

# Evolution of the VibroSense Meter®

## – Scientific publications



Publications addressing use of the VibroSense Meter® are printed in **bold**.  
The most recent publication is first in the list.



### **1. Diagnostic contribution of multi-frequency vibrometry to detection of peripheral neuropathy in type 1 diabetes mellitus compared with nerve conduction studies**

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4 Department of Clinical Sciences, Clinical Neurophysiology, Lund University, Malmö, Sweden,

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### **2. Oral cannabidiol for prevention of acute and transient chemotherapy-induced peripheral neuropathy**

Sebastian W. Nielsen<sup>1</sup> · Simone Dyring Hasselsteen<sup>1</sup> · Helena Sylow Heilmann Dominiak<sup>1</sup> ·

Dejan Labudovic<sup>1</sup> · Lars Reiter<sup>1</sup> · Susanne Oksbjerg Dalton<sup>1,2,3</sup> · Jørn Herrstedt<sup>1,3</sup>

Support Care Cancer. 2022 Nov;30(11):9441-9451.doi: 10.1007/s00520-022-07312-y. Epub 2022 Aug 6.

### **3. Addressing Chemotherapy-Induced Peripheral Neuropathy Using Multi-Frequency Vibrometry and Patient-Reported Outcome**

Sebastian W. Nielsen<sup>1,\*</sup>, Sanne Lindberg<sup>1</sup>, Christina Halgaard Bruvik Ruhlmann<sup>2,3</sup>, Lise Eckhoff<sup>3</sup> and Jørn Herrstedt<sup>1,4</sup>

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### **4. Normative values of the vibration perception thresholds at finger pulps and metatarsal heads in healthy adults, PLoS One. 2021 Apr 6**

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1 Department of Translational Medicine, Hand Surgery, Lund University, Malmö, Sweden, 2 Department of Clinical Sciences, Endocrinology, Lund University, Malmö, Sweden, 3 Department of Hand Surgery, Skåne University Hospital, Malmö, Sweden

### **5. Vibration Perception Threshold and Heart Rate Variability as methods to assess chemotherapy-induced neuropathy in women with breast cancer – a pilot study**

Simone Diedrichsen Marstrand, MD a Kristian Buch-Larsen a, Michael Andersson b, Lars Thorbjørn Jensen c,d, Peter Schwarz a,d

Science Direct Cancer Treatment and Research Communications 28 (2021) 100426

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c Department of Clinical Physiology and Nuclear Medicine, Herlev Hospital, Borgmester Ibs Juuls Vej 71, 2730 Herlev, Denmark

d Faculty of Health Science, University of Copenhagen, Blegdamsvej 3, 2200 Copenhagen, Denmark

### **6. Improved metabolic control using glucose monitoring systems leads to improvement in vibration perception thresholds in type 1 diabetes patients. 30 October 2019, Acta Diabetologica**

Lars B. Dahlin<sup>1,2</sup>, Targ Elgzyri<sup>3</sup>, Magnus Löndahl<sup>4</sup>, Linnéa Ekman<sup>1</sup>, Eero Lindholm<sup>3</sup>

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### [7. Comparison between multifrequency vibrometry, neurothesiometer and nerve conduction studies in subjects with type 1 diabetes.](#)

[Eero Lindholm<sup>1</sup>, Linnea Ekman<sup>1</sup>, Jan Apelqvist<sup>1</sup>, Magnus Löndahl<sup>2</sup>, Lars B. Dahlin<sup>1</sup> ; September 17, 2019, Poster at EASD in Barcelona](#)

1 Lund University, Malmö, Sweden, 2 Lund University, Lund, Sweden.

### [8. Vibration induced injuries in hands in long-term vibration exposed workers, Journal of Occupational Medicine and Toxicology, 2019 July 15](#)

[Lars Gerhardsson & Mats Hagberg](#)

Occupational and Environmental Medicine, University of Gothenburg

### [9. Strong association between vibration perception thresholds at low frequencies \(4 and 8 Hz\), neuropathic symptoms and diabetic foot ulcers](#)

[Eero Lindholm<sup>1</sup>, Magnus Löndahl<sup>2</sup>, Katarina Fagher<sup>2</sup>, Jan Apelqvist<sup>1</sup>, Lars B. Dahlin<sup>3,4</sup> February 28, 2019, PLOS ONE](#)

1. Department of Clinical Sciences, Endocrinology, Lund University, Malmö, Sweden, | 2. Department of Clinical Sciences, Endocrinology, Lund University, Lund, Sweden, | 3 Department of Translational Medicine— Hand Surgery, Lund University, Malmö, Sweden, | 4 Department of Hand Surgery, Skåne University Hospital, Malmö, Sweden

### [10. Impaired vibrotactile sense in children and adolescents with type 1 diabetes - Signs of peripheral neuropathy. April 19, 2018, PLOS ONE](#)

[Erik Ising, Lars B. Dahlin, Helena Elding Larsson](#)

### [11. Vibration thresholds in carpal tunnel syndrome assessed by multiple frequency vibrometry: a case-control study Magnus Flondell<sup>1,4</sup>, Birgitta Rosén<sup>1,4</sup>, Gert Andersson<sup>2,5</sup>, Tommy Schyman<sup>3</sup>, Lars B. Dahlin<sup>1,4</sup> and Anders Björkman<sup>1,4</sup>. Journal of Occupational Medicine and Toxicology. December 8, 2017](#)

1 Department of Hand Surgery, Skåne University Hospital, Jan Waldenströms gata 5, 20502 Malmö, SE, Sweden.

2 Departments of Neurophysiology, Skåne University Hospital, Malmö, Sweden.

3 Department of Clinical Studies Sweden— Forum South, Skåne University Hospital, Malmö, Sweden.

4 Department of Translational Medicine – Hand Surgery, Lund University, Malmö, Sweden.

5 Department of Clinical Sciences, Lund University, Lund, Sweden.

### [12. Vibrotactile Perception in Finger Pulps and in the Sole of the Foot in Healthy Subjects among Children or Adolescents. April 2, 2015, PLOS ONE](#)

[Lars B. Dahlin, Nuray Güner, Helena Elding Larsson, Toni Speidel](#)

### [13. Test-retest reliability of neurophysiological tests of hand-arm vibration syndrome in vibration exposed workers and unexposed referents.](#)

[Lars Gerhardsson, Lennart Gillström and Mats Hagberg.](#)

[22 October 2014, Journal of Occupational Medicine and Toxicology 2014, 9:38](#)

### [14. Impaired vibrotactile sense at low frequencies in fingers in autoantibody positive and negative diabetes](#)

[E. Dahlin, E. Ekholm, A. Gottsater, T. Speidel, L.B. Dahlin 27 February 2013, Diabetes Research and Clinical Practice](#)

### [15. Neurosensory sequelae assessed by thermal and vibrotactile perception thresholds after local cold injury.](#)

[Carlsson D, Burström L, Lilliesköld VH, Nilsson T, Nordh E, Wahlström J.](#)

[17 February 2014, Int J Circumpolar Health](#)

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### **16. Vibration thresholds are increased at low frequencies in the sole of the foot in diabetes - a novel multi-frequency approach**

**J. Nelander<sup>1</sup>, T. Speidel, A. Björkman, L. B. Dahlin<sup>1,\*</sup> 4 NOV 2012, Diabetic Medicine**

### **17. Vibrotactile sense in patients with diabetes and carpal tunnel syndrome**

**Thomsen, R. Cederlund\*, T. Speidel† and L. B. Dahlin**

**2011 Diabetic Medicine 28, DOI: 10.1111/j.1464-5491.2011.03308.x**

### **18. Vibrotactile sense in median and ulnar nerve innervated fingers of men with Type 2 diabetes, normal or impaired glucose tolerance, 2008 Diabetic Medicine 25,**

**L. B. Dahlin, S. Thraainsdottir, R. Cederlund, N. O. B. Thomsen, K. F. Eriksson†, I. Rosén‡, T. Speidel and G. Sundqvist**

**DOI: 10.1111/j.1464-5491.2008.02433.x**

### 19. Hand muscle pathology after long-term vibration exposure.

Necking LE, Lundborg G, Lundström R, Thornell LE, Fridén J. J Hand Surg 29B: 5: 431-437, 2004.

### 20. The two-point discrimination test – time for a re-appraisal?.

Lundborg G, Rosén B. J Hand Surg 29B: 5: 418-422, 2004.

### 21. Reduced muscle strength in abduction of the index finger: An important clinical sign in hand-arm vibration syndrome.

Necking LE, Fridén J and Lundborg G. Scand J Plast Reconstr Surg Hand Surg, 2003; 37: 365-370.

### 22. Hand function tests and questions on hand symptoms as related to the Stockholm workshop scales for diagnosis of hand-arm vibration syndrome.

Cederlund R, Iwarsson S, Lundborg G. J Hand Surg 28B: 2: 165-171, 2003.

### 23. A new Model Instrument for Outcome After Nerve Repair. Hand Clin 19; 463-470, 2003.

Rosén B, Lundborg G

### 24. Behavioural treatment of post-traumatic and vibration-induced digital cold sensitivity.

Scand J Plast Reconstr Surg Hand Surg, 37:371-378, 2003. Carlsson I, Cederlund R, Holmberg J, Lundborg G.

### **25. Hand muscle weakness in long-term vibration exposure.**

**Necking LE, Lundborg G, Fridén J. J Hand Surg (Br). 27:6:520-525, 2002.**

### 26. Hand-arm-vibration syndrome (HAVS): is there a central nervous component? An fMRI study.

Lundborg G, Rosén B, Knutsson L, Holtås S, Ståhlberg F, Larsson EM. J Hand Surg [Br] 27;6:514-9, 2002.

### **27. Vibration-induced hand problems: Role of the peripheral nerves in the pathophysiology**

**Dahlin LB, Lundborg G. Scand J Plast Reconstr Hand Surg 35: 225-232, 2001.**

### **28. Hand-arm vibration-exposure influences performance of daily activities.**

Cederlund R, Nordenskjöld U, Lundborg G. Disability and Rehabilitation 23:570-577, 2001

### 29. Assessment of functional outcome after nerve repair in a longitudinal cohort.

Scand J Plast Reconstr Hand Surg 34: 71-78, 2000. Rosén B, Dahlin LD, Lundborg G.

### 30. Neurophysiological findings in vibration-exposed male workers.

Hand Surg 24B:203-209, 1999. Strömberg T, Dahlin L, Rosén I, Lundborg G.

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**31. Hand function in workers with hand-arm vibration syndrome.**  
**Cederlund R, Isacsson Å, Lundborg G. J Hand Therapy 12: 16-24, 1999.**

**32. Vibration-induced neuropathy of the hand.**

Lundborg G, Dahlin L, Strömberg T.  
In: Proceedings (eds. Lundström and Lindmark), 8th International Conference on hand-arm vibration, June 9-12, 1998, Umeå, Sweden, pp 155-163.

**33. Vibrotactile sense in the hand-arm-vibration syndrome. Strömberg T, Lundborg G, Dahlin L.**  
**Scand J Work Environ Health. Scand J Work Environ Health 24: 495-502, 1998.**

**34. A new tactile gnosis instrument in sensibility testing.**  
J Hand Therapy, 11: 251-257, 1998. Rosén B, Lundborg G.

**35. Nerve changes at wrist level in workers exposed to vibration.**  
Occupational and Environmental Medicine 54; 307-311, 1997.  
Strömberg T, Dahlin LB, Brun A, Lundborg G. Structural

**36. Impaired regeneration in rat sciatic nerves exposed to short-term vibration.**  
J Hand Surg 21B: 746-749, 1996. Strömberg T, Lundborg G, Holmqvist B, Dahlin LB.

**37. Hand problems in 100 vibration-exposed symptomatic male workers.**  
**Strömberg T, Dahlin LB, Lundborg G. J Hand Surg 21B: 315-319, 1996.**

**38. Skeletal muscle changes after short term vibration.**  
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**40. Vibrerande verktyg kan ge känselstörningar - viktigt att känna till.**  
Lundborg G, Dahlin L, Cederlund R, Strömberg T. Läkartidningen. 93: 2423-2427, 1996.

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Östman F, Lundborg G, Lilja B. J Hand Surg 21B: 750-752, 1996.

**42. Nerve regeneration in nerve grafts conditioned by vibration exposure.**  
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**43. Vibration-induced hand problems. In: Current Trends in Hand Surgery (Vastamäki M, ed.)**  
Lundborg G, Dahlin LB. Excerpta Medica International Congress Series 1083, IFSSH, Helsinki, Elsevier Science B.V, pp. 563-571, 1995. (Book chapter).

**44. Neuropathy in female dental personnel exposed to high frequency vibrations.**  
**Åkesson I, Lundborg G, Horstmann V, Skerfving S. Occupational and Environmental Medicine, 52: 116-123, 1995.**

**45. Mechanisms underlying neuromuscular dysfunction following vibration exposure.**  
Dahlin LB, Lundborg G. Arbete och Hälsa 1995; 5:17-25. Stockholm National Institute of Occupational Health.

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- 46. Pain, nerve dysfunction and fatigue in a vibration exposed population.**  
Lundborg G. Quality of Life Research, 3: 25-27, 1994.
47. Neurophysiological investigation of hands, damaged by occupational vibrations: comparison with idiopathic carpal tunnel syndrome.  
Scand J Plast Reconstr Hand Surg. 27: 209-216, 1993. Rosén I, Strömberg T, Lundborg G
48. Vibration induced muscle injury. An experimental model and preliminary findings.  
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- 49. Vibrotactile function of the hand in compression and vibration-induced neuropathy.**  
**Sensibility index - a new measure.**  
Lundborg G, Dahlin LB, Lundström R, Necking LE and Strömberg T. Scand J Plast Reconstr Hand Surg 26: 275-279, 1992.
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- 51. Vibrotactile perception threshold measurement for diagnosis of sensory neuropathy.**  
**Description of a reference population.**  
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- 52. Taktimetri för diagnostik av sensoriska neuropatier.**  
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J Hand Surg 15A; 2: 346-351, 1990. Lundborg G, Dahlin LB, Hansson HA, Kanje M, Necking LE.
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- 58. A new principle for assessment of vibrotactile sense in vibration-induced neuropathy.**  
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- 60. Digital vibrogram - a new diagnostic tool for sensory testing in compression neuropathy.**  
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- 61. Domnade fingrar och klinisk diagnostik. - Handkirurgiska synpunkter.**  
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