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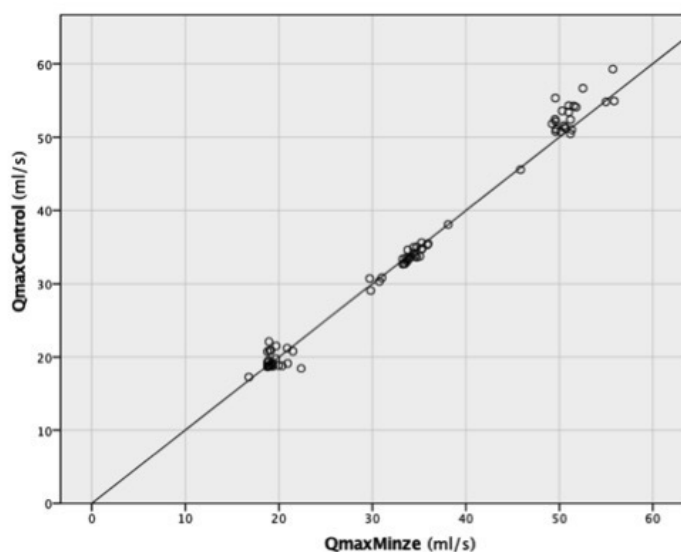
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Introduction & Objectives: Uroflowmetry is a simple, non-invasive and important test for evaluating the lower urinary tract function. However, the traditional clinical set-up often feels unnatural and lacks privacy. Minze Uroflow is a new user-friendly uroflowmeter that can be used on any normal toilet in a hospital, private practice or even at the patient's home. The aim of this study is to validate the accuracy of Minze Uroflow by comparing it to a control measurement.

Materials & Methods: The control measurement exists out of a calibrated laboratory weight scale for voided volume (Vvoid) and a calibrated load-cell with steel base plates for maximum flow rate (Qmax) and average flow rate (Qavg). The Minze Uroflow is placed on top of the control load-cell in order to measure simultaneously. In total 75 measurements were registered, of which 60 using a constant flow simulator (at three different flow rate levels and voided volumes) and 15 real micturitions from 4 healthy adults (F:2, M:2, mean age: 29 yrs, range: 25 – 34 yrs). The paired samples t-test was used to compare Qmax, Qavg and Vvoid measured by Minze Uroflow to the control measurement.

Results: The flow curves recorded by both methods showed a good visual correlation. We observed an average difference between the measurements (n=75) by the Minze Uroflow and control measurement for Qmax of 0.5ml/s (95% CI [0.1 – 0.8ml/s]) and for Qavg of 0.2ml/s (95% CI [0.1 – 0.4ml/s]), which were found significant ($t_{74}=2.6$, $p=0.011$; $t_{74}=3.1$, $p=0.002$; respectively). These results are well within the ICS recommended accuracy of 1ml/s. The average difference in Vvoid between the two methods was 0.4 ml (95% CI [0.1 – 1,8ml]), which was not found significant ($t_{74}=0.585$, $p=0.561$).

Additionally an excellent correlation was observed between the two methods for all variables: Qmax ($r=0.995$, $p<0.001$), Qavg ($r=0.998$, $p<0.001$), and Vvoid ($r=1$, $p<0.001$). Figure 1 shows the correlation between the Minze Uroflow and control measurement for Qmax.



Conclusions: The Minze Uroflow is a reliable and accurate uroflowmeter, which can be used on a normal toilet. Collecting uroflows on a normal toilet possibly enhances reliability, since patients perceive it as a more natural environment, definitely when it is done at home. Additionally the possibility to collect multiple flows at home will enhance reliability even more by taking individual variability into account.