

Novel uro catheter for improved diagnosis of urinary incontinence

Field of application

The novel urodynamic catheter has been specifically developed for the diagnosis of urinary incontinence. Its considerable improvement in diagnosis allows for an optimized treatment of incontinence. For patients, this presents an opportunity to increase their quality of life. The unwanted release of urine is an extremely uncomfortable and psychologically burdening situation for any patient.

State of the art

The uro catheters currently used do not enable precise, spatial mapping of the measured data, as at best, position data from the puller but not the angle of rotation are measured. An angular measurement at the clamping point could also be distorted through twisting of the catheter. Furthermore, conventional microtip catheters have a maximum of two to four pressure sensors around the circumference, resulting in the pressure profile only being measured with very low angular resolution.

Innovation

The University of Stuttgart, Germany, has developed a new microtip measuring catheter that allows for determining the catheter position and orientation in the urethra. This catheter is equipped with a triaxial acceleration sensor. Additionally, it features eight pressure sensors around its circumference that can measure the pressure profile inside the entire urethra with a much higher resolution than conventional catheters (Figure 1 and Figure 2).

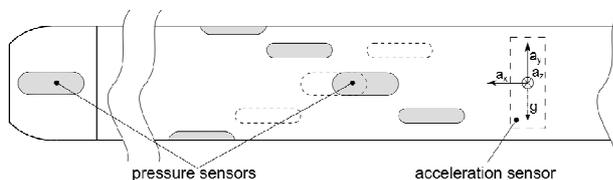


Figure 1: Schematic diagram of the newly developed uro catheter with pressure sensors and acceleration sensor

The acceleration sensor - together with the position data from the puller - allows for precise spatial mapping of the pressure data on the inside of the urethra. By data fusion of the acceleration sensor data with the position data, the urethra's geometry in the sagittal plane can be reconstructed.

Your benefits at a glance

- ✓ Precise measurement of the pressure profile
- ✓ Simultaneous data acquisition of all axes of the acceleration sensor
- ✓ Increased resolution
- ✓ Improved and patient-friendly diagnostics
- ✓ Prototype available

Application and prototype

Acquisition of the pressure profile across the entire lateral surface can provide valuable information for determining the cause of urinary incontinence and thus supports doctors in their choice of therapy.

A prototype of the catheter has already been developed by an experienced company and is currently subject to animal testing. First positive results have confirmed its operational effectiveness.



Figure 2: Tip of the newly developed uro catheter

Technology transfer

Technologie-Lizenz-Büro GmbH is in charge of the exploitation of this technology and assists companies in obtaining licences.

Patent portfolio

This invention is the subject of a patent application lodged in 2013 in Germany. An international PCT application is pending.

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