

## Does it Need to be New to be Novel?

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### Editorial

One area of my research for the past 9-years has been studying electrical stimulation and healing of chronic wounds [1-9]. The mention of electrical stimulation as a modality is not new, and too many, not novel (or evidence-based). Electrical stimulation has been used as a modality to decrease pain for over 100 years. It was FDA approved by the United States for increasing blood flow. Numerous papers have been published over the past 50 years on electrical stimulation for its ability to decrease pain, facilitate strength, increase blood flow and heal wounds. This modality is not novel anymore, or is it? I believe looking at 3 main areas can help us become an evidence-based consumer of a modality so it may become novel in your practice.

Research: If we need an objective judge and jury for a modality, we must look at the research. Electrical stimulation or functional electrical stimulation (FES) has shown great clinical utility for strengthening after and ACL repair [10]. Transcutaneous electrical stimulation (TENS) was at one time prescribed to many people with pain. The health care provider and insurance companies found the outcomes for long-term relief of pain poor and TENS decreased in popularity quickly [11]. Electrical stimulation and its application for non-healing wounds have had varied outcomes for wound healing rates. The excitement about this novel modality for wound healing dwindled as clinical outcomes experienced by the clinician did not match the expectation of a good healing rate.

Research that is "not significant": In order to prevent a Type I error, we have historically set the probability at .05. If a study used electrical stimulation to treat a wound vs. standard care and  $p > .05$ , does this immediately indicate that electrical stimulation is not a good modality for wounds? If we found out that  $P = .08$ , would this be clinically meaningful? In the same scenario, researchers would want to prevent a type II error (also called power). Power is directly related to sample size and effect size. If the study indicated  $p = .08$ , is that still clinically meaningful?

Both Type I and II errors with our modality may still be novel. We may need to increase the sample size (power) or analyze the methods before stating it is not significant.

Being Novel with a modality: If a novel modality is still not achieving the desired outcomes, one may want to look at specific parameters. Target populations, electrical stimulation parameters and electrodes similar to the successful trials? In my past studies differences have been found in blood flow by adding heat plus electrical stimulation, biphasic vs. monophasic waveforms, type of electrode and a novel electrical stimulation device using a whirlpool type current.

Does it need to be new to be novel? In my opinion, the answer is no. Research that changes electrical stimulation parameters may create something very novel with excellent clinical outcomes. Become an evidence-based consumer of research and observe if your clinical outcomes can be improved with a modality that is not novel.

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