

Pharyngeal Electrical Stimulation

1. [Link](#): Hamdy S, Aziz Q, Rothwell JC, et al. The cortical topography of human swallowing musculature in health and disease. *Nat Med.* 1996;2(11):1217-1224. doi:10.1038/nm1196-1217
2. [Link](#): Hamdy S, Aziz Q, Rothwell JC, et al. Explaining oropharyngeal dysphagia after unilateral hemispheric stroke. *Lancet.* 1997;350(9079):686-692. doi:10.1016/S0140-6736(97)02068-0
3. [Link](#): Hamdy S, Aziz Q, Rothwell JC, et al. Recovery of swallowing after dysphagic stroke relates to functional reorganization in the intact motor cortex. *Gastroenterology.* 1998;115(5):1104-1112. doi:10.1016/s0016-5085(98)70081-2
4. [Link](#): Hamdy S, Rothwell JC, Aziz Q, Singh KD, Thompson DG. Long-term reorganization of human motor cortex driven by short-term sensory stimulation. *Nat Neurosci.* 1998;1(1):64-68. doi:10.1038/264
5. [Link](#): Fraser C, Power M, Hamdy S, et al. Driving plasticity in human adult motor cortex is associated with improved motor function after brain injury. *Neuron.* 2002 May 30;34(5):831-40. doi: 10.1016/s0896-6273(02)00705-5
6. [Link](#): Jayasekaran V, Singh S, Tyrrell P, et al. Adjunctive functional pharyngeal electrical stimulation reverses swallowing disability after brain lesions. *Gastroenterology.* 2010 May;138(5):1737-46. doi: 10.1053/j.gastro.2010.01.052
7. [Link](#): Restivo DA, Casabona A, Centonze D, Marchese-Ragona R, Maimone D, Pavone A. Pharyngeal electrical stimulation for dysphagia associated with multiple sclerosis: a pilot study. *Brain Stimul.* 2013;6(3):418-423. doi:10.1016/j.brs.2012.09.001
8. [Link](#): Michou E, Mistry S, Jefferson S, et al. Characterizing the mechanisms of central and peripheral forms of neurostimulation in chronic dysphagic stroke patients. *Brain Stimul.* 2014;7(1):66-73. doi:10.1016/j.brs.2013.09.005
9. [Link](#): Scutt P, Lee HS, Hamdy S, Bath PM. Pharyngeal Electrical Stimulation for Treatment of Poststroke Dysphagia: Individual Patient Data Meta-Analysis of Randomised Controlled Trials. *Stroke Res Treat.* 2015;2015:429053. doi:10.1155/2015/429053
10. [Link](#): Suntrup S, Marian T, Schröder JB, et al. Electrical pharyngeal stimulation for dysphagia treatment in tracheotomized stroke patients: a randomized controlled trial. *Intensive Care Med.* 2015;41(9):1629-1637. doi:10.1007/s00134-015-3897-8.
11. [Link](#): Youssef G, and El-Banna M. The outcome of intraluminal electrical pharyngeal stimulation (EPS) on oropharyngeal dysphagia in acute stroke patients. *Al-Azhar Assiut Med Journal.* 2015; 13(1):68-72.
12. [Link](#): Bath PM, Scutt P, Love J, et al. Pharyngeal Electrical Stimulation for Treatment of Dysphagia in Subacute Stroke: A Randomized Controlled Trial. *Stroke.* 2016;47(6):1562-1570. doi:10.1161/STROKEAHA.115.012455
13. [Link](#): Suntrup-Krueger S, Bittner S, Recker S, et al. Electrical pharyngeal stimulation increases substance P level in saliva. *Neurogastroenterol Motil.* 2016;28(6):855-860. doi:10.1111/nmo.12783
14. [Link](#): Vasant DH, Michou E, O'Leary N, et al. Pharyngeal Electrical Stimulation in Dysphagia Poststroke: A Prospective, Randomized Single-Blinded Interventional Study. *Neurorehabil Neural Repair.* 2016 Oct;30(9):866-75. doi: 10.1177/1545968316639129.
15. [Link](#): Essa H, Vasant DH, Raginis-Zborowska A, Payton A, Michou E, Hamdy S. The BDNF polymorphism Val66Met may be predictive of swallowing improvement post pharyngeal electrical stimulation in dysphagic stroke patients. *Neurogastroenterol Motil.* 2017;29(8):1062. doi:10.1111/nmo.13062
16. [Link](#): Muhle P, Suntrup-Krueger S, Bittner S, et al. Increase of Substance P Concentration in Saliva after Pharyngeal Electrical Stimulation in Severely Dysphagic Stroke Patients - an Indicator of Decannulation Success?. *Neurosignals.* 2017;25(1):74-87. doi:10.1159/000482002.
17. [Link](#): Dziejewski R, Stellato R, van der Tweel I, et al. Pharyngeal electrical stimulation for early decannulation in tracheotomized patients with neurogenic dysphagia after stroke (PHAST-TRAC): a prospective, single-blinded, randomised trial. *Lancet Neurol.* 2018;17(10):849-859. doi:10.1016/S1474-4422(18)30255-2.
18. [Link](#): Bath PM, Woodhouse LJ, Suntrup-Krueger S, et al. Pharyngeal electrical stimulation for neurogenic dysphagia following stroke, traumatic brain injury or other causes: Main results from the PHADER cohort study. *EclinicalMedicine.* 2020;28:100608. Published 2020 Nov 10. doi:10.1016/j.eclinm.2020.100608
19. [Link](#): Beirer S, Grisold W, Dreisbach J. Therapy-resistant dysphagia successfully treated using pharyngeal electrical stimulation in a patient with the pharyngeal-cervical-brachial variant of the Guillain-Barré syndrome. *eNeurologicalSci.* 2020;20:100255. Published 2020 Jul 15. doi:10.1016/j.ensci.2020.100255
20. [Link](#): Koestenberger M, Neuwersch S, Hoefner E, et al. A Pilot Study of Pharyngeal Electrical Stimulation for Orally Intubated ICU Patients with Dysphagia. *Neurocrit Care.* 2020;32(2):532-538. doi:10.1007/s12028-019-00780-x
21. [Link](#): Florea C, Bräumann C, Mussger C, et al. Therapy of Dysphagia by Prolonged Pharyngeal Electrical Stimulation (Phagenyx) in a Patient with Brainstem Infarction. *Brain Sci.* 2020;10(5):256. Published 2020 Apr 28. doi:10.3390/brainsci10050256
22. [Link](#): Sasegbon A, Cheng I, Zhang M, Hamdy S. Advances in the Use of Neuromodulation for Neurogenic Dysphagia: Mechanisms and Therapeutic Application of Pharyngeal Electrical Stimulation, Transcranial Magnetic Stimulation, and Transcranial Direct Current Stimulation. *Am J Speech Lang Pathol.* 2020;29(2S):1044-1064. doi:10.1044/2020_AJSLP-19-00073
23. [Link](#): Muhle P, Labeit B, Wollbrink A, et al. Targeting the sensory feedback within the swallowing network-Reversing artificially induced pharyngolaryngeal hypesthesia by central and peripheral stimulation strategies. *Hum Brain Mapp.* 2021;42(2):427-438. doi:10.1002/hbm.25233
24. [Link](#): Traugott M, Hoepler W, Kitzberger R, et al. Successful treatment of intubation-induced severe neurogenic post-extubation dysphagia using pharyngeal electrical stimulation in a COVID-19 survivor: a case report. *J Med Case Rep.* 2021;15(1):148. Published 2021 Mar 22. doi:10.1186/s13256-021-02763-z
25. [Link](#): Blakemore C, Hunter J, Bhaskar B. Rapid Swallow Improvement Following Pharyngeal Electrical Stimulation in a COVID-19 With Long-Term Severe Neurogenic Dysphagia: A Case Report. *Journal of Rehabilitative Medicine: Clinical Communications.* Published December 20, 2021. Doi: 10.2340/20030711-1000073
26. [Link](#): Herrmann C, Schradt F, Lindner-Pfleghar B, Schuster J, Ludolph AC, Dorst J. Pharyngeal electrical stimulation in amyotrophic lateral sclerosis: a pilot study. *Ther Adv Neurol Disord.* 2022;15:17562864211068394. Published 2022 Feb 8. doi:10.1177/17562864211068394
27. [Link](#): Traugott MT, Hoepler W, Kelani H, Schatzl M, Friese E and Neuhold S. Pharyngeal Electrical Stimulation Treatment of Critically Ill Intensive Care Tracheostomized Patients Presenting with Severe Neurogenic Dysphagia: A Case Series. *Austin J Pulm Respir Med.* 2022; 9(1): 1088.
28. [Link](#): Suntrup-Krueger S, Labeit B, Marian T, et al. Pharyngeal electrical stimulation for postextubation dysphagia in acute stroke: a randomized controlled pilot trial. *Crit Care.* 2023;27(1):383. Published 2023 Oct 3. doi:10.1186/s13054-023-04665-6