

Transcutaneous vagus nerve stimulation

see [Transcutaneous Vagus Nerve Stimulation for Severe Traumatic Brain Injury](#)

The transcutaneous [vagus nerve stimulation](#) (tVNS) is a non-invasive technique in the treatment of [drug-resistant epilepsy](#) and results in positive effects for patients who cannot tolerate invasive vagus nerve stimulation. In a study, Wu et al. aimed to define the relationship between tVNS and seizure control, [quality of life](#) (QOL) and some other factors.

They found articles by searching through [PubMed](#) and [Web of Science](#), and a total of three articles with 280 patients overall were included. These eligible studies include two randomized double-blinded trials and one randomized single-blinded trial. [Meta-analysis](#) and [systematic review](#) were performed, analyzing the association between tVNS and seizure frequency using the available data. The responder rate, QOL and adverse effects were also analyzed.

The results showed a significant difference in seizure frequency between treatment group and control group ($Z = 2.14$, $P = 0.03$, 95% confidence interval (CI) -6.31 to -0.27; $I^2 = 10\%$). However, only two studies provided the data of responders, and the result failed to figure out a significant difference ($Z = 0.75$, $P = 0.45$, 95% CI (odds ratio) 1.47 (0.54-4.02); $I^2 = 61\%$). It is difficult to define whether tVNS improved QOL between treatment and control groups using the available data. The adverse effects seem to be very few, with the most common being a headache.

tVNS is an effective procedure to control the frequency of seizures according to the available data, especially for those patients who do not want to tolerate a surgical procedure ¹⁾.

Bauer S, Baier H, Baumgartner C, Bohlmann K, Fauser S, Graf W, Hillenbrand B, Hirsch M, Last C, Lerche H, Mayer T, Schulze-Bonhage A, Steinhoff BJ, Weber Y, Hartlep A, Rosenow F, Hamer HM. [Transcutaneous Vagus Nerve Stimulation](#) (tVNS) for Treatment of Drug-Resistant Epilepsy: A Randomized, Double-Blind Clinical Trial (cMPsE02). *Brain Stimul.* 2016 May-Jun;9(3):356-363. doi: 10.1016/j.brs.2015.11.003. Epub 2016 Jan 20. PubMed PMID: 27033012.

¹⁾

Wu K, Wang Z, Zhang Y, Yao J, Zhang Z. Transcutaneous vagus nerve stimulation for the treatment of drug-resistant epilepsy: a meta-analysis and systematic review. *ANZ J Surg.* 2020 Feb 12. doi: 10.1111/ans.15681. [Epub ahead of print] Review. PubMed PMID: 32052569.

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