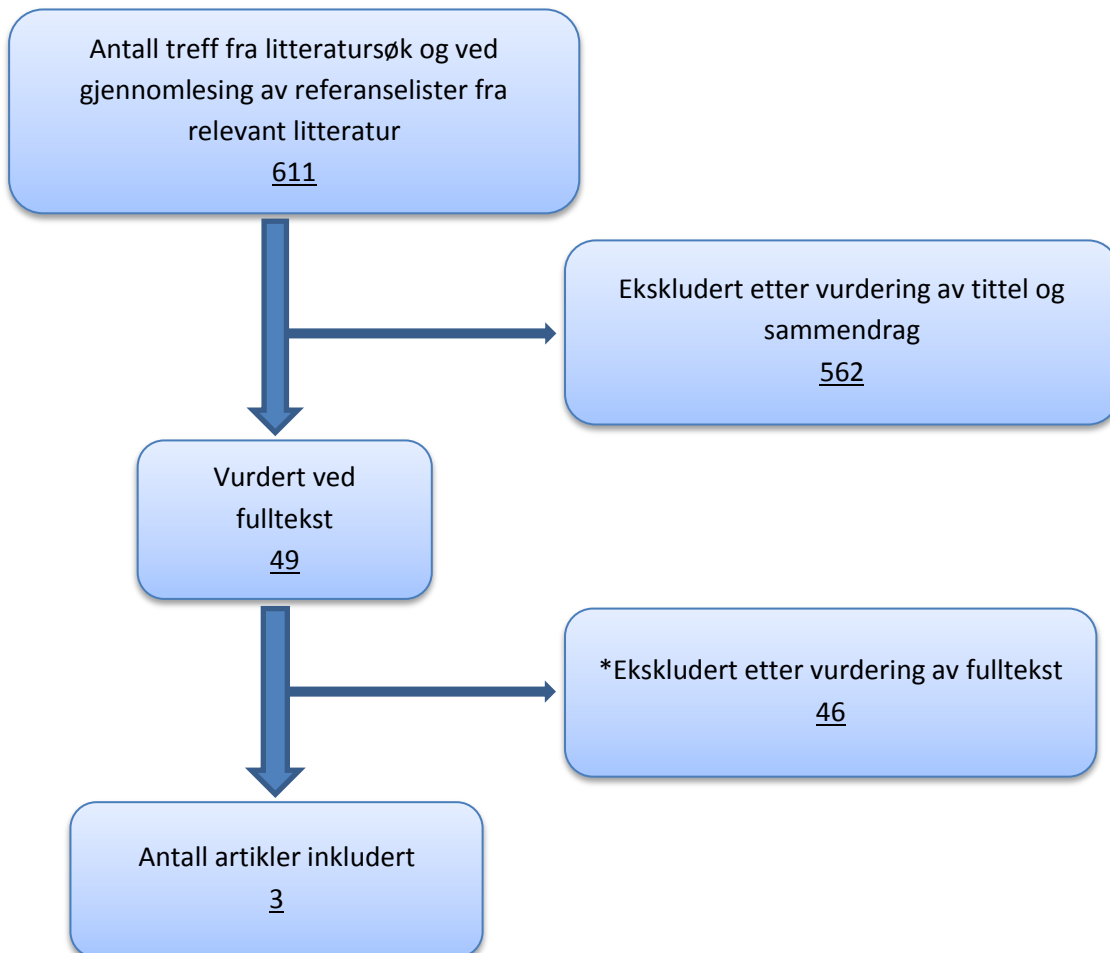


Dokumentasjonsark: Nasjonal faglig retningslinje for hjerneslag

Spørsmål 3.2: Hos slagpasienter med pareser, fører motorisk trening med høy intensitet for å bedre arm-/gangfunksjon eller balanse – i tidlig eller sen fase (> 3 mnd) – til bedret funksjon enn trening med lav intensitet?

P	Slagpasienter med nedsatt arm-/gangfunksjon og/eller balanse	
I	Trening med høy intensitet rettet mot å øke arm- eller gangfunksjon og/eller balanse	Dato for søk: 10-11.03.2016
C	Trening med lav intensitet	
O	Arm-/gangfunksjon, balanse, ADL-funksjon	Bibliotek for helseforvaltningen



* Se tabell 2 for årsak til eksklusjon av studier etter vurdering av fulltekst

Tabell 1. Inkluderte systematiske oversikter (oversiktsartikler)

Forfatter, år	Tittel	Metodisk kvalitet*	Egne kommentarer
Veerbeek et al., 2014	What is the evidence for physical therapy poststroke? A systematic review and meta-analysis.	Moderat	Risiko for seleksjonsskjevhet og uklar validitet av de inkluderte studiene. Noe uklar resultatfremstilling.
Lohse, Lang, & Boyd, 2014	Is more better? Using metadata to explore dose-response relationships in stroke rehabilitation.	Moderat	Manglende søkestrategi og inklusjonskriterier. Uklar risiko for seleksjonsskjevhet av inkluderte studier.
Cooke, Mares, Clark, Tallis, & Pomeroy, 2010	The effects of increased dose of exercise-based therapies to enhance motor recovery after stroke: a systematic review and meta-analysis.	Høy	

* Vurdert med FHI/Kunnskapssenterets sjekklister for systematiske oversikter.

Tabell 2. Ekskluderte referanser. Sammendraget/tittel funnet relevant, ekskludert etter vurdering av fulltekst av artikkel.

Forfatter, år	Kommentar/begrunnelse for eksklusjon
Trammell, Kapoor, Swank, & Driver, 2016	Ikke en systematisk litteraturoversikt
Kendall & Gothe, 2016	Møter ikke PICO intervensjon el. sammenligning
Hasan, Rancourt, Austin, & Ploughman, 2016	Møter ikke PICO intervensjon el. sammenligning
Van Abbema et al., 2015	Møter ikke PICO grunnet studiepopulasjon
Tang et al., 2015	Møter ikke PICO intervensjon el. sammenligning
Sousa Nanji, Torres Cardoso, Costa, & Vaz-Carneiro, 2015	Kun tilgjengelig på Portugisisk
Sehatzadeh, 2015	Ikke en systematisk litteraturoversikt
Park et al., 2015	Ikke en systematisk litteraturoversikt
Nascimento, de Oliveira, Ada, Michaelsen, & Teixeira-Salmela, 2015	Møter ikke PICO intervensjon el. sammenligning
Mehrholz, Pohl, Platz, Kugler, & Elsner, 2015	Møter ikke PICO intervensjon el. sammenligning
Lucas, Cotter, Brassard, & Bailey, 2015	Ikke en systematisk litteraturoversikt
Hayward & Brauer, 2015	Møter ikke PICO I, C eller O

Forfatter, år	Kommentar/begrunnelse for eksklusjon
Hartley, Pomeroy, & Wellwood, 2015	Konferanse abstrakt
Billinger, Boyne, Coughenour, Dunning, & Mattlage, 2015	Ikke en systematisk litteraturoversikt
Pollock, Gray, Culham, Durward Brian, & Langhorne, 2014	Møter ikke PICO intervensjon el. sammenligning
Pollock A, Farmer SE, et al., 2014	Møter ikke PICO intervensjon el. Sammenligning
Peurala, Karttunen, Sjogren, Paltamaa, & Heinonen, 2014	Møter ikke PICO intervensjon el. sammenligning
McNaughton, Thompson, Stinear, Harwood, & McPherson, 2014	Ikke en systematisk litteraturoversikt
Hayward & Brauer, 2014	Konferanse abstrakt
Hayward, Barker, Carson, & Brauer, 2014	Møter ikke PICO intervensjon el. sammenligning
Francica, Bigongiari, Mochizuki, Miranda, & Rodrigues, 2014	Kun tilgjengelig på Portugisisk
Bohannon & Glenney, 2014; Saunders et al., 2016	Møter ikke PICO populasjon
Ammann, Knols, Baschung, de Bie, & de Bruin, 2014	Møter ikke PICO sammenligning
Sehatzadeh, 2013	Et rapid review. En oppdatert og fullstendig analyse er under arbeid.
Pang, Charlesworth, Lau, & Chung, 2013	Møter ikke PICO intervensjon el. sammenligning
Boyne et al., 2013	Ikke en systematisk litteraturoversikt
Foley et al., 2012	Ikke en systematisk litteraturoversikt
Hornby et al., 2011	Ikke en systematisk litteraturoversikt (kommentar artikkel)
Ovando et al., 2010	Kun tilgjengelig på Portugisisk
Lubetzky-Vilnai & Kartin, 2010	Møter ikke PICO intervensjon el. sammenligning
Janssen, Speare, Spratt, & Bernhardt, 2010	Møter ikke PICO populasjon
Langhorne, Coupar, & Pollock, 2009	Møter ikke PICO intervensjon el. sammenligning
Globas, Macko, & Luft, 2009	Ikke en systematisk litteraturoversikt

Forfatter, år	Kommentar/begrunnelse for eksklusjon
Coupar FM, Pollock AS, Weir CJ, Rowe PJ, & P., 2009	Dekket av nyere systematisk litteraturoversikt
Coupar F, Langhorne P, Pollock A, Rowe P, & C., 2009	Konferanse abstrakt
Bernhardt, Thuy, Collier, & Legg, 2009	Møter ikke PICO intervensjon
Tilson, Settle, & Sullivan, 2008	Ikke en systematisk litteraturoversikt
Ivey, Hafer-Macko, & Macko, 2008	Ikke en systematisk litteraturoversikt
Galvin, Murphy, Cusack, & Stokes, 2008	Møter ikke PICO intervensjon el. sammenligning
Forrester, Wheaton, Luft, 2008	Ikke en systematisk litteraturoversikt
Dobkin, 2008	Ikke en systematisk litteraturoversikt
French et al., 2007	Møter ikke PICO intervensjon el. sammenligning
Kollen, Kwakkel, & Lindeman, 2006	Ikke en systematisk litteraturoversikt
Teasell, Bitensky, Salter, & Bayona, 2005	Ikke en systematisk litteraturoversikt
Rimmer & Wang, 2005	Ikke en systematisk litteraturoversikt
Engardt & Grimby, 2005	Ikke en systematisk litteraturoversikt

Fullstendig referanseliste (inkluderte og ekskluderte referanser).

- Ammann, B. C., Knols, R. H., Baschung, P., de Bie, R. A., & de Bruin, E. D. (2014). Application of principles of exercise training in sub-acute and chronic stroke survivors: a systematic review. *BMC Neurology*, 14, 167. doi:<http://dx.doi.org/10.1186/s12883-014-0167-2>
- Bernhardt, J., Thuy, M. N., Collier, J. M., & Legg, L. A. (2009). Very early versus delayed mobilisation after stroke. *Cochrane Database of Systematic Reviews*(1), CD006187. doi:<http://dx.doi.org/10.1002/14651858.CD006187.pub2>
- Billinger, S. A., Boyne, P., Coughenour, E., Dunning, K., & Mattlage, A. (2015). Does aerobic exercise and the FITT principle fit into stroke recovery? *Current Neurology and Neuroscience Reports*, 15(2), 519. doi:<http://dx.doi.org/10.1007/s11910-014-0519-8>
- Bohannon, R. W., & Glenney, S. S. (2014). Minimal clinically important difference for change in comfortable gait speed of adults with pathology: a systematic review. *Journal of Evaluation in Clinical Practice*, 20(4), 295-300. doi:<http://dx.doi.org/10.1111/jep.12158>
- Boyne, P., Dunning, K., Carl, D., Gerson, M., Khoury, J., & Kissela, B. (2013). High-intensity interval training in stroke rehabilitation. *Topics in Stroke Rehabilitation*, 20(4), 317-330. doi:<http://dx.doi.org/10.1310/tsr2004-317>
- Cooke, E. V., Mares, K., Clark, A., Tallis, R. C., & Pomeroy, V. M. (2010). The effects of increased dose of exercise-based therapies to enhance motor recovery after stroke: a systematic review and meta-analysis. *BMC Medicine*, 8, 60. doi:<http://dx.doi.org/10.1186/1741-7015-8-60>

- Coupar F, Langhorne P, Pollock A, Rowe P, & C., W. (2009). Effectiveness of interventions for upper limb recovery after stroke: A systematic review. *International Journal of Stroke*, 4, 7. doi:<http://dx.doi.org/10.1111/j.1747-4949.2009.00354.x>
- Coupar FM, Pollock AS, Weir CJ, Rowe PJ, & P., L. (2009). Effectiveness of interventions for upper limb recovery after stroke: A systematic review. *Cerebrovascular Diseases*, 27, 32. doi:<http://dx.doi.org/10.1159/000221773>
- Dobkin, B. H. (2008). Training and exercise to drive poststroke recovery. *Nature Clinical Practice Neurology*, 4(2), 76-85. doi:<http://dx.doi.org/10.1038/ncpneuro0709>
- Engardt, M., & Grimby, G. (2005). [Adapted exercise important after stroke. Acute and long-term effects of different training programs]. *Lakartidningen*, 102(6), 392-394, 397-398.
- Foley, N., Pereira, S., Salter, K., Meyer, M., McClure, J. A., & Teasell, R. (2012). Are Recommendations Regarding Inpatient Therapy Intensity Following Acute Stroke Really Evidence-Based? *Topics in Stroke Rehabilitation (Thomas Land Publishers Incorporated)*, 19(2), 96-103 108p.
- Forrester LW, Wheaton LA, Luft AR. Exercise-mediated locomotor recovery and lower-limb neuroplasticity after stroke. *J Rehabil Res Dev* 2008;45(2):205-20
- Francica, J. V., Bigongiari, A., Mochizuki, L., Miranda, M. L., & Rodrigues, B. (2014). Aerobic program in persons with stroke: a systematic review. *Acta Medica Portuguesa*, 27(1), 108-115.
- French, B., Thomas, L. H., Leathley, M. J., Sutton, C. J., McAdam, J., Forster, A., . . . Watkins, C. L. (2007). Repetitive task training for improving functional ability after stroke. *Cochrane Database of Systematic Reviews*(4), CD006073.
- Galvin, R., Murphy, B., Cusack, T., & Stokes, E. (2008). The impact of increased duration of exercise therapy on functional recovery following stroke--what is the evidence? *Topics in Stroke Rehabilitation*, 15(4), 365-377. doi:<http://dx.doi.org/10.1310/tsr1504-365>
- Globas, C., Macko, R. F., & Luft, A. R. (2009). Role of walking-exercise therapy after stroke. *Expert Review of Cardiovascular Therapy*, 7(8), 905-910. doi:<http://dx.doi.org/10.1586/erc.09.58>
- Hartley, P., Pomeroy, V., & Wellwood, I. (2015). The rationale for and methods of dose selection in trials of intensity of physical therapy to enhance recovery after stroke. *International Journal of Stroke*, 10, 171-172. doi:<http://dx.doi.org/10.1111/ijis.12479>
- Hasan, S. M., Rancourt, S. N., Austin, M. W., & Ploughman, M. (2016). Defining Optimal Aerobic Exercise Parameters to Affect Complex Motor and Cognitive Outcomes after Stroke: A Systematic Review and Synthesis. *Neural Plasticity*, 2016, 2961573. doi:<http://dx.doi.org/10.1155/2016/2961573>
- Hayward, K. S., Barker, R. N., Carson, R. G., & Brauer, S. G. (2014). The effect of altering a single component of a rehabilitation programme on the functional recovery of stroke patients: a systematic review and meta-analysis. *Clinical Rehabilitation*, 28(2), 107-117. doi:<http://dx.doi.org/10.1177/0269215513497601>
- Hayward, K. S., & Brauer, S. G. (2014). Stroke survivors are engaged in limited upper limb training: A systematic review. *Stroke*, 45 (12), e290. doi:<http://dx.doi.org/10.1161/01.str.0000455918.04147.bf>
- Hayward, K. S., & Brauer, S. G. (2015). Dose of arm activity training during acute and subacute rehabilitation post stroke: a systematic review of the literature. *Clinical Rehabilitation*, 29(12), 1234-1243. doi:<http://dx.doi.org/10.1177/0269215514565395>
- Hornby, T. G., Straube, D. S., Kinnaird, C. R., Holleran, C. L., Echaz, A. J., Rodriguez, K. S., . . . Narducci, E. A. (2011). Importance of specificity, amount, and intensity of locomotor training to improve ambulatory function in patients poststroke. *Topics in Stroke Rehabilitation*, 18(4), 293-307. doi:<http://dx.doi.org/10.1310/tsr1804-293>
- Ivey, F. M., Hafer-Macko, C. E., & Macko, R. F. (2008). Task-oriented treadmill exercise training in chronic hemiparetic stroke. *Journal of Rehabilitation Research and Development*, 45(2), 249-259.
- Janssen, H., Speare, S., Spratt, N., & Bernhardt, J. (2010). Systematic review and meta-analysis of the efficacy of training in animal models of stroke. Can it reveal the optimal dose and time for

- commencement? *International Journal of Stroke*, 5, 28. doi:<http://dx.doi.org/10.1111/j.1747-4949.2010.00458-3.x>
- Kendall, B. J., & Gothe, N. P. (2016). Effect of Aerobic Exercise Interventions on Mobility among Stroke Patients: A Systematic Review. *American Journal of Physical Medicine and Rehabilitation*, 95(3), 214-224. doi:<http://dx.doi.org/10.1097/PHM.0000000000000416>
- Kollen, B., Kwakkel, G., & Lindeman, E. (2006). Functional recovery after stroke: a review of current developments in stroke rehabilitation research. *Reviews on Recent Clinical Trials*, 1(1), 75-80.
- Langhorne, P., Coupar, F., & Pollock, A. (2009). Motor recovery after stroke: a systematic review. *Lancet Neurology*, 8(8), 741-754. doi:[http://dx.doi.org/10.1016/S1474-4422\(09\)70150-4](http://dx.doi.org/10.1016/S1474-4422(09)70150-4)
- Lohse, K. R., Lang, C. E., & Boyd, L. A. (2014). Is more better? Using metadata to explore dose-response relationships in stroke rehabilitation. *Stroke*, 45(7), 2053-2058. doi:<http://dx.doi.org/10.1161/STROKEAHA.114.004695>
- Lubetzky-Vilnai, A., & Kartin, D. (2010). The effect of balance training on balance performance in individuals poststroke: a systematic review. *Journal of Neurologic Physical Therapy*, 34(3), 127-137. doi:<http://dx.doi.org/10.1097/NPT.0b013e3181ef764d>
- Lucas, S. J., Cotter, J. D., Brassard, P., & Bailey, D. M. (2015). High-intensity interval exercise and cerebrovascular health: curiosity, cause, and consequence. *Journal of Cerebral Blood Flow and Metabolism*, 35(6), 902-911. doi:<http://dx.doi.org/10.1038/jcbfm.2015.49>
- McNaughton, H., Thompson, S., Stinear, C., Harwood, M., & McPherson, K. M. (2014). Optimizing the Content and Dose of Rehabilitation in the First 12 Months Following Stroke. *Critical Reviews in Physical & Rehabilitation Medicine*, 26(1/2), 27-50 24p.
- Mehrholz, J., Pohl, M., & Elsner, B. (2014). Treadmill training and body weight support for walking after stroke. *Cochrane Database of Systematic Reviews*(1), Cd002840. doi:10.1002/14651858.CD002840.pub3
- Mehrholz, J., Pohl, M., Platz, T., Kugler, J., & Elsner, B. (2015). Electromechanical and robot-assisted arm training for improving activities of daily living, arm function, and arm muscle strength after stroke. *Cochrane Database of Systematic Reviews*, 11, CD006876. doi:<http://dx.doi.org/10.1002/14651858.CD006876.pub4>
- Nascimento, L. R., de Oliveira, C. Q., Ada, L., Michaelsen, S. M., & Teixeira-Salmela, L. F. (2015). Walking training with cueing of cadence improves walking speed and stride length after stroke more than walking training alone: a systematic review. *Journal of Physiotherapy*, 61(1), 10-15. doi:<http://dx.doi.org/10.1016/j.jphys.2014.11.015>
- Ovando AC, Michaelsen SM, Dias JA, Herber V. Gait training, cardiorespiratory training and strength training after stroke: strategies, dose and outcomes. *Fisioterapia em Movimento* 2010;23(2):253-69 17p
- Pang, M. Y., Charlesworth, S. A., Lau, R. W., & Chung, R. C. (2013). Using aerobic exercise to improve health outcomes and quality of life in stroke: evidence-based exercise prescription recommendations. *Cerebrovascular Diseases*, 35(1), 7-22. doi:<http://dx.doi.org/10.1159/000346075>
- Park, K., Lee, S., Hong, Y., Park, S., Choi, J., Chang, K. T., . . . Hong, Y. (2015). Therapeutic physical exercise in neural injury: friend or foe? *Journal of Physical Therapy Science*, 27(12), 3933-3935. doi:<http://dx.doi.org/10.1589/jpts.27.3933>
- Peurala, S. H., Karttunen, A. H., Sjogren, T., Paltamaa, J., & Heinonen, A. (2014). Evidence for the effectiveness of walking training on walking and self-care after stroke: a systematic review and meta-analysis of randomized controlled trials. *Journal of Rehabilitation Medicine*, 46(5), 387-399. doi:<http://dx.doi.org/10.2340/16501977-1805>
- Pollock A, Baer G, Campbell P, Choo PL, Forster A, Morris J, . . . P., L. (2014). Physical rehabilitation approaches for the recovery of function and mobility following stroke. *Cochrane Database of Systematic Reviews*(4), Cd001920. doi:10.1002/14651858.CD001920.pub3
- Pollock A, Farmer SE, Brady M.C, Langhorne P, Mead GE, Mehrholz J, & F., v. W. (2014). Interventions for improving upper limb function after stroke. *Cochrane Database of Systematic Reviews*, 11, CD010820. doi:<http://dx.doi.org/10.1002/14651858.CD010820.pub2>

- Pollock, A., Gray, C., Culham, E., Durward Brian, R., & Langhorne, P. (2014). Interventions for improving sit-to-stand ability following stroke. *Cochrane Database of Systematic Reviews*, (5). Retrieved from <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD007232.pub4/abstract>
doi:10.1002/14651858.CD007232.pub4
- Rimmer, J. H., & Wang, E. (2005). Aerobic exercise training in stroke survivors. *Topics in Stroke Rehabilitation*, 12(1), 17-30.
- Saunders, D. H., Sanderson, M., Hayes, S., Kilrane, M., Greig, C. A., Brazzelli, M., & Mead, G. E. (2016). Physical fitness training for stroke patients. *Cochrane Database of Systematic Reviews*, 3, Cd003316. doi:10.1002/14651858.CD003316.pub6
- Sehatzadeh, S. (2013). Effectiveness of increased intensity of rehabilitation in post-stroke patients: a rapid review (Structured abstract). *Health Technology Assessment Database*, (1). Retrieved from <http://onlinelibrary.wiley.com/o/cochrane/clhta/articles/HTA-32014001038/frame.html>
- Sehatzadeh, S. (2015). Effect of increased intensity of physiotherapy on patient outcomes after stroke: An evidence-based analysis. *Ontario Health Technology Assessment Series*, 15(6).
- Sousa Nanji, L., Torres Cardoso, A., Costa, J., & Vaz-Carneiro, A. (2015). [Analysis of the Cochrane Review: Interventions for Improving Upper Limb Function after Stroke. *Cochrane Database Syst Rev*. 2014,11:CD010820]. *Acta Medica Portuguesa*, 28(5), 551-553.
- Tang, A., Tao, A., Soh, M., Tam, C., Tan, H., Thompson, J., & Eng, J. J. (2015). The effect of interventions on balance self-efficacy in the stroke population: a systematic review and meta-analysis. *Clinical Rehabilitation*, 29(12), 1168-1177.
doi:<http://dx.doi.org/10.1177/0269215515570380>
- Teasell, R., Bitensky, J., Salter, K., & Bayona, N. A. (2005). The role of timing and intensity of rehabilitation therapies. *Topics in Stroke Rehabilitation*, 12(3), 46-57.
- Tilson, J. K., Settle, S. M., & Sullivan, K. J. (2008). Application of evidence-based practice strategies: current trends in walking recovery interventions poststroke. *Topics in Stroke Rehabilitation*, 15(3), 227-246. doi:<http://dx.doi.org/10.1310/tsr1503-227>
- Trammell, M., Kapoor, P., Swank, C., & Driver, S. (2016). Improving practice with integration of patient directed activity during inpatient rehabilitation. *Clinical Rehabilitation*.
doi:10.1177/0269215515625100
- Van Abbema, R., De Greef, M., Crajé, C., Krijnen, W., Hobbelen, H., & Van Der Schans, C. (2015). What type, or combination of exercise can improve preferred gait speed in older adults? A meta-analysis. *BMC Geriatrics*, 15(1), 72.
- Veerbeek, J. M., van Wegen, E., van Peppen, R., van der Wees, P. J., Hendriks, E., Rietberg, M., & Kwakkel, G. (2014). What is the evidence for physical therapy poststroke? A systematic review and meta-analysis. *PLoS ONE [Electronic Resource]*, 9(2), e87987.
doi:<http://dx.doi.org/10.1371/journal.pone.0087987>