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## PELVIC FLOOR MUSCLE ACTIVITY ASSESSMENT BY A NEW MICROSYSTEM MEASURING INTRAVAGINAL PRESSURE DURING A ONE HOUR ICS PAD TEST.

### Hypothesis / aims of study

to describe a new technique for assessment of pelvic floor muscle activity during a one hour ICS pad test in women investigated for urinary incontinence using a microsystem device able to record continuously intra-vaginal pressures variations

### Study design, materials and methods

preliminary results obtained in three women investigated for urinary incontinence, without any utero-vaginal prolapse : pelvic floor muscle contractions were continuously recorded during walking, coughing and running using a new microsystem device, placed into the vagina.

The new « wellborn 2 » microsystem is a small (5/11 mm) pear-shaped device connected through a cable to a specific box carried at the waist. At its tip, a membrane is able to undergo deformation resulting from changes in intravaginal pressures which modifies electrical resistance inside a so-called Wheatstone bridge. A microcontroller quantifies these electrical modifications and the data calculated (ten pressures recordings per second) are stored into this box, which stores these pressure variations during 24 hours through an EEPROM (electrically erasable programmable ordinary memory). Once the pressure recording is achieved, the box is connected to a PC including a specific software able to transfer the data to an Excel database. Another specifically developed software (Prof. H. Betaieb, matlab software) can calculate the different pressure parameters (i.e. intensity, duration and area under pressure curves) A temperature sensor is also present in the membrane and allows to confirm the « inside body rightposition » of the microsystem.

### Results

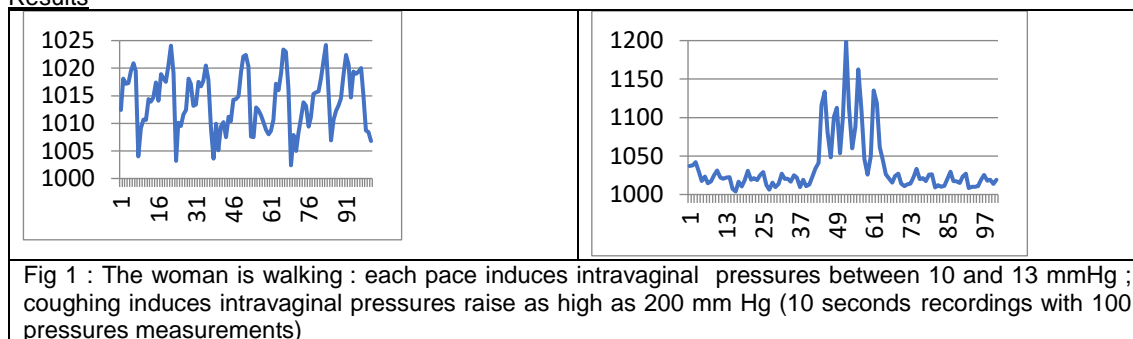


Fig 1 : The woman is walking : each pace induces intravaginal pressures between 10 and 13 mmHg ; coughing induces intravaginal pressures raise as high as 200 mm Hg (10 seconds recordings with 100 pressures measurements)

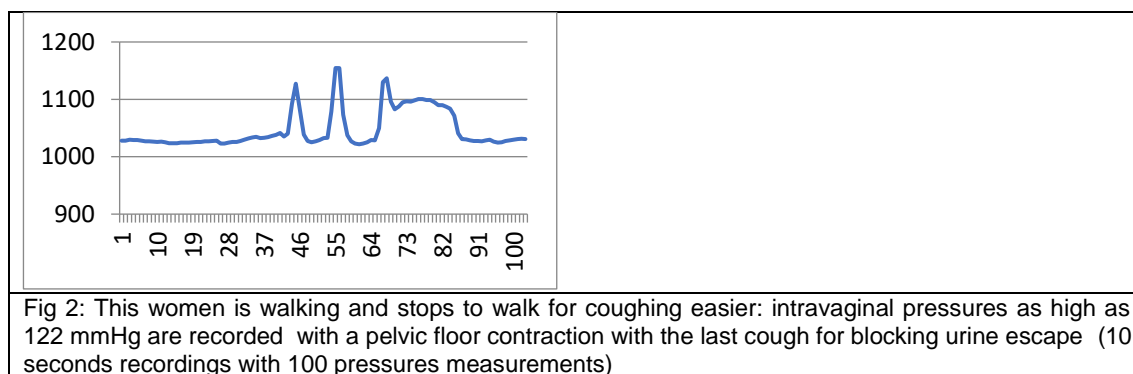


Fig 2: This women is walking and stops to walk for coughing easier: intravaginal pressures as high as 122 mmHg are recorded with a pelvic floor contraction with the last cough for blocking urine escape (10 seconds recordings with 100 pressures measurements)

### Concluding message

The wellborn 2 microsystem is able to record intravaginal pressure and to bring us novel information about pelvic floor activity during a " one hour ICS pad test". This device will be used in a larger cohort of patients investigated for pelvic floor dysfunction in order to better understand pelvic floor activity in various situations and correlated with patient's history and clinical parameters.

### Disclosures

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