“Russian Electrical Stimulation”: Putting This Perspective Into Perspective

Ever since the early introduction in the late 1970s of “Russian currents” to the vernacular of those who use electrotherapeutic modalities, the name Yakov Kots has surfaced as the primary person behind the development of and early experimental work in this area. His original work, however, never surfaced in a full-length, peer-reviewed format and was instead relegated to fragmented interpretations of early translations of his lectures delivered at Concordia University in 1977. On the following pages, we publish a manuscript by Ward and Shkuratova, who say that they (1) offer a more complete version of the work of Kots, including a review of the original work that was published in the Russian language, and (2) compare his work with more recent literature and perhaps, therefore, place that work in a different perspective.

What is missing from the article, however, is the designation of Kots as an author, which would lend greater accountability of the work described to a primary source. In fact, one of my first suggestions to the Editor in Chief was to send the manuscript to Dr Kots for review. We were unable to locate Dr Kots, however. This means that we have 2 authors who are claiming to possess an adequate amount of information based on their translations of some of the original work that was conducted by Kots and his colleagues. Determining whether their article adequately reflects the work of Kots and colleagues is problematic, as is the case with any translation that is not prepared by the original authors.

On the other hand, translating a scientist’s original work from sources not readily available is not unusual and often has resulted in very productive dialogue. For example, in the early part of the 20th century, translations of Bernstein’s original work led to major changes in thinking and a plethora of subsequent research in the motor control area. I believe that the introduction of Kots’ work in the late

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1970s had a similar influence in studies involving electrical stimulation of muscle and led to a rethinking of how electrical stimulation was used and with whom it was most effective.

Prior to the 1970s, electrical stimulation was primarily viewed as an adjunctive therapy to aid in "muscle re-education" and was predominantly used with people who had neurological disorders. Having graduated from my professional training in the late 1970s, I could not fathom using the available electrical stimulation devices to generate high muscle forces with the intent to improve performance. After the 1970s and the introduction of "Russian currents," however, there was clearly a shift toward using electrical stimulation primarily for muscle performance gains and as an adjunct to strengthening regimens predominantly with a population with musculoskeletal conditions. This shift has led to numerous investigations into the adjunctive effect of electrical stimulation for muscle performance gains. Many were intrigued by Kots' claims of being able to: (1) elicit muscle forces greater than 100% of a maximal volitional force that were tolerable with regard to perceived pain and (2) generate increases in muscle force capability on the order of 30% in elite-caliber athletes who presumably were already functioning at higher-than-normal levels.

The work of Ward and Shkuratova has the attraction of consolidating what has been very fragmented material in the context of the experimentation performed by Kots. Much of the material cited is not readily available to our readership and, even if it were obtainable, would not be easily translated. Readers should note that this limitation also applied to the review process and that Physical Therapy's manuscript reviewers, Editorial Board members, and Editor in Chief are dependent on the accuracy of the authors' translation as well as their interpretation of Kots' work. Therefore, the article by Ward and Shkuratova is probably best viewed as a Perspective and not as a data-based report, and the Journal asks readers to remind themselves of this limitation throughout the article. In addition, the type of review given the original work of Kots and colleagues is unclear, so we cannot be sure that their work was subjected to the level of peer review that we all have come to expect in scientific publishing. I believe that the overall scope of the work done by Kots and his colleagues can perhaps be best appreciated despite this limitation, and that opinion is shared by the Editor in Chief and our reviewer team. We believe that despite any limitations, real or anticipated, this article can provide a focus for thought and discussion.

References


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