SPROTTE® Lumbar
Needles for Atraumatic Lumbar Puncture
The original SPROTTE® needle
The pioneer of atraumatic dural puncture

Prof. Sprotte developed with the Sprotte needle the first atraumatic needle for lumbar puncture. The secret of its success can be found in its unique tip geometry and basic architecture. This design, developed especially for the requirements of dural puncture, allows for an atraumatic puncture of the ligamentary structures and optimises CSF flow while reducing the incidence of post-lumbar puncture headaches (PLPH). Sprotte decreases complications of lumbar puncture and increases the safety of application, and the efficiency of diagnostics.

Needle hub with reduced inner space
- Fast detection of cerebrospinal fluid for secure placement
- Immediate detection of even the smallest quantities of CSF

Introducer with facet tip
- Diameter and length perfectly matched to each needle size
- Useable working length of the spinal needle is reduced only minimally by the Introducer
- When inserted into the Introducer, the needle tip is not damaged by the funnel-shaped inner contour

Colour coded hub with size indication
- Wide needle range with different diameters and lengths
- Special designs for pediatrics and obese patients

Sprotte needle

Sprotte Introducer

Highest processing quality
- High quality stainless steel needle for increased stability
- Smoothly polished and burr-free surface and inner lumen for optimisation of gliding properties and cerebrospinal fluid (CSF) backflow
American Academy of Neurology: The benefits of the atraumatic puncture technique for the CSF space have been proven beyond doubt scientifically for diagnostic lumbar puncture. Published studies in which the atraumatic technique was performed exclusively with original Sprotte needles provide the scientific basis.

**Lateral eye**
- Burr-free
- Rounded atraumatic edges
- Optimised gliding properties
- Minimum tissue particle carry-over into the spinal space

**Atraumatic tip**
- Displaces tissue with minimal injury
- Dura fibres close again
- Excellent tactile feedback
- Minimise chance for PLPH

**Custom-fit stylet**
- Lateral eye closes precisely
- Polished, rounded tip prevents abrasion on the inner needle tube

**Optimal lateral eye size and placement**
- Unobstructed backflow, even if the eye is partially blocked by the arachnoid membrane

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3. Strupp et al., Atraumatic Sprotte needle reduces the …, 2001; 57: 2312
Comparative study conclusion
Atraumatic lumbar puncture needles are safe to use, require a minimal learning curve and provide reliable results according to published complication rates.³

- **Minimal side effects**

**Increased efficiency**

- **Significant side effect, complication, and recovery time minimisation**
- **High savings potential by minimising process and treatment costs**⁷

40 years of evidence from high-quality research confirm: **It’s time to change the needle!⁸**

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4 Lavi, Rowe, Avivi, Lumbar Puncture: It Is Time to Change the Needle ..., 2010; 64: 110
5 Evans et al., Assessment: prevention of post-lumbar ..., 2000; 55: 912
6 Vakharia, Lote, Introduction of Sprotte needles ..., 2012; 3(12): 82
7 Tung, So, Lansberg, Cost comparison between the atraumatic ..., 2012; 78(2): 110
8 Lavi, Rowe, Avivi, Lumbar Puncture: It Is Time to Change the Needle ..., 2010; 64: 109
Studies

**Sprotte needle: evidence class 1, recommendation level A**

**The beginning**
- Die Merkmale gegenüber der vorbekannten „Whitacre-Kanüle“: seitliche Öffnung größer als der Innendurchmesser und Spitze in Form einer Ogive, nicht Kreiskegel bzw. „pencil-point”.

**Evidence-based atraumatic puncture recommendations**
- Arendt K., Demaerschalk B. M., Wingerchuk D. M., Camann W. Atraumatic Lumbar Puncture Needles After All These Years, Are We Still Missing the Point?, The Neurologist, Volume 15, Number 1, Jan. 2009; 17–20

**Table 1: Sprotte Introducer Sizes**

<table>
<thead>
<tr>
<th>Size</th>
<th>Introducer Size</th>
<th>Sprotte Luer Item no.</th>
<th>Sprotte NRFit Item no.</th>
<th>PU</th>
</tr>
</thead>
<tbody>
<tr>
<td>22 G x 90 mm</td>
<td>30 mm*</td>
<td>321151-30C</td>
<td>321163-30C</td>
<td>25</td>
</tr>
<tr>
<td>22 G x 103 mm</td>
<td>40 mm*</td>
<td>341151-30C</td>
<td>341163-30C</td>
<td>25</td>
</tr>
<tr>
<td>22 G x 120 mm</td>
<td>40 mm*</td>
<td>331151-30C</td>
<td>331163-30C</td>
<td>10</td>
</tr>
<tr>
<td>22 G x 120 mm</td>
<td>031151-30C</td>
<td>031163-30C</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>21 G x 90 mm</td>
<td>30 mm*</td>
<td>321151-31A</td>
<td>321163-31A</td>
<td>25</td>
</tr>
<tr>
<td>21 G x 103 mm</td>
<td>40 mm*</td>
<td>341151-31A</td>
<td>341163-31A</td>
<td>25</td>
</tr>
<tr>
<td>21 G x 120 mm</td>
<td>40 mm*</td>
<td>331151-31A</td>
<td>331163-31A</td>
<td>25</td>
</tr>
<tr>
<td>20 G x 90 mm</td>
<td>30 mm*</td>
<td>331151-31B</td>
<td>331163-31B</td>
<td>25</td>
</tr>
<tr>
<td>20 G x 120 mm</td>
<td>40 mm*</td>
<td>331151-31B</td>
<td>331163-31B</td>
<td>25</td>
</tr>
<tr>
<td>20 G x 150 mm</td>
<td>40 mm*</td>
<td>321151-31B</td>
<td>321163-31B</td>
<td>25</td>
</tr>
<tr>
<td>20 G x 150 mm</td>
<td>031151-31B</td>
<td>031163-31B</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>* with wings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 2: Sprotte Manometer Sizes**

<table>
<thead>
<tr>
<th>Size</th>
<th>Manometer Luer Item no.</th>
<th>Manometer NRFit Item no.</th>
<th>PU</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 34 cm H2O</td>
<td>001151-38G</td>
<td>001163-38F</td>
<td>1</td>
</tr>
</tbody>
</table>

**Table 3: Sprotte Manometer Extension Sizes**

<table>
<thead>
<tr>
<th>Size</th>
<th>Manometer Extension Item no.</th>
<th>PU</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 cm H2O</td>
<td>001152-38G</td>
<td>1</td>
</tr>
</tbody>
</table>
Studies

Sprotte needle: evidence class 1, recommendation level A

- Neurology: Introduction of the atraumatic technique to liquor diagnostics
  
  
  
  
  
  
  
  
  • Alstadhaug K.B. et al. Post-lumbar puncture headache (Review Article) Tidsskr Nor Legeforen nr.7 2012; 132: 818-21
  
  • Comparative studies on the technical efficiency of atraumatic versus conventional needles for diagnostic lumbar puncture
  
  
  • Renard D, Thouvenot E. CSF RBC count in successful first-attempt lumbar puncture: the interest of atraumatic needle use.
  
  • Vakharia V, Lote H. Introduction of sprotte needles to a single-centre acute neurology service: before and after study. JR Soc Med Sh Rep 2012; 3:82
  

- Ambulant lumbar puncture with atraumatic technique
  
  • Popp J., Riad M., Freymann K., Jessen F. Ambulante Durchführung einer diagnostischen Lumbalpunktion in der Gedächtnissprechstunde, Der Nervenarzt, Mai 2007
  

- Atraumatic lumbar puncture in research on healthy volunteers
  

- Neuroradiology:
  
  

- Hematology oncology:
  

- Interdisciplinary aspects:
  
  • Puolakka R. , Andersson L. C., Rosenberg P. H. Microscopic Analysis of Three Different Spinal Needle Tips After Experimental Subarachnoid Puncture In: Regional Anesthesia and Pain Medicine, Vol 25, No 2, März – April 2000: pp 163–169
  
  • Atraumatic puncture technique reduces costs
  
  • Tung C. E., So Y. T., Lansberg M. G. Cost comparison between the atraumatic and cutting lumbar puncture needles, Neurology., 2012; 78; 109

- No atraumatic deflection of the needle tip during feed into the tissue
  
  
  • Pua U., CT-guided spinal injection. Initial experience with Sprotte tip needles, Neuroradiology., Sept. 2010; 52(9):847–50

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