

**Urodynamic evaluation (cystometry experiments)**

**Objectives:**

- To explore bladder function by measuring intravesical pressure during bladder filling until the point of fullness which elicits a voiding response
- performed in either **anaesthetised** (isoflurane) or **conscious** (metabolic cage) animals
- performed in either **normal** or **pathophysiological** animal models

**Species:** rat, guinea pig

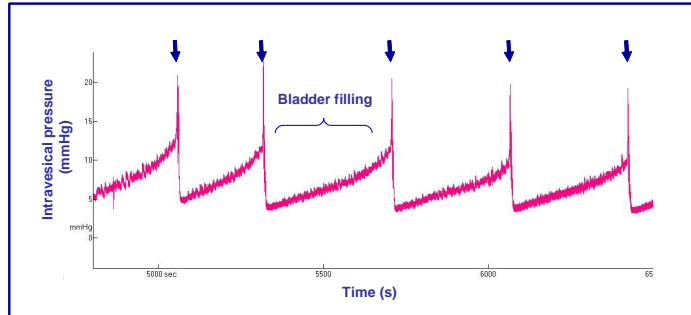


Figure 1: Representative cystometrograms in an anesthetized normal rat. Arrows indicate the voiding contractions.

**Summarized methodology:**

A bladder dome catheter is inserted allowing continuous filling of the bladder with saline (50 µl/min for normal rats or 300 µl/min for guinea pigs) and simultaneous measurement of intravesical pressure.

For experiments in conscious animals, the intravesical catheter implantation is performed 48 hours before the cystometry experiment. The free end of the bladder catheter is tunneled subcutaneously, exteriorized at the back of the neck and sutured between the scapulas. Animals are allowed to recover at least for 48 h after surgery until cystometry experiment.

**Endpoints:**

- maximal amplitude (**MP**, mm Hg) and duration of voiding contractions (s)
- baseline intravesical pressure (**BP**, mm Hg)
- micturition pressure threshold (**PT**, mm Hg, intravesical pressure at which voiding is initiated),
- intercontraction interval (**ICI**, s)
- voided volume

**For chronic pathophysiological models: non-voiding contractions during the bladder filling phase are also analyzed :**

- amplitude of non-voiding contractions for each micturition cycle (mm Hg),
- **frequency** for each micturition cycle (number of non-voiding contractions per min)

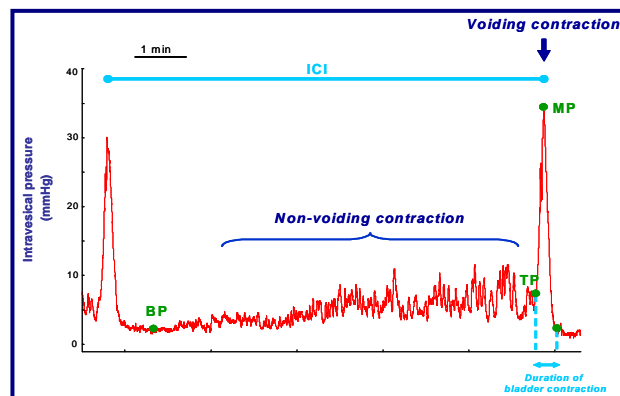


Figure 2: Representative cystometrograms in a conscious rat with overactive bladder illustrating the parameters analysed from such experiment.

**NB:** Pelvipharm will gladly study the feasibility of evaluating cystometry experiments in other experimental models to meet its client's need.

**Related Pelvipharm bibliography:**

Caremél, R. et al. *Eur Urol* (2010) : 58(4):616-25

**Links to applicable therapeutic areas / targeted disorders:**

**- Lower urinary tract**

- \* BPH (Benign prostatic Hyperplasia)
- \* SUI (Stress Urinary Incontinence)
- \* SCI (Spinal Cord Injury)
- \* NDO (Neurogenic Detrusor Overactivity)
- \* OAB (Overactive Bladder)
- \* IC (Interstitial Cystitis)