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**Evidentiary basis for the use of pulsed electromagnetic therapy (PEMF) in primary care for healing and prevention in people with complications of diabetes and in improving cardiac output in patients with congestive heart failure thereby preventing myocardial infarction and death**

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**D**iabetic lower extremity ischemia (DLEI) causes approximately 90,000 leg amputations each year in the United States. A review of the literature revealed that sufficient evidence exists to consider using pulsed electromagnetic field (PEMF) therapy as a non-invasive curative modality that could prevent many of these amputations. However, the staggering number of leg amputations following lengthy episodes of ischemic deterioration suggests a lack of consensus as to the efficacy of PEMF. Therefore, the purpose of this study is to provide an evidentiary basis for using PEMF therapy in a primary care setting to promote microvascular angiogenesis and thereby prevent skin ulceration. In this study, 7 people between the ages 54 and 65 who have diabetes mellitus type 2 and some level DLEI underwent 10 to 22 treatments with a Diapulse® PEMF device. Each participant was tested for microvascular red blood cell (RBC) perfusion (Q), volume concentration of moving RBCs (V), RBC speed (U) and temperature (T) in the plantar skin. These parameters were measured using a laser doppler

flowmeter before and after the course of treatment. The Wilcoxon Signed Rank Test showed significant increases in V and decreases in U ( $p = 0.018$  for both) with Q being slightly above the significance level at  $p = 0.063$ . These findings are consistent with those found in the literature. Therefore, the use of PEMF for treating chronic wounds should be considered for inclusion in standard Advanced Practice Registered Nursing (APRN) guidelines for evidenced-based practice. However, the results of the pilot study do need to be confirmed by repeating the experiment with a larger sample size. This paper also provides a review of the evidence in the medical literature that demonstrates the development of angiogenesis in heart muscle as a means of reversing congestive heart failure following myocardial ischemia resulting from atherosclerosis in the minute coronary circulation. The available evidence suggests that achieving new collateral circulation in ischemic heart muscle is highly achievable.

### **Biography**

Thomas Sharon has completed his DNP from Brandman University, Irvine, California in October 2015. He is board certified by the American Nurses Credentialing Center in Adult-Gerontological Primary Care. In 2014, while a nurse practitioner student, he was awarded a diabetes research grant by the American Association of Nurse Practitioners for his pioneering work in utilizing pulsed electromagnetic therapy to stimulate angiogenesis in the plantar skin of people with diabetic neuropathy. He is the first researcher to use laser doppler technology for objective measurement of the proficiency of microcirculation. He has published 3 books and more than 12 journal articles. He is currently a primary care provider at Mind Body Solutions in Las Vegas, Nevada, USA and he is developing new research projects.

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