

PAJUNK®

SPROTTE® Lumbar
*Needles for Atraumatic
Lumbar Puncture*

40
YEARS OF
SPROTTE®




MADE IN GERMANY

The original SPROTTE® needle

The pioneer of atraumatic dural puncture

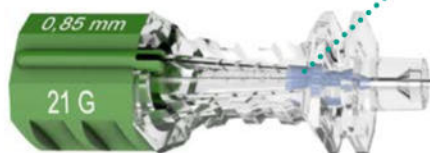
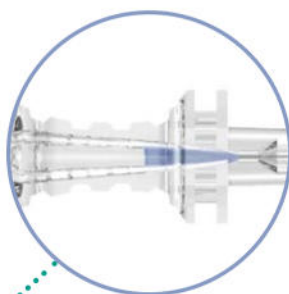
Prof. Sprotte developed with the Sprotte needle the first atraumatic needle for lumbar puncture. The secret of its success can be found in its unique tip geometry and basic architecture. This design, developed especially for the requirements of dural puncture, allows for an atraumatic puncture of the 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.

Highest processing quality

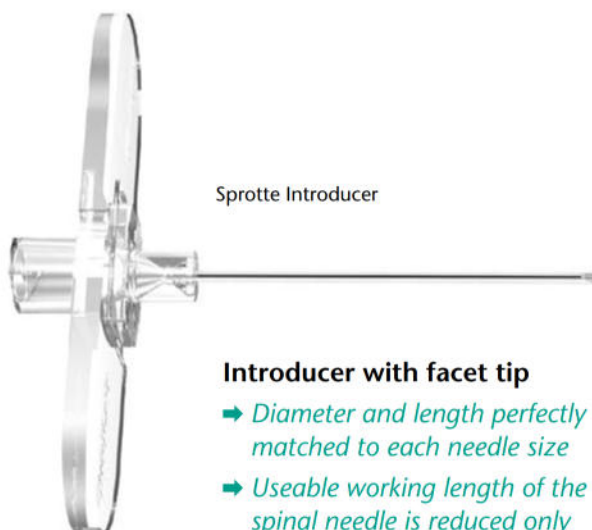
- ➔ High quality stainless steel needle for increased stability
- ➔ Smoothly polished and burr-free surface and inner lumen for optimisation of gliding properties and cerebrospinal fluid (CSF) backflow

Needle hub with reduced inner space

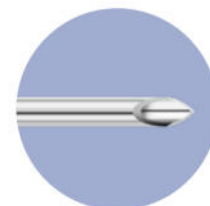
- ➔ Fast detection of cerebrospinal fluid for secure placement
- ➔ Immediate detection of even the smallest quantities of CSF



Sprotte needle



Sprotte Introducer



Colour coded hub with size indication

- 20 G = 0.90 mm ■
- 21 G = 0.85 mm ■
- 22 G = 0.70 mm ■

- ➔ Wide needle range with different diameters and lengths
- ➔ Special designs for pediatrics and obese patients

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



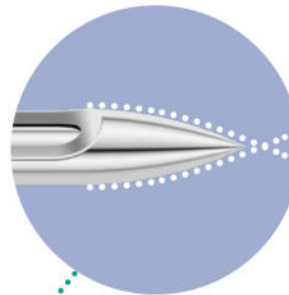
Also available in **NRFit**®

Evidence class 1, recommendation level A

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.²

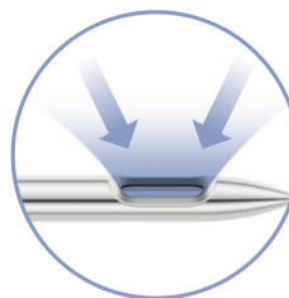
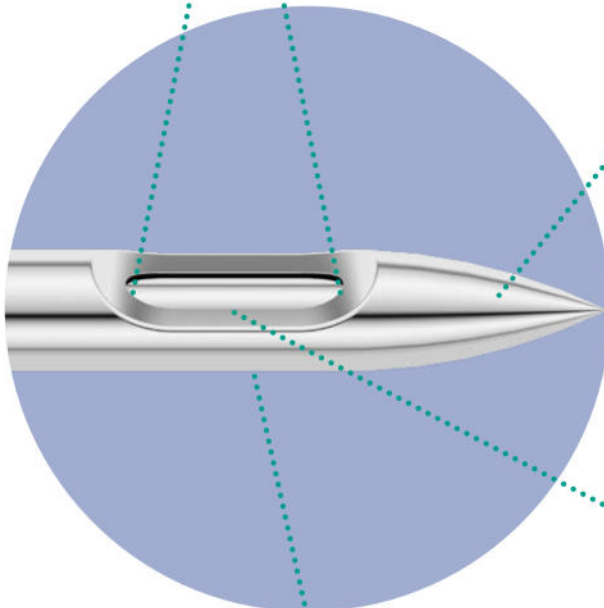
Lateral eye

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



Atraumatic tip

- ➔ Displaces tissue with minimal injury³
- ➔ Dura fibres close again
- ➔ Excellent tactile feedback
- ➔ Minimise chance for PLPH

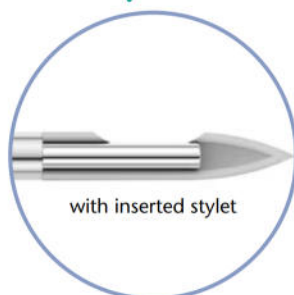


Optimal lateral eye size and placement

- ➔ Unobstructed backflow, even if the eye is partially blocked by the arachnoid membrane

Custom-fit stylet

- ➔ Lateral eye closes precisely¹
- ➔ Polished, rounded tip prevents abrasion on the inner needle tube



PATIENT
SAFETY

¹ Jäger, Schimrigk, Haaß, Das postpunktionelle Syndrom ..., 1991; 18: 61–64

² Armon, Evans, Addendum to assessment: Prevention of post-lumbar ..., 2005; 65: 510–512

³ Strupp et al., Atraumatic Sprotte needle reduces the ..., 2001; 57: 2312

American Academy of Neurology



Atraumatic needles are the leading technology for decreasing the incidence of post-spinal headaches.⁴

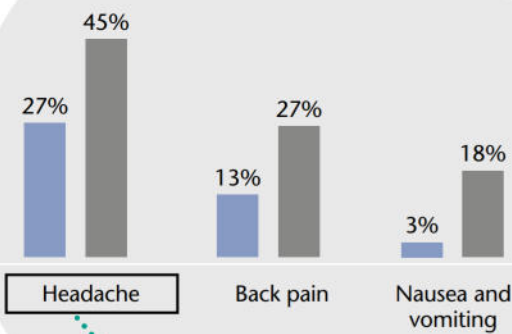
SPROTTE[®]
atraumatic needle



One risk factor for post-spinal headaches is the use of a Quincke needle.⁵

Quincke
cutting needle

Vakharia and Lote study

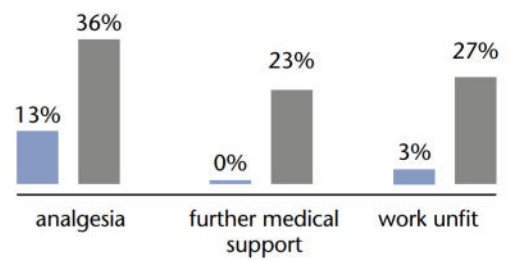


■ Atraumatic (22 G SPROTTE)
■ Traumatic (22 G Quincke)

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.⁶

➔ Minimal side effects



Increased efficiency

- ➔ Significant side effect, complication, and recovery time minimisation
- ➔ High savings potential by minimising process and treatment costs⁷

40 years of evidence from high-quality research confirm:

It's time to change the needle!⁸

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

SPROTTE[®]



SPROTTE[®]



Size	Introducer Size	Sprotte Luer Item no.	Sprotte NRFit Item no.	PU
22 G x 90 mm	30 mm*	321151-30C	321163-30C	25
22 G x 90 mm		001151-30C	001163-30C	25
22 G x 103 mm	40 mm*	341151-30C	341163-30C	25
22 G x 120 mm	40 mm*	331151-30C	331163-30C	10
22 G x 120 mm		031151-30C	031163-30C	10
22 G x 150 mm	40 mm*	361151-30C	–	10
21 G x 90 mm	30 mm*	321151-31A	321163-31A	25
21 G x 90 mm		001151-31A	001163-31A	25
21 G x 103 mm	40 mm*	341151-31A	341163-31A	25
21 G x 120 mm	40 mm*	331151-31A	331163-31A	10
20 G x 90 mm	30 mm*	331151-31B	331163-31B	25
20 G x 90 mm		0001151-31	0001163-31	25
20 G x 120 mm	40 mm*	321151-31B	321163-31B	10
20 G x 150 mm	40 mm*	361151-31B	–	10
20 G x 150 mm		0041151-31	–	10

* with wings

Introducer SPROTTE[®]

Without wings



Size	Sprotte Size	Introducer Luer Item no.	Introducer NRFit Item no.	PU
1.20 x 30 mm	20 G	061151-30L	061163-30L	25
1.00 x 30 mm	22 G	001151-30L	001163-30L	25

Manometer



Size	Manometer Luer Item no.	Manometer NRFit Item no.	PU
3–34 cm H ₂ O	001151-38G	001163-38F	1

Size	Manometer Extension Item no.	PU
20 cm H ₂ O	001152-38G	1

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

■ The beginning

- Patentschrift DE 3020926 C2 „Stahlkanüle für die Spinal- und Leitungsanästhesie sowie für die Lumbalpunktion“ eingereicht 1979, Patent erteilt am 3.11.1981 Die Merkmale gegenüber der vorbekannten „Whitacre-Kanüle“: seitliche Öffnung größer als der Innendurchmesser und Spitze in Form einer Ogive, nicht Kreiskegel bzw. „pencil-point“.
- Sprotte G., Schedel R., Pajunk H., Pajunk H. Eine „atraumatische“ Universalkanüle für einzeitige Regionalanaesthesien, Reg Anaesth., Juli 1987; 10(3):104–8 (erstmalige Klassifizierung einer Spinalkanüle als „atraumatisch“)
- Hirasawa Y., Katsumi Y., Küsswetter W., Sprotte. G. Experimentelle Untersuchungen zur peripheren Nervenverletzung durch Injektionsnadeln, Reg Anaesth., 1990; 13:11–15 (experimenteller Nachweis des verminderten Gewebetraumas am peripheren Nerven, histologisch und funktionell)

■ Evidence-based atraumatic puncture recommendations

- Rochweg B. et al. Atraumatic (pencil-point) versus conventional needles for lumbar puncture: a clinical practice guideline. BMJ Rapid Recommendations BMJ 2018; 361: k 1920

- Van de Beek D. and Brower MC. Atraumatic lumbar puncture needles: practice needs to change. Lancet 2018 Mar 24; 391(10126):1128-1129.
- Nath S. et al. Atraumatic versus conventional lumbar puncture needles: a systematic review and meta-analysis. Lancet 2018 Mar 24;391(10126):1197-1204
- Armon C., Evans R. W. Addendum to assessment: Prevention of postlumbar puncture headaches Report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology., Neurology., 2005; 65; 510
- 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
- American Society of Anesthesiologists Task Force on Obstetric Anesthesia. Practice guidelines for obstetric anesthesia: an updated report by the American Society of Anesthesiologists Task Force on Obstetric Anesthesia., Anesthesiology., 2007; 106:843–863
- Lavi R., Rowe J.M., Avivi I. Lumbar Puncture. It Is Time to Change the Needle, Eur Neurol, 2010; 64:108–113

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

■ Neurology:

Introduction of the atraumatic technique to liquor diagnostics

• Jäger H., Krane M., Schimrigk K. Lumbar puncture – the post-puncture syndrome. Prevention with an „atraumatic“ puncture needle, clinical observations [Article in German] Schweiz Med Wochenschr. 23. Oct. 1993; 123(42):1985–90.

• Engelhardt A., Oheim S., Neundörfer B. Post-lumbar-puncture headache: experiences with Sprotte's atraumatic needle. Cephalalgia, 1992; 12:259

• Braune H. J., Huffmann G. A. A prospective double-blind clinical trial, comparing the sharp Quincke needle (22G) with an "atraumatic" needle (22G) in the induction of post-lumbar puncture headache. Acta Neurol Scand, 1992; 86 (1):50–54

• Strupp M., Schueler O., Straube A., Von Stuckrad-Barre S., Brandt T. „Atraumatic“ Sprotte needle reduces the incidence of post-lumbar puncture headaches. Neurology, 26. Dez. 2001; 57(12):2310–2

• Toyka K.V., Müller B., Reichmann H., Strupp M., Schüler O., Brandt T. Atraumatic Sprotte needle reduces the incidence of post-lumbar puncture headaches, Neurology, 2002; 59:1120–1121

• Demaerschalk B. M., Wingerchuk D. M. Atraumatic dural puncture needles for preventing post-dural puncture headache: meta-analysis of randomized controlled trials. Neurology, 2002; 58(suppl 3):A285–A286

• Vidoni E.D. et al. Reducing post-lumbar puncture headaches with small bore atraumatic needles J Clin Neurosc. 2014 Mar; 21(3): 536-7.

• Alstadhaug K.B. et al. Post-lumbar puncture headache (Review Article) Tidsskr Nor Lægeforen nr.7 2012; 132: 818-21

■ Comparative studies on the technical efficiency of atraumatic versus conventional needles for diagnostic lumbar puncture

• Carson D., Serpell M. Choosing the best needle for diagnostic lumbar puncture., Neurology, Juli 1996; 47(1):33–7

• 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

• Pelzer N. et al. Are atraumatic spinal needles as efficient as traumatic needles for lumbar puncture? Neurol Sci. 2014 Dec;35(12):1997-9

■ 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

• Hammond E. R., Wang Z., Bhulani N., McArthur J. C., Levy M. Needle type and the risk of post-lumbar puncture headache in the outpatient neurology clinic In: Journal of the Neurological Sciences 306, 2011; 24–28

■ Atraumatic lumbar puncture in research on healthy volunteers

• Peskind E. R., Rieske R., Quinn J. F., Kaye J., Clark C. M., Farlow M. R., Decarli C., Chabal C., Vavrek D. Raskind, M. A., Galasko D. Safety and acceptability of the research lumbar puncture, Alzheimer Dis. Assoc. Disord., 2005; 9(4):220–5

■ Neuroradiology:

Atraumatic puncture technique for myelography

• Prager J. M., Roychowdhury S., Gorey M. T., Lowe G. M., Diamond C.W., Ragin A. Spinal Headaches After Myelograms: Comparison of Needle Types, American Roentgen Ray Society, Nov. 1996; 167

• Fox R. G. T., Reiche W., Kiefer M., Hagen T., Huber. G. Indizienz des Postmyelographiesyndroms und postmyelographischer Beschwerden nach lumbaler Punktion mit der bleistiftförmigen Nadel nach Sprotte im Vergleich zur Nadel nach Quincke, Radiologie, 1996; 36: 921–927

■ Hematology oncology:

Atraumatic puncture technique in haematological cerebrospinal fluid diagnostics

• Lavi R. et al. Traumatic vs. Atraumatic 22G needle for therapeutic and diagnostic lumbar puncture in the hematologic patient: a prospective clinical trial Haematologica 2007 92: 1007-1008

■ Interdisciplinary aspects:

Carry-over of tissue and cells into the spinal canal by different needle types

• 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

• Kopacz D. J. , Allen H. W. Comparison of needle deviation during regional anesthetic techniques in a laboratory model, Anesth. Analg. 1995 Sep; 81(3): 630–633

• Pua U., CT-guided spinal injection. Initial experience with Sprotte tip needles, Neuroradiology, Sept. 2010; 52(9):847–50



PAJUNK® GmbH
 Medizintechnologie
 Karl-Hall-Strasse 1
 D-78187 Geisingen/ Germany
 Phone +49 (0) 77 04/92 91-0
 Telefax +49 (0) 77 04/92 91-6 00
 www.pajunk.com

PAJUNK® Medical Produkte GmbH
 D.A.CH • BeNeLux
 Karl-Hall-Strasse 1
 D-78187 Geisingen/ Germany
 Phone +49 (0) 77 04/80 08-0
 Telefax +49 (0) 77 04/80 08-150
 www.pajunk.com