases with age; the use of nocturia in diagnosing and following diseases may be limited. (3) Normative data depend on the definition of normal, even among healthy, continent elderly.

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Title (type in CAPITAL LETTERS, leave one blank line before the text): URINARY INCONTINENCE IN NON-INSTITUTIONALIZED WOMEN AGED 45-70: PREVALENCE AND QUALITY OF LIFE

### Aim of the study

Female urinary incontinence is a common problem with an estimated prevalence between the 20 and 57%. This wide range in reported prevalence could be due to the use of different definitions for urinary incontinence, demographic difference or the way questions are designed. Since most authors do not mention which questions were used to identify women with urinary incontinence, it is difficult to compare data. It is known that quality of life (QOL) can be negatively affected by urinary incontinence. This study was designed to estimate the prevalence of urinary incontinence with a validated questionnaire and to report on the consequences that urinary incontinence may have on physical and emotional health.

### Method

A random sample of 1905 women, aged 45 to 70 years old was taken from the population registration office. All women received a questionnaire that contained the Dutch translation of the Urogenital Distress Inventory (UDI) / Incontinence Impact Questionnaire (IIQ)(disease-specific quality of life questionnaire for urinary incontinence) (1), the RAND-36 (generic QOL questionnaire) and the CES-D (depressive symptomatology). Two questions were selected from the UDI as indicators of stress incontinence (do you experience urine leakage related to physical activity, coughing or sneezing?) and urge incontinence (do you experience urine leakage related to a feeling of urgency?). These two items were used to distinguish four groups: women without incontinence, women with only stress incontinence, women with only urge incontinence and women with mixed incontinence. Women who also reported faecal incontinence for liquid or solid stools were excluded from analysis. The four groups were compared for their scores on the RAND-36 and IIQ using ANOVA. Previous factor analysis of the Dutch translation of the IIQ identified a fifth domain with items closely related to embarrassment. A CES-D score > 16 was used to identify women with a probable depression.

### Results

A total of 1079 women (60%) responded. Eighty-seven women reported fecal incontinence and were excluded, leaving 992 evaluable women. Of these women 446 (45%) reported no urinary incontinence, 285 (28.7%) only stress incontinence, 53 (5.3%) only urge incontinence and 208 (22.0%) mixed incontinence. Of the 546 women with incontinence 353 answered the questions of the IIQ. Comparing the mean scores of the RAND-36 domains for the four groups showed that only women with mixed incontinence reported a significant worse quality of life on all domains when compared to continent women. There were no differences found between the different types of urinary incontinence. However, with the use of the disease-specific IIQ substantial differences were found between the different types of urinary incontinence as is presented in the Table. A high score indicates a worse QOL.

Table Mean scores of the different types of urinary incontinence on the IIQ. The urge and mixed incontinence groups were compared to the stress group. * p<0.05, ** p<0.01, *** p<0.001			
IIQ	Stress incontinence n=154	Urge incontinence n=31	Mixed incontinence n=168
Travel/Mobility	5.5	16.3 ***	12.2 ***
Emotional functioning	5.0	6.9	9.0 **
Social functioning	1.6	5.1	4.4 *
Physical activity	2.1	10.8 **	7.1 **
Embarrassment	6.3	10.8	10.3
Total	20.4	49.8 **	42.8 ***

Women with an urge or mixed incontinence reported a statistical significant, two-fold increased risk of having depressive symptoms (CES-D > 16) when compared to continent women.

### Conclusions

The prevalence of urinary incontinence in women aged 45 to 70 years is high (55%). Especially women with mixed