Manipulating Poly (vinylidene fluoride) Films with a Human Bipedal Motion

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The goal of this project is to determine whether Poly(vinylidene fluoride) Films will generate a modeled voltage and amperage for hi-volt galvanic healing when when strained by a simulated human bipedal motion. It was hypothesized that the Poly(vinylidene fluoride) films will produce more electricity when there are more films within the electrical circuit and the films will produce more electricity when under a series setup; the generated electricity will achieve the model voltage and amperage. A controlled experiment was set up to test the hypothesis. The PVDF films were strained to emulate the human bipedal motion. The attachment leads of the PVDF films were secured to the breadboard, which represented a simple electrical circuit. The raw and conditioned electrical outputs were measured and recorded using the breadboard and oscilloscope. The previous procedures were repeated with multiple PVDF films, under both the series and parallel electrical setup, and with varying time intervals. The data resulted with a maximum of 10.2 volts per one flex when the output of the films was being measured through a series electrical setup. The data was significantly lower than the model voltage and amperage of hi-volt galvanic healing and therefore did not support the hypothesis. Although the PVDF films did not model the voltage and amperage for hi-volt galvanic healing, it is proposed that they generated a sufficient amount of electricity to aid in a similar electrotherapy, called transcutaneous electrical nerve stimulation (TENS).

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