

**“Hydrophilic-coated catheters perform better than uncoated catheters with regard to haematuria...”**

Stensballe et al., 2005

## Study Hypothesis

Hydrophilic coated catheter exert less urethral friction and, hence, cause less urethral micro trauma

## Study Type and Methods

Randomized, crossover, single blind study. Each participant was catheterized twice on the same day with the same catheter with at least 2 days between test visits

## Patient Population

40 healthy adult male volunteers with no h/o IC use

## Catheters compared

Hydrophilic coated: SpeediCath<sup>®</sup>, LoFric<sup>™\*</sup>. Uncoated: InCare Advance Plus<sup>™\*</sup>

## Outcomes Measured

1. Friction Force for Withdrawal (Newton)
2. Work needed for Withdrawal (Joules)
3. Hematuria
4. Participant satisfaction & Preference

## Strengths

- Participants with sensation to attest to pain
- Study adequately powered based on pilot research
- Crossover, blinded design to account for individual variability

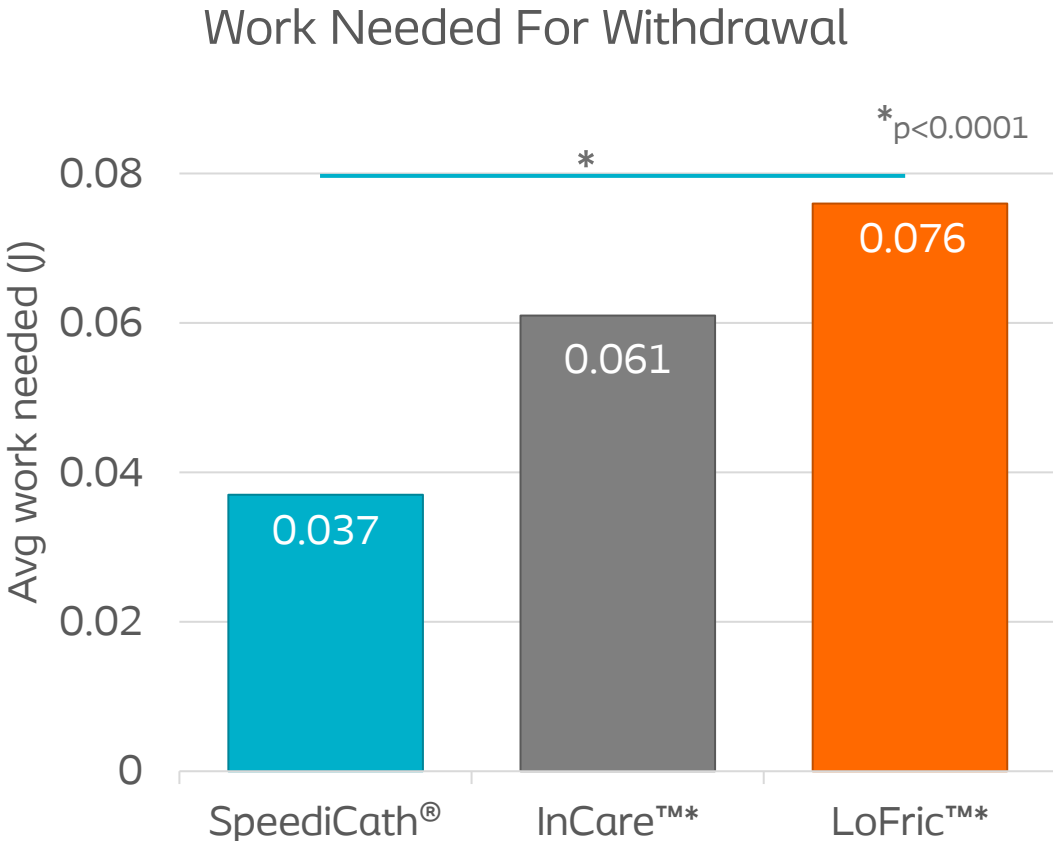
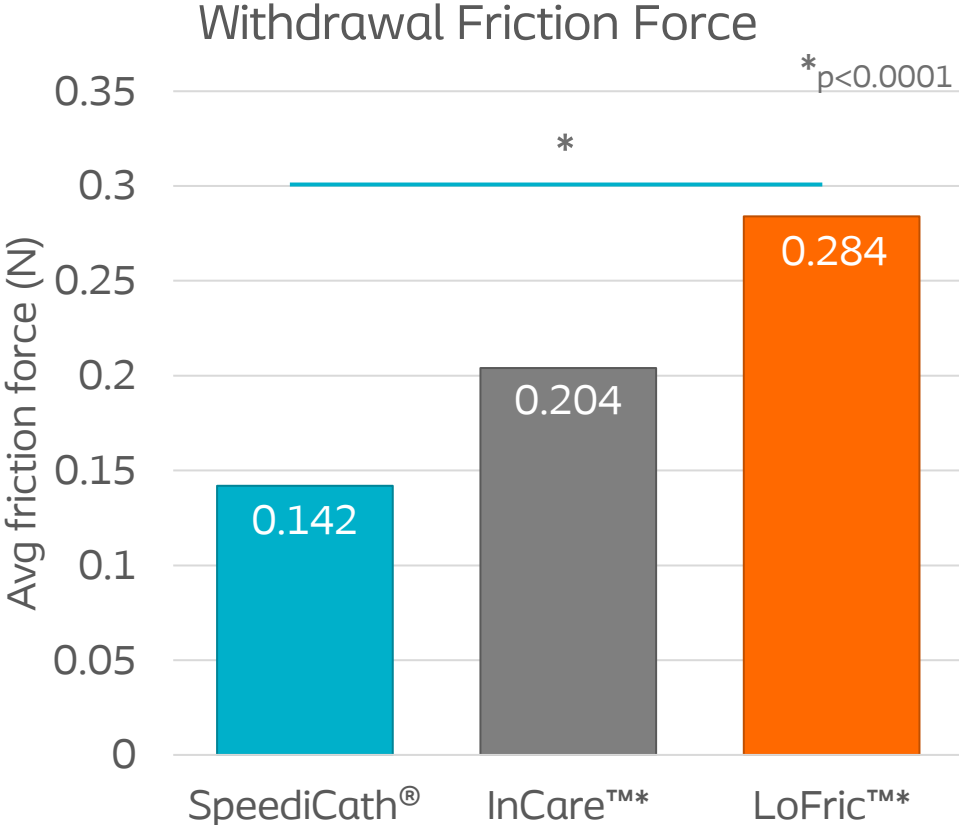
## Limitations

- HCP performed catheterization
- Small sample size (22.5% drop out rate)
- Healthy volunteers – does not reflect perspectives of patient population
- Catheter preference was assessed in healthy volunteers

Stensballe J, Looms D, Nielsen PN, Tvede M. Hydrophilic-coated catheters for intermittent catheterisation reduce urethral micro trauma: a prospective, randomised, participant-blinded, crossover study of three different types of catheters. *Eur Urol*. 2005;48(6):978-983.

<sup>™\*</sup> Third party brands are property of their respective owners.

# SpeediCath friction force and work needed for withdrawal was significantly lower than another hydrophilic and an uncoated catheter



Average friction force (N):  
SpeediCath<sup>®</sup> 0.142 < InCare<sup>™\*</sup> 0.204 < LoFric<sup>™\*</sup> 0.284  
(p<0.0001, ANOVA analysis; p<0.05, Bonferroni test)

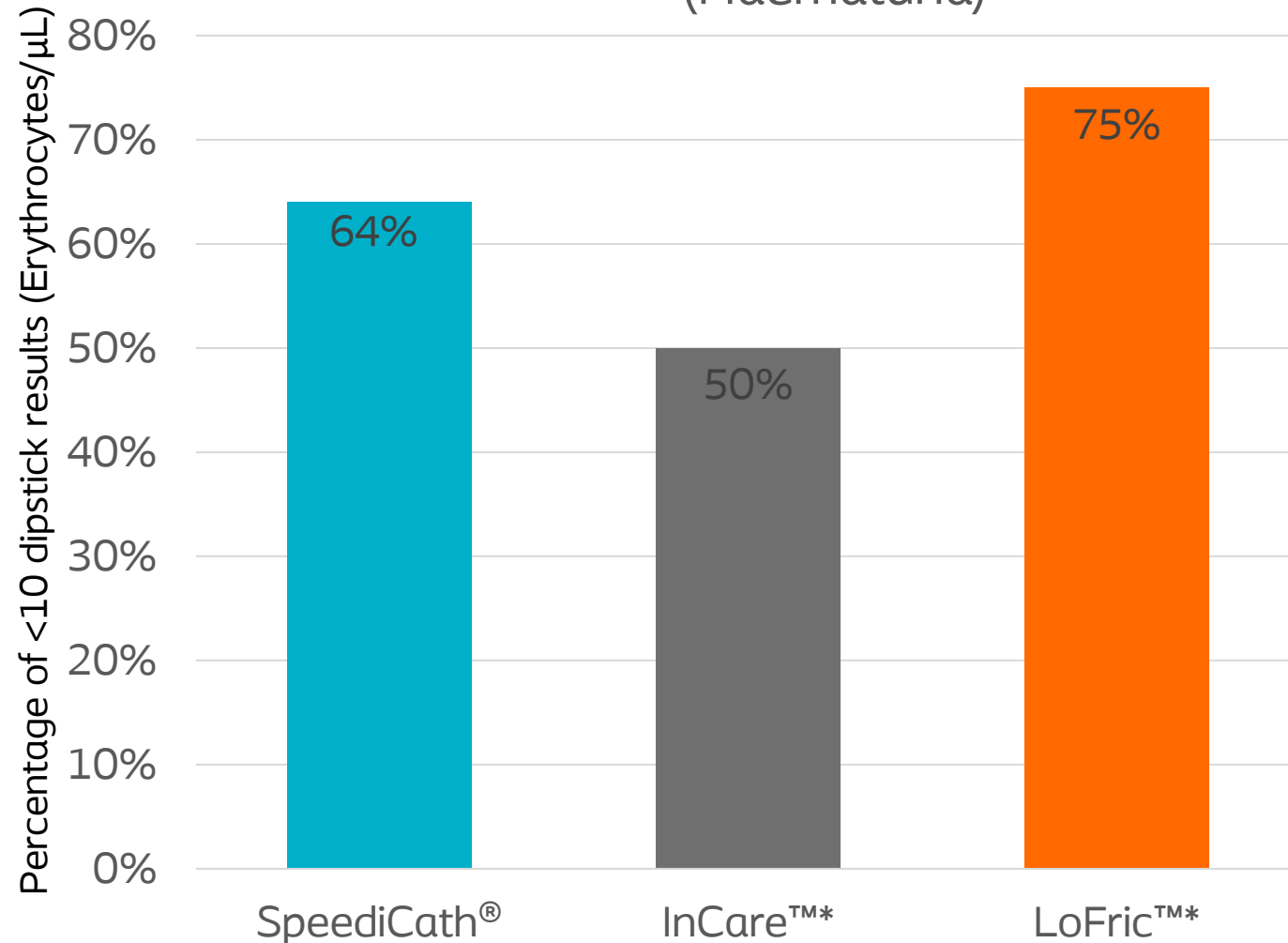
Average work needed for withdrawal (J):  
SpeediCath<sup>®</sup> 0.037 < InCare<sup>™\*</sup> 0.061 < LoFric<sup>™\*</sup> 0.076  
(p<0.0001, ANOVA analysis; p<0.05, Bonferroni test)

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# Hydrophilic coated catheters had less haematuria than uncoated catheters

Dipstick analysis of blood content in urine  
(Haematuria)



Percentage of negative erythrocytes on dipstick test LoFric™\* 75% > SpeediCath® 64% > InCare™\* 50% (p=0.0006, Friedman test)

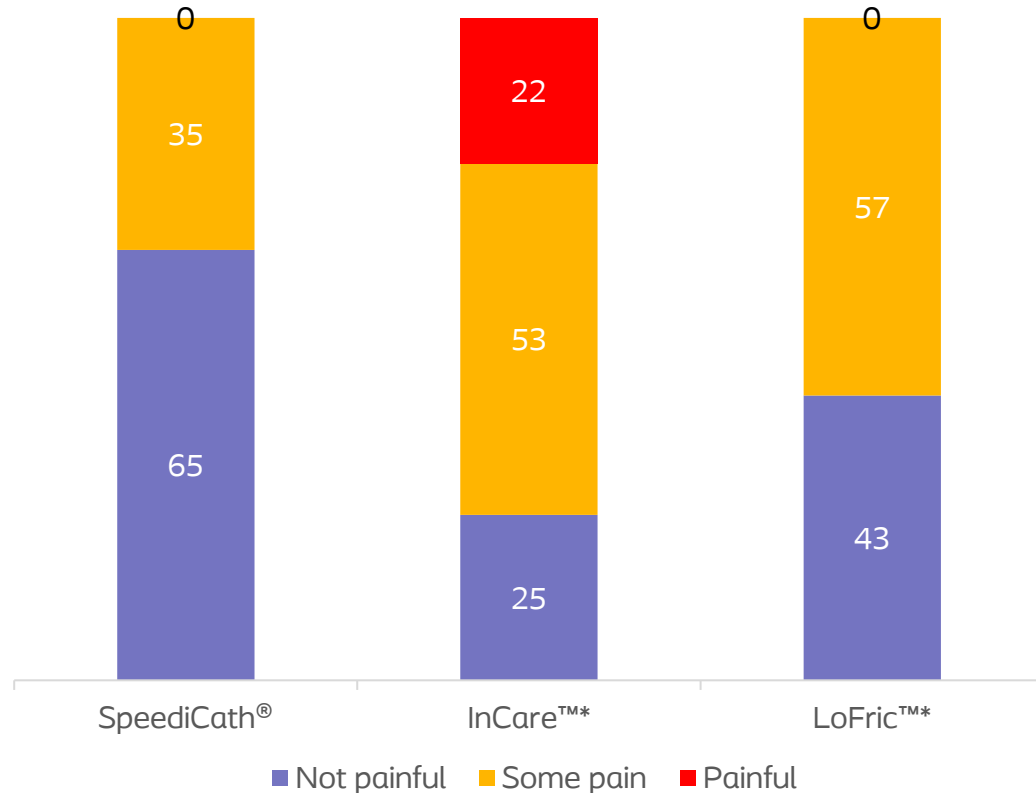
All urine samples were negative for nitrite and leucocytes

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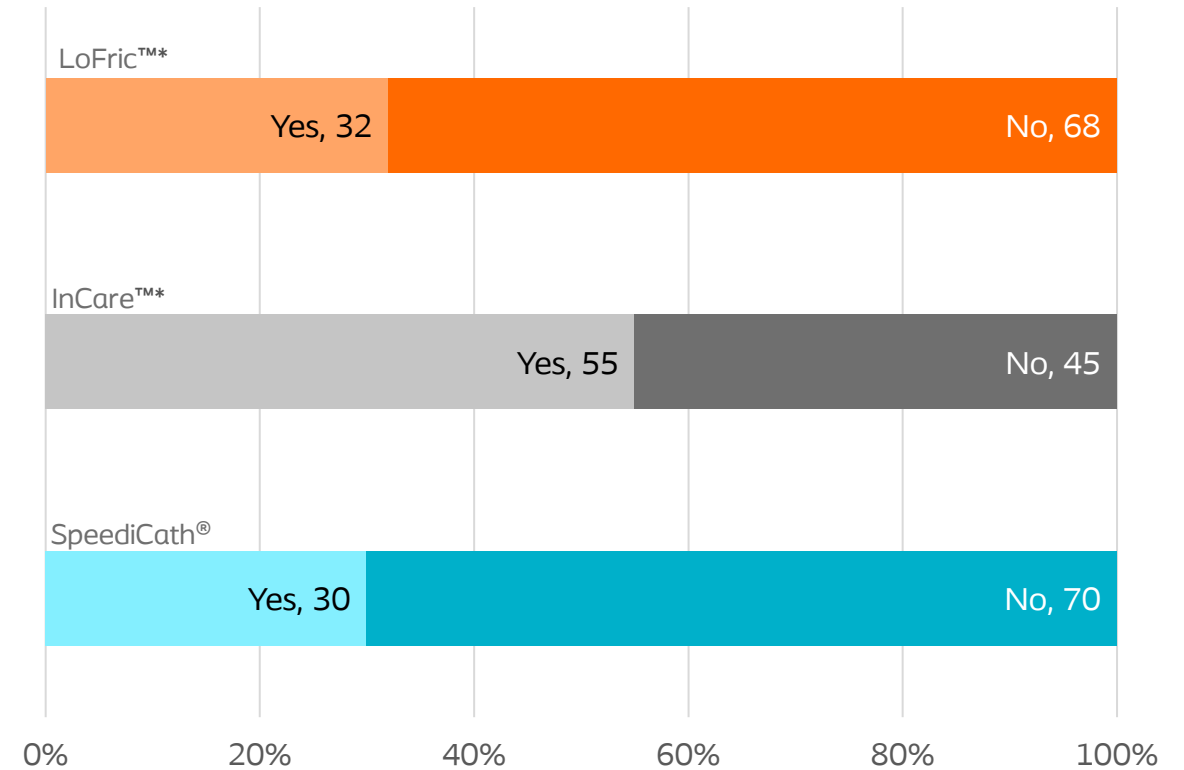
# Hydrophilic catheters produce some to no pain at insertion and during the first micturition after catheterization

Participant perceived pain at insertion



Average friction force (N):  
 SpeediCath® 0.142 < InCare™ 0.204 < LoFric™ 0.284  
 (p<0.0001, ANOVA analysis; p<0.05, Bonferroni test)

Discomfort during micturition after catheterization



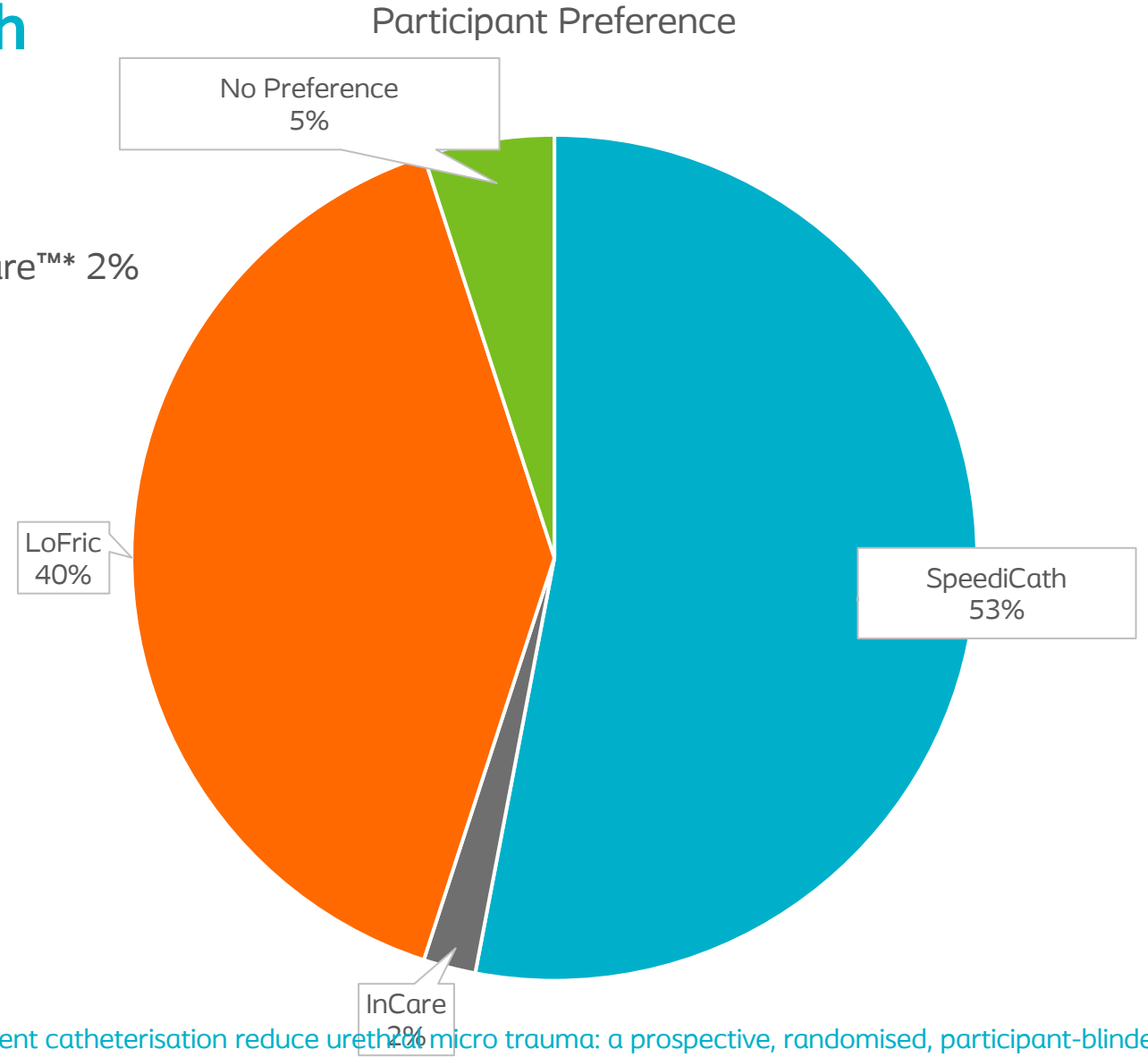
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# Overwhelmingly, volunteers preferred hydrophilic catheters, with the majority preferring SpeediCath

Preference (%):  
SpeediCath® 53% < LoFric™\* 40% < No preference 5% < InCare™\* 2%  
( $p < 0.0001$ , ANOVA analysis;  $p < 0.05$ , Bonferroni test)



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# Conclusions:

- **Using hydrophilic-coated catheters for intermittent catheterization:**
  - **Reduced urethral micro trauma**
  - **Were preferred by participants**
- **SpeediCath<sup>®</sup> exerted less urethral friction than Incare<sup>™\*</sup> uncoated catheter and LoFric<sup>™\*</sup> hydrophilic catheter**