

Shape of urine stream can indicate prostate issues

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Scientists at Queen Mary, University of London have discovered that the characteristic shape of a man's urine stream could be used to help diagnose urinary problems.

The research, published in [PLOS One](#) today is the first study to analyse the specific pattern a man's urine makes and whether it could be used to detect prostate problems.

Co-author Dr Martin Knight from Queen Mary's School of Engineering and Materials Science explained: "The characteristic shape is due to the [surface tension](#) in the urine and the elliptical shape of the urethra.

"The computer model matched perfectly to experiments in the laboratory and also with video data of human volunteers. There was an excellent correlation between the shape of the urine stream and the urine flow rate."

The medical engineers at Queen Mary used 60 healthy volunteers and 60 patients to test whether self-measurement of the shape of the urine stream could be used to predict maximum urine flow rate.

They found that a simple measurement of the characteristic shape of the flow pattern could accurately predict the maximum urine flow rate; important in the diagnosis of [urinary problems](#) such as those associated with [prostate enlargement](#).

According to Prostate Cancer UK, about four out of every ten men over the age of 50 (40 per cent) and three out of four men in their 70s (75 per cent) have [urinary symptoms](#) that may be caused by an enlarged prostate.

Dr Knight said: "This research began as a student project when a team of urologists asked Queen Mary to come up with a simple non-invasive way of measuring urine flow rate that could be easily used at home where patient's urine flow rates are likely to be more typical than when urinating in hospital.

"The current techniques, although very accurate, are difficult or expensive to use reliably outside of the clinic. This new approach may therefore represent a useful solution to this important [medical engineering](#) problem, allowing men to easily monitor their urine flow rate."

More information: 'The shape of the urine stream – from biophysics to diagnostics' will be published in the journal *PLOS One* on 16 October 2012.

Provided by Queen Mary, University of London

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