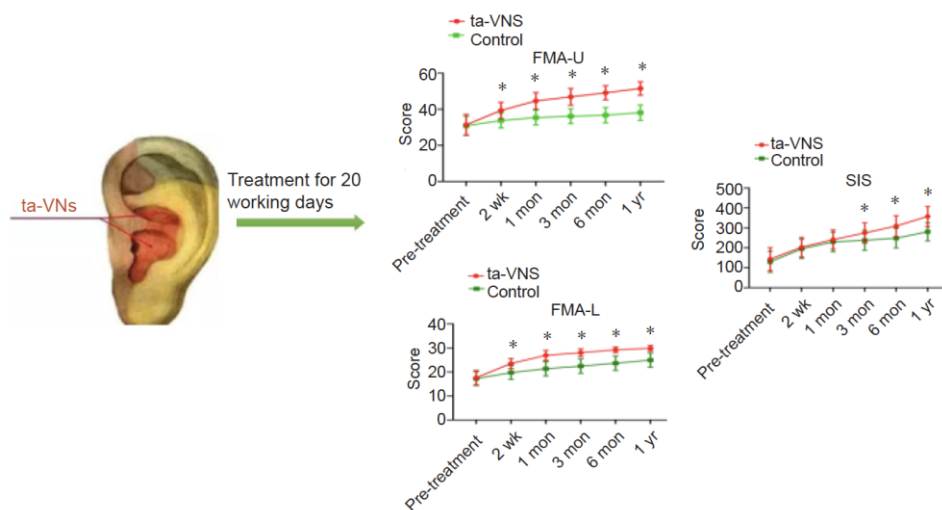


## Quarterly Newsletter

## BRAIN MODULATION FOR NEURORECOVERY

**Non-invasive Transcutaneous Auricular Vagus Nerve Stimulation (ta-VNS) for Post-Stroke Recovery:** Li *et al.* in January's Neural Regeneration Research demonstrated that ta-VNS paired with rehabilitation training improves motor and sensory function as well as emotional response. Sixty subjects (30 each in treatment and control arm) were recruited within one month of stroke and received 20 sessions (5 days a week for 4 weeks) of 20-minute ta-VNS therapy (0.3 ms square pulses at 20 Hz for 30 seconds, repeated every 5 minutes,  $1.71 \pm 0.5$  mA average current intensity in treatment group). Rehabilitation therapy for 30 minutes started immediately after the end of ta-VNS therapy. The subjects were followed for 1 year and all the outcome measures (FMA-U, FMA-L, FMA-S, WMFT, SIS, HADS-A, HADS-D) showed significant improvement, while physiological parameters did not show statistically significant difference across the groups.

**Graphical Abstract** *Transcutaneous auricular vagus nerve stimulation (ta-VNS) combined with conventional rehabilitation therapy leads to great recovery of neurological function in acute stroke patients*



Li J N, Xie C C, Li C Q, Zhang G F, Tang H, Jin C N, Ma J X, Wen L, Zhang K M and Niu L C 2022 Efficacy and safety of transcutaneous auricular vagus nerve stimulation combined with conventional rehabilitation training in acute stroke patients: a randomized controlled trial conducted for 1 year involving 60 patients Neural Regen Res 17 1809-13

## Upcoming events

### WFNR Research Webinars

6 April – Big Data: A Game-Changer to Advance Stroke Care in the Digital Era  
28 April – WFNR Population-Based Study/Outcome Research  
26 May - Understand the Process of Publication (Meet the Editor)  
[traceymole@wfnr.co.uk](mailto:traceymole@wfnr.co.uk)

### ASNR Annual Meeting

31 March - 2 April 2022  
St Louis, USA  
[www.asnr.com](http://www.asnr.com)

### Neurorehabilitation Stroke Virtual Short Course

15 April 2022  
<https://canosc.com/stroke-short-course/>

### IFNRCON 22

22-24 April 2022  
<https://ifnr.org/ifnrcon2022/registration>

### Robotics and Technology in Rehabilitation Symposium

29-30 April 2022  
[www.mossrehab.com/continuingeducation](http://www.mossrehab.com/continuingeducation)

### 45th ASSBI Brain Impairment Conference

5-7 May 2022, Perth, Australia  
[www.assbi.com.au](http://www.assbi.com.au)

### RMSANZ2022 – 5th Annual Scientific Meeting

12-14 June 2022, Naples, Italy  
<https://sirn.net/congresso-nazionale-2022/>

### 8th EAN Coongress

25-28 June 2022, Vienna, Austria  
<https://www.ean.org/congress2022>

## Select Recent Publications of Brainmodulation for Neurorehabilitation

ID	TYPE*	TOOL	DISEASE	CITATION
1	2	tDCS	Alzheimer's; Parkinson's	Cammisuli, D. M., Cignoni, F., Ceravolo, R. et al. Transcranial Direct Current Stimulation (tDCS) as a Useful Rehabilitation Strategy to Improve Cognition in Patients With Alzheimer's Disease and Parkinson's Disease: An Updated Systematic Review of Randomized Controlled Trials. <i>Front Neurol</i> 12, 798191, doi:10.3389/fneur.2021.798191 (2021).
2	1	NMES+rTMS	Stroke	Du, J., Wang, S., Cheng, Y. et al. Effects of Neuromuscular Electrical Stimulation Combined with Repetitive Transcranial Magnetic Stimulation on Upper Limb Motor Function Rehabilitation in Stroke Patients with Hemiplegia. <i>Comput Math Methods Med</i> 2022, 9455428, doi:10.1155/2022/9455428 (2022).
3	1	FES+gait robot.	Pseudo-paraplegic model	Inoue, J., Kimura, R., Shimada, Y. et al. Development of a Gait Rehabilitation Robot Using an Exoskeleton and Functional Electrical Stimulation: Validation in a Pseudo-paraplegic Model. <i>Prog Rehabil Med</i> 7, 20220001, doi:10.2490/prm.20220001 (2022).
4	1	tDCS+VR	Stroke	Lee, S. & Cha, H. The effect of clinical application of transcranial direct current stimulation combined with non-immersive virtual reality rehabilitation in stroke patients. <i>Technol Health Care</i> 30, 117-127, doi:10.3233/THC-212991 (2022).
5	1	NMES	Stroke (dysphagia)	Tan, Z., Wei, X., Tan, C. et al. Effect of neuromuscular electrical stimulation combined with swallowing rehabilitation training on the treatment efficacy and life quality of stroke patients with dysphagia. <i>Am J Transl Res</i> 14, 1258-1267 (2022).
6	1	rTMS	Stroke	Yamada, N., Kashiwabara, K., Takekawa, T. et al. Comparison of the effect and treatment sequence between a 2-week parallel repetitive transcranial magnetic stimulation and rehabilitation and a 2-week rehabilitation-only intervention during a 4-week hospitalization for upper limb paralysis after stroke: An open-label, crossover observational study. <i>J Cent Nerv Syst Dis</i> 14, 11795735211072731, doi:10.1177/11795735211072731 (2022).
7	1	TUS	Stroke	Wang, Y., Li, F., He, M. J. & Chen, S. J. The effects and mechanisms of transcranial ultrasound stimulation combined with cognitive rehabilitation on post-stroke cognitive impairment. <i>Neurol Sci</i> , doi:10.1007/s10072-022-05906-2 (2022).
8	2	FES	Stroke	Sousa, A. S. P., Moreira, J., Silva, C. et al. Usability of Functional Electrical Stimulation in Upper Limb Rehabilitation in Post-Stroke Patients: A Narrative Review. <i>Sensors (Basel)</i> 22, doi:10.3390/s22041409 (2022).
9	1	Vibratory stim.	Stroke	Vatinno, A. A., Hall, L., Cox, H. et al. Using Subthreshold Vibratory Stimulation During Poststroke Rehabilitation Therapy: A Case Series. <i>OTJR (Thorofare N J)</i> 42, 30-39, doi:10.1177/15394492211042275 (2022).
10	1	Elec. Stim.	SCI	Karamian, B. A., Siegel, N., Nourie, B. et al. The role of electrical stimulation for rehabilitation and regeneration after spinal cord injury. <i>J Orthop Traumatol</i> 23, 2, doi:10.1186/s10195-021-00623-6 (2022).
11	1	tDCS	Tetraplegia	Arora, T., O'Laughlin, K., Potter-Baker, K. et al. Safety and efficacy of transcranial direct current stimulation in upper extremity rehabilitation after tetraplegia: protocol of a multicenter randomized, clinical trial. <i>Spinal Cord</i> , doi:10.1038/s41393-022-00768-z (2022).
12	2	tDCS	Stroke (spasticity)	Alashram, A. R., Padua, E., Aburub, A. et al. Transcranial direct current stimulation for upper extremity spasticity rehabilitation in stroke survivors: A systematic review of randomized controlled trials. <i>PM R</i> , doi:10.1002/pmrj.12804 (2022).

\* 1 = Experimental, 2 = Review

# WFNR

World Federation for  
**Neurorehabilitation**



**12th World Congress for  
NEUROREHABILITATION**

Vienna, Austria | hybrid  
14–17 December 2022



## WCNR 2022 can be your platform

Dear Professor Feng,

Be part of the WCNR 2022 in Vienna, Austria! Present your research and shape the programme. We also offer the chance for excellent abstracts to be part of the symposia in the main programme.

Until **01 July 2022** you can submit your scientific paper online.

[Submit your abstract](#)

### Win a gift card

Submit your abstract quickly and win a gift card for free admission for the social evening. It will be raffled among the first 500 abstracts. Don't miss this opportunity!

Check out all details in the flyer and on [www.wfnr-congress.org](http://www.wfnr-congress.org).

[Flyer "Call for Abstracts"](#)

**Deadline for abstract submission: 01 July 2022**