

Publications by Jakob Lorentzen

Scientific peer reviewed publications

51 peer-reviewed journals and 4 book chapters. 13 as first author, 12 as last author. H-index: 19 Google Scholar (calculated Jan.22)

- Forman C, Nielsen JB, **Lorentzen J**. Neuroplasticity at home: Improving home-based motor learning through technological solutions. A review. Front in Rehab Science. 2022 accepted for publication.
- Svane C, Forman CR, Rasul A, Nielsen JB, **Lorentzen J**. Muscle Contractures in Adults With Cerebral Palsy Characterized by Combined Ultrasound-Derived Echo Intensity and Handheld Dynamometry Measures. Ultrasound Med Biol. 2022 Jan 19:S0301-5629(21)00526-3. doi: 10.1016/j.ultrasmedbio.2021.12.012. Epub ahead of print. PMID: 35065812.
- Svane C, Forman CR, Rasul A, Nielsen CH, Nielsen JB, **Lorentzen J**. Quantitative MRI and Clinical Assessment of Muscle Function in Adults With Cerebral Palsy. Front Neurol. 2021 Nov 10;12:771375. doi: 10.3389/fneur.2021.771375. PMID: 34858318; PMCID: PMC8631271.
- Hansen CE, Stensvig M, Wienecke J, Villa C, **Lorentzen J**, Rasmussen J, Simonsen EB. Factors correlated with running economy among elite middle- and long-distance runners. Physiol Rep. 2021 Oct;9(20):e15076. doi: 10.14814/phy2.15076. PMID: 34694064; PMCID: PMC8543686.
- Therkildsen ER, Nielsen JB, Beck MM, Yamaguchi T, **Lorentzen J**. The effect of cathodal transspinal direct current stimulation on tibialis anterior stretch reflex components in humans. Exp Brain Res. 2021 Oct 22. doi: 10.1007/s00221-021-06243-0. Epub ahead of print. PMID: 34686909.
- **Lorentzen J**, Born AP, Svane C, Forman C, Laursen B, Reynberg Langkilde A, Uldall P, Hoei-Hansen CE. Using both electromyography and movement disorder assessment improved the classification of children with dyskinetic cerebral palsy. Acta Paediatr. 2021 Oct 16. doi: 10.1111/apa.16152. Epub ahead of print. PMID: 34655503.
- Willerslev-Olsen M, **Lorentzen J**, Røhder K, Ritterband-Rosenbaum A, Justiniano M, Guzzetta A, Lando AV, Jensen AB, Greisen G, Ejlersen S, Pedersen LZ, Andersen B, Liphay Behrend P, Nielsen JB. COpenhagen Neuroplastic TRaining Against Contractures in Toddlers (CONTRACT): protocol of an open-label randomised clinical trial with blinded assessment for prevention of contractures in infants with high risk of cerebral palsy. BMJ Open. 2021 Jul 6;11(7):e044674. doi: 10.1136/bmjopen-2020-044674. PMID: 34230015; PMCID: PMC8261878.
- **Lorentzen J**, Frisk RF, Nielsen JB, Barber L. Increased Ankle Plantar Flexor Stiffness Is Associated With Reduced Mechanical Response to Stretch in Adults With CP. Front Bioeng Biotechnol. 2021 Mar 25;9:604071. doi: 10.3389/fbioe.2021.604071. PMID: 33842442;

PMCID: PMC8026870.

- Svane C, Nielsen JB, **Lorentzen J**. Nonsurgical Treatment Options for Muscle Contractures in Individuals With Neurologic Disorders: A Systematic Review With Meta-Analysis. *Arch Rehabil Res Clin Transl*. 2021 Jan 13;3(1):100104. doi: 10.1016/j.arrct.2021.100104. PMID: 33778477; PMCID: PMC7984980.
- Forman CR, Svane C, Kruuse C, Gracies JM, Nielsen JB, **Lorentzen J**. Sustained involuntary muscle activity in cerebral palsy and stroke: same symptom, diverse mechanisms. *Brain Commun*. 2019 Nov 25;1(1):fcz037. doi: 10.1093/braincomms/fcz037. PMID: 33033798; PMCID: PMC7531180.
- Willerslev-Olsen M, **Lorentzen J**, Røhder K, Ritterband-Rosenbaum A, Damgaard Justiniano M, Guzzetta A, Lando AV, Jensen AMB, Greisen G, Ejlersen S, Zacho Greve L, Andersen B, de Liphay Behrend P, Nielsen JB. (COpenhagen Neuroplastic TRaining Against Contractures in Toddlers): Protocol of an open-label randomized clinical trial with blinded assessment for prevention of contractures in infants with high risk of cerebral palsy. Accepted in *BMC Neurology*, May 2021.
- Yamaguchi T, Beck MM, Therkildsen ER, Svane C, Forman C, **Lorentzen J**, Conway BA, Lundbye-Jensen J, Geertsens SS, Nielsen JB. Transcutaneous spinal direct current stimulation increases corticospinal transmission and enhances voluntary motor output in humans. *Physiol Rep*. 2020 Aug;8(16):e14531
- **Lorentzen J**, Nielsen JB. The benefits of strength training in cerebral palsy [published online ahead of print, 2020 Aug 8]. *Dev Med Child Neurol*. 2020;10.1111/dmcn.14625.
- Chen B, Sangari S, **Lorentzen J**, Nielsen JB, Perez MA. Bilateral and asymmetrical contributions of passive and active ankle plantar flexors stiffness to spasticity in humans with spinal cord injury. *J Neurophysiol*. 2020 Sep 1;124(3):973-984. doi: 10.1152/jn.00044.2020. Epub 2020 May 20.
- Nielsen JB, Christensen MS, Farmer SF, **Lorentzen J**. Spastic movement disorder: should we forget hyperexcitable stretch reflexes and start talking about inappropriate prediction of sensory consequences of movement? *Exp Brain Res*. 2020 Aug;238(7-8):1627-1636. doi: 10.1007/s00221-020-05792-0. Epub 2020 May 7.
- **Lorentzen J**, Frisk R, Willerslev-Olsen M, Bouyer L, Farmer SF, Nielsen JB. Gait training facilitates push-off and improves gait symmetry in children with cerebral palsy. *Hum Mov Sci*. 2020 Feb;69:102565. doi: 10.1016/j.humov.2019.102565. Epub 2020 Jan 6.
- Michelsen JS, Lund MC, Alkjaer T, Finni T, Nielsen JB, **Lorentzen J**. Wearable electromyography recordings during daily life activities in children with cerebral palsy. *Dev Med Child Neurol*. 2020 Jun;62(6):714-722. doi: 10.1111/dmcn.14466. Epub 2020 Jan 27.
- Forman CR, Svane C, Kruuse C, Gracies JM, Nielsen JB, **Lorentzen J**. Sustained involuntary muscle activity in cerebral palsy and stroke: same symptom, diverse

mechanisms. *Brain Commun.* 2019 Nov 25;1(1):fcz037. doi: 10.1093/braincomms/fcz037. PMID: 33033798; PMCID: PMC7531180.

- Pr  el M, Rackauskaite G, Larsen ML, Laursen B, **Lorentzen J**, Born AP, Langhoff-Roos J, Uldall P, Hoei-Hansen CE. Children with dyskinetic cerebral palsy are severely affected as compared to bilateral spastic cerebral palsy. *Acta Paediatr.* 2019 Apr 1. doi: 10.1111/apa.14806. [Epub ahead of print].
- Frisk RF, **Lorentzen J**, Nielsen JB. Contribution of corticospinal drive to ankle plantar flexor muscle activation during gait in adults with cerebral palsy. *Exp Brain Res.* 2019 Mar 21. doi: 10.1007/s00221-019-05520-3. [Epub ahead of print].
- Hansen SL, **Lorentzen J**, Pedersen LT, Hendrich FL, Jorsal M, Pingel J, Nielsen JB, Kiens B. Suboptimal Nutrition and Low Physical Activity Are Observed Together with Reduced Plasma Brain-Derived Neurotrophic Factor (BDNF) Concentration in Children with Severe Cerebral Palsy (CP). *Nutrients.* 2019 Mar 14;11(3). pii:E620.
- Sgandurra G, Beani E, Inguaggiato E, **Lorentzen J**, Nielsen JB, Cioni G. Effects on Parental Stress of Early Home-Based Care Toy Intervention in Low-Risk Preterm Infants. *Neural Plast.* 2019 Jan 22;2019:7517351. doi: 10.1155/2019/7517351. eCollection 2019.
- Frisk RF, **Lorentzen J**, Barber L, Nielsen JB. Characterization of torque generating properties of ankle plantar flexor muscles in ambulant adults with cerebral palsy. *Eur J Appl Physiol.* 2019 May;119(5):1127-1136. doi: 10.1007/s00421-019-04102-z. Epub 2019 Feb 18.
- **Lorentzen J**, Willerslev-Olsen M, H  che Larsen H, Farmer SF, Nielsen JB. Maturation of feedforward toe walking motor program is impaired in children with cerebral palsy. *Brain.* 2019 Mar 1;142(3):526-541.
- Pingel J, Andersen JD, Christiansen SL, B  rsting C, Morling N, **Lorentzen J**, Kirk H, Doessing S, Wong C, Nielsen JB. Sequence variants in muscle tissue-related genes may determine the severity of muscle contractures in cerebral palsy. *Am J Med Genet B Neuropsychiatr Genet.* 2018 Nov 23.
- Yamaguchi T, Hvass Petersen T, Kirk H, Forman C, Svane C, Kofoed-Hansen M, Boesen F, **Lorentzen J**. Spasticity in adults with cerebral palsy and multiple sclerosis measured by objective clinically applicable technique. *Clin Neurophysiol.* 2018 Sep;129(9):2010-2021.
- Willerslev-Olsen M, Choe Lund M, **Lorentzen J**, Barber L, Kofoed-Hansen M, Nielsen JB. Impaired muscle growth precedes development of increased stiffness of the triceps surae musculotendinous unit in children with cerebral palsy. *Dev Med Child Neurol.* 2018 Jul;60(7):672-679.
- **Lorentzen J**, Willerslev-Olsen M, H  che Larsen H, Svane C, Forman C, Frisk R, Farmer SF, Kersting U, Nielsen JB. Feedforward neural control of toe walking in humans. *J*

Physiol. 2018 Jun;596(11):2159-2172.

- **Lorentzen J**, Pradines M, Gracies JM, Bo Nielsen J. On Denny-Brown's 'spastic dystonia' - What is it and what causes it? Clin Neurophysiol. 2018 Jan;129(1):89-94. doi: 10.1016/j.clinph.2017.10.023. Epub 2017 Nov 4. Review.
- Frisk RF, Jensen P, Kirk H, Bouyer LJ, **Lorentzen J**, Nielsen JB. Contribution of sensory feedback to plantar flexor muscle activation during push-off in adults with cerebral palsy. J Neurophysiol. 2017 Dec 1;118(6):3165-3174.
- Schram Christensen M, Jensen T, Voigt CB, Nielsen JB, **Lorentzen J**. To be active through indoor-climbing: an exploratory feasibility study in a group of children with cerebral palsy and typically developing children. BMC Neurol. 2017 Jun 15;17(1):112.
- Geertsen SS, Willerslev-Olsen M, **Lorentzen J**, Nielsen JB. Development and aging of human spinal cord circuitries. J Neurophysiol. 2017 Aug 1;118(2):1133-1140.
- Sgandurra G, **Lorentzen J**, Inguaggiato E, Bartalena L, Beani E, Cecchi F, Dario P, Giampietri M, Greisen G, Herskind A, Nielsen JB, Rossi G, Cioni G; CareToy Consortium. A randomized clinical trial in preterm infants on the effects of a home-based early intervention with the 'CareToy System'. PLoS One. 2017 Mar 22;12(3):e0173521.
- Pingel J, Wienecke J, **Lorentzen J**, Nielsen JB. Botulinum toxin injection causes hyper-reflexia and increased muscle stiffness of the triceps surae muscle in the rat. J Neurophysiol. 2016 Dec 1;116(6):2615-2623.
- **Lorentzen J**, Kirk H, Fernandez-Lago H, Frisk R, Scharff Nielsen N, Jorsal M, Nielsen JB. Treadmill training with an incline reduces ankle joint stiffness and improves active range of movement during gait in adults with cerebral palsy. Disability and Rehabilitation. 2016 May 30: 1-7.
- Kirk H, Geertsen SS, **Lorentzen J**, Krarup KB, Bandholm T, Nielsen JB. Explosive resistance training increases rate of force development in ankle dorsiflexors and gait function in adults with cerebral palsy. J Strength Cond Res. 2016 Feb 12.
- Sgandurra G, Bartalena L, Cecchi F, Cioni G, Giampietri M, Greisen G, Herskind A, Inguaggiato E, **Lorentzen J**, Nielsen JB, Orlando M, Dario P; CareToy Consortium. A pilot study on early home-based intervention through an intelligent baby gym (CareToy) in preterm infants. Res Dev Disabil. 2016 Jun-Jul;53-54:32-42.
- Herskind A, Ritterband-Rosenbaum A, Willerslev-Olsen M, **Lorentzen J**, Hanson L, Lichtwark G, Nielsen JB. Muscle growth is reduced in 15-month-old children with cerebral palsy. Dev Med Child Neurol. 2015 Oct 28.
- **Lorentzen J**, Greve LZ, Kliim-Due M, Rasmussen B, Bilde PE, Nielsen JB. Twenty weeks of home-based interactive training of children with cerebral palsy improves functional

abilities. BMC Neurol. 2015 May 10;15:75.

- Geertsen SS, Kirk H, **Lorentzen J**, Jorsal M, Johansson CB, Nielsen JB. Impaired gait function in adults with cerebral palsy is associated with reduced rapid force generation and increased passive stiffness. Clin Neurophysiol. 2015 Feb 21.pii: S1388-2457(15)00090-5. doi: 10.1016/j.clinph.2015.02.005. [Epub ahead of print]
- Nielsen JB, Willerslev-Olsen M, Christiansen L, Lundbye-Jensen J, **Lorentzen J**. Science-based neurorehabilitation: recommendations for neurorehabilitation from basic science. J Mot Behav. 2015;47(1):7-17. doi: 10.1080/00222895.2014.931273.
- Sgandurra G, Bartalena L, Cioni G, Greisen G, Herskind A, Inguaggiato E, **Lorentzen J**, Nielsen JB, Sicola E; CareToy Consortium. Home-based, early intervention with mechatronic toys for preterm infants at risk of neurodevelopmental disorders (CARETOY): a RCT protocol. BMC Pediatr. 2014 Oct 15;14:268. doi: 10.1186/1471-2431-14-268.
- Willerslev-Olsen M, **Lorentzen J**, Nielsen JB. Gait training reduces ankle joint stiffness and facilitates heel strike in children with Cerebral Palsy. NeuroRehabilitation. 2014;35(4):643-55. doi: 10.3233/NRE-141180.
- Nielsen JB, Willerslev-Olsen M, **Lorentzen J**, Sinkjær T. [Does spasticity lead to contractures?]. Ugeskr Laeger. 2013 Feb 25;175(9):600. Danish.
- Willerslev-Olsen M, **Lorentzen J**, Sinkjaer T, Nielsen JB. Passive muscle properties are altered in children with cerebral palsy before the age of 3 years and are difficult to distinguish clinically from spasticity. Dev Med Child Neurol. 2013 Jul;55(7):617-23. doi: 10.1111/dmcn.12124. Epub 2013 Mar 20.
- **Lorentzen J**, Nielsen D, Holm K, Baagøe S, Grey MJ and Nielsen JB. Neurodynamics is no different from random passive movements in reducing spasticity of the lower limb in neurotrauma participants. Disability and Rehabilitation 2012 Mar. 19.
- **Lorentzen J**, Willerslev-Olsen M, Crone C, Sinkjær T, Nielsen JB. [New knowledge of spasticity and its treatment--a systematic review]. Ugeskr Laeger 2012 Feb 27;174(9):569-73.
- **Lorentzen J**, Grey MJ, Crone C, Mazevet D, Biering-Sørensen F, Nielsen JB. Distinguishing active from passive components of ankle plantar flexor stiffness in stroke, spinal cord injury and multiple sclerosis. Clin Neurophysiol. 2010 Nov;121(11):1939-51.
- **Lorentzen J**, Grey MJ, Geertsen SS, Biering-Sørensen F, Brunton K, Gorassini M and Nielsen JB. Assessment of a portable device for the quantitative measurement spasticity in ankle and knee. Clin Neurophysiol 2011 Nov 23.
- MJ Grey, Klinge K, Crone C, **Lorentzen J**, Biering-Sørensen F, Ravnborg M, Nielsen JB. Post-activation depression of Soleus stretch reflexes in healthy and spastic humans. Exp Brain Res. 2007 Oct 12.

- Freil M, **Lorentzen J**, Rasmussen L, Gut R, Knudsen JL. [Patient-experienced quality assessed in two national surveys]. Ugeskr Laeger. 2005 Nov 14;167(46):4375-9.
- Ishøy T, Rasmussen L, **Lorentzen J**, Qvist P. [Patient information in medical departments]. Ugeskr Laeger. 2005 May 9;167(19):2060-3.
- Qvist P, Rasmussen L, **Lorentzen J**. [Cross-sectorial cooperation concerning ambulatory care patients]. Ugeskr Laeger. 2004 May 3;166(19):1775-8.

Popular scientific publications

- **Jakob Lorentzen** [Author Podcast, June 2020](https://onlinelibrary.wiley.com/page/journal/14698749/homepage/podcasts.htm) Discussion of the paper '[Wearable electromyography recordings during daily life activities in children with cerebral palsy](#)' in *Dev Med Child Neurol*
<https://onlinelibrary.wiley.com/page/journal/14698749/homepage/podcasts.htm>
- **Jakob Lorentzen**, Fin Biering-Sørensen og Jens Bo Nielsen. Udfordringer ved spasticitet. Populærvideenskabelig artikel til RYK – magasin for rygmarvsskadede. Nr 2 2011
- **Jakob Lorentzen**. Hjernens Plasticitet – giver nye muligheder i genoptræning. Populærvideenskabelig artikel til fagbladet Fysioterapeuten. Nr 9 maj 2009.
- Jens Bo Nielsen og **Jakob Lorentzen**. Spasticitet – hvad er det nu lige det er? Populærvideenskabelig artikel til fagbladet Fysioterapeuten. Nr 4 februar 2009.

Dissertations

- **Lorentzen, J** 2010 , Quantitative evaluation of spasticity, PhD thesis, Department of Exercise and Sport Sciences, University of Copenhagen, Copenhagen.

Contributions to book chapters

- Jens Bo Nielsen, Maria Willerslev-Olsen, **Jakob Lorentzen**, 2018 'Pathophysiology of spasticity' Book chapter in: Neurological rehabilitation: spasticity and contracture in clinical practice and research af Anand Pandyan, Hermie J Hermens and Bernhard A. Conway. CRCPress/ Taylor and Francis Group 2018
- **Jakob Lorentzen**, Maria Willerslev-Olsen, Thomas Sinkjær, Jens Bo Nielsen, 2018. 'Functional problems in spastic patients are not caused by spasticity but by disordered motor control'. Book chapter in: Neurological rehabilitation: spasticity and contracture in clinical practice and research by Anand Pandyan, Hermie J Hermens and Bernhard A. Conway. CRCPress/ Taylor and Francis Group 2018
- Jens Bo Nielsen og **Jakob Lorentzen**, 2012 'Den foranderlige hjerne'. Book chapter in: Lotte Petersen og Tanja Thor Møller (red), Neurorehabilitering i praksis, Gads Forlag, side 65-75.

- Ingrid Poulsen & **Jakob Lorentzen**, 2006, ' Kvalitetsudvikling og sygepleje', Book chapter in: Kristoffersen NJ, Nortved F, Skaug EA (red), Grundlæggende Sygepleje 4, Munksgaard Danmark, s. 132-146.