Supplementary Materials

Figure S1. The operation of the Zigzag shape electrostatic generator, the upper layer is a PTFE film containing microstructures, the lower layer is Al film. From left to right is the mode of action of TENG.

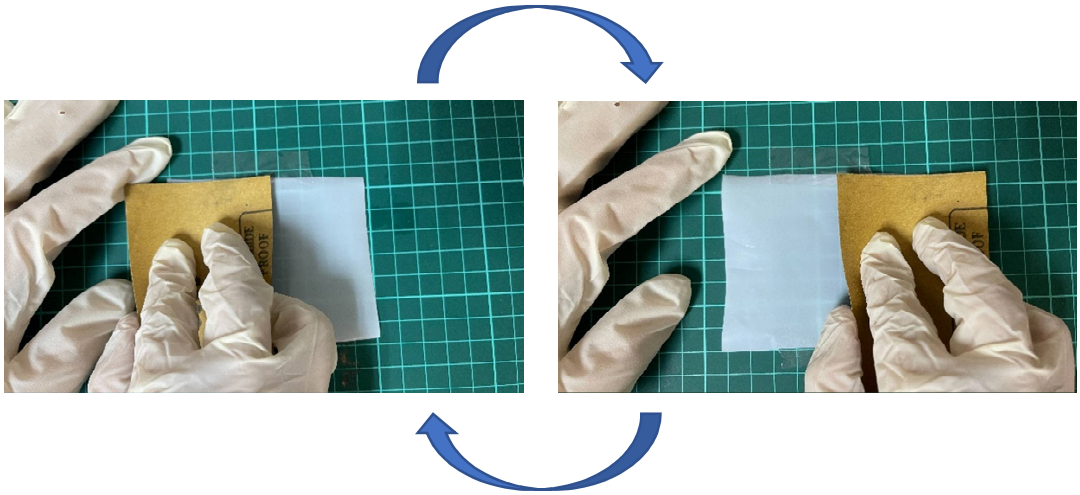

Figure S2. The method of use sand papers to grind the surface of PTFE. Fix the PTFE and repeat the grinding action in parallel direction about 20 cycles.

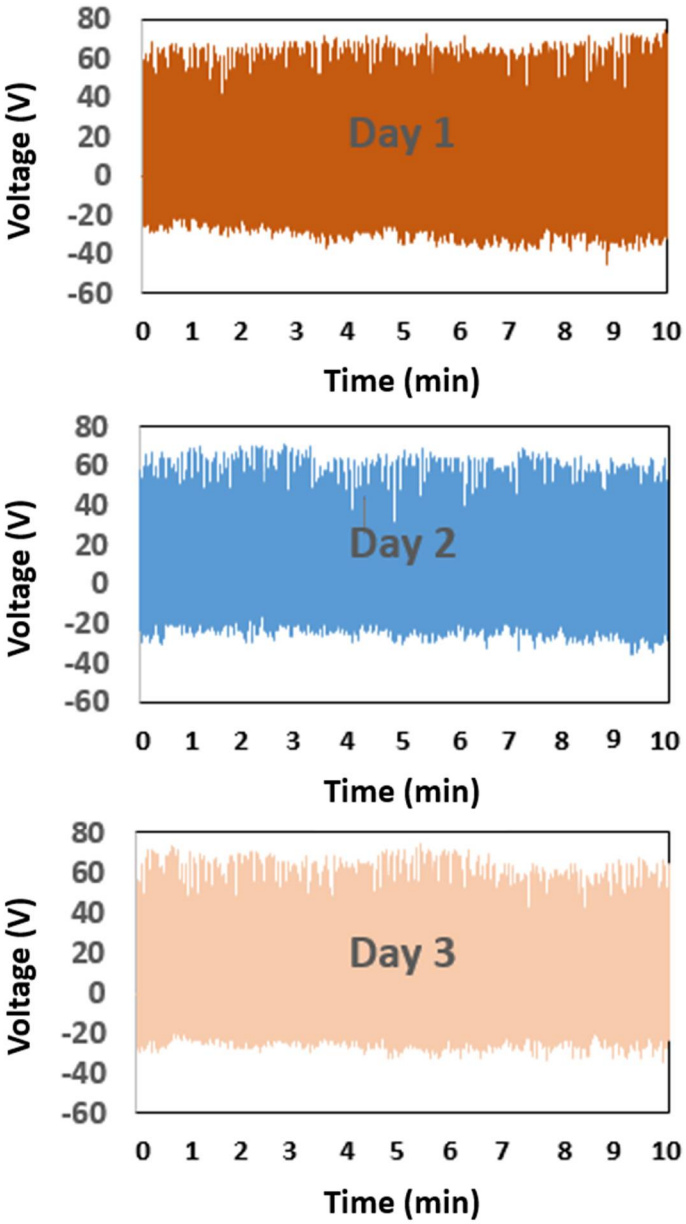

Figure S3. Long term Stability tested of PENG for three days. The output voltages of the PENG operating at 1Hz for 10 min per day.

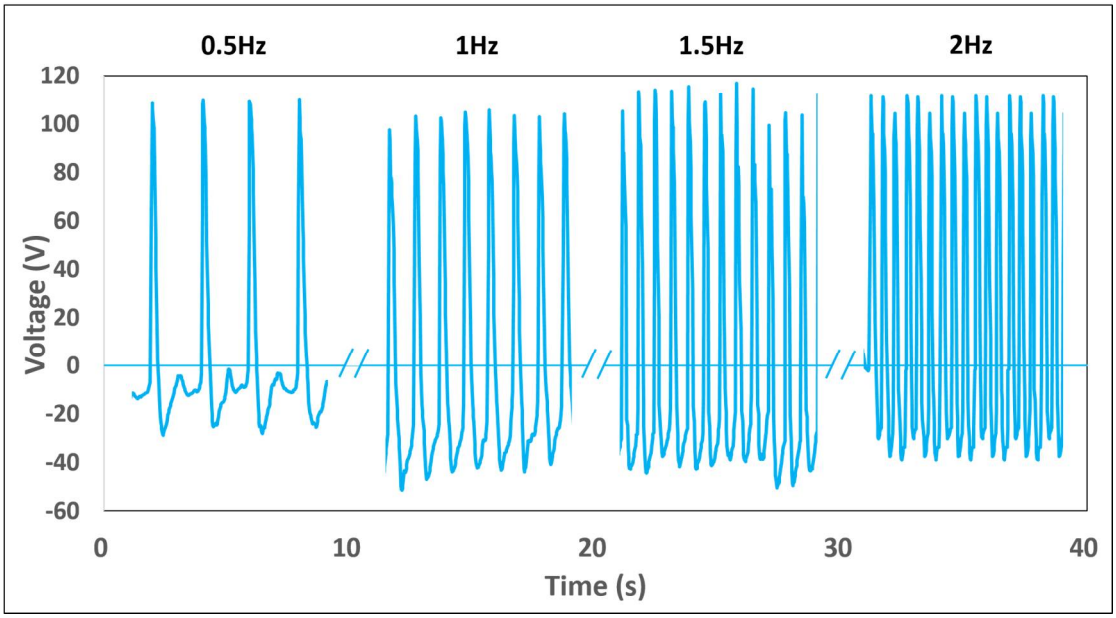

Figure S4. Frequency test**.** The output of the NG with the increase in driving frequency, showing its good stability.

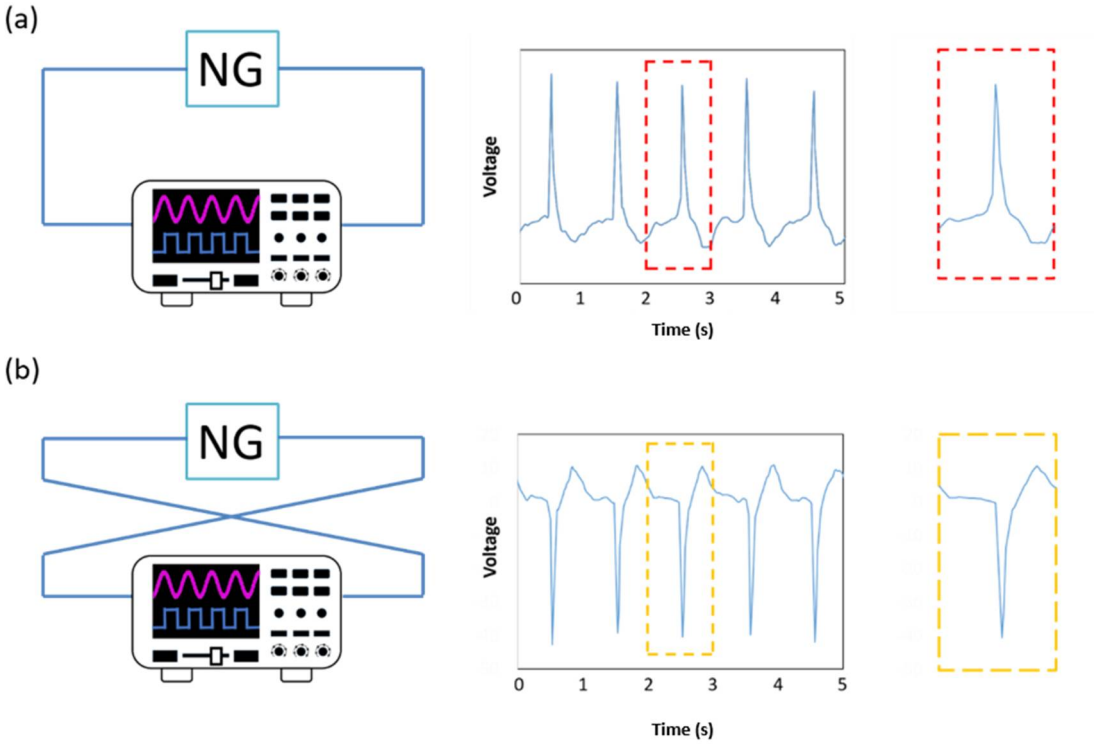

Figure S5. Validated tests of polarity. The peak voltage was obtained by (**a**) the forward connection and (**b**) reverse connection.

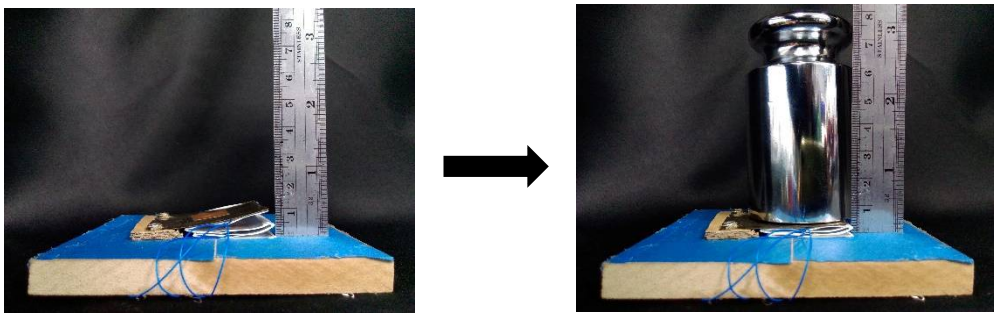

Figure S6. Schematic diagram of the experimental method for the applied force-voltage output diagram.

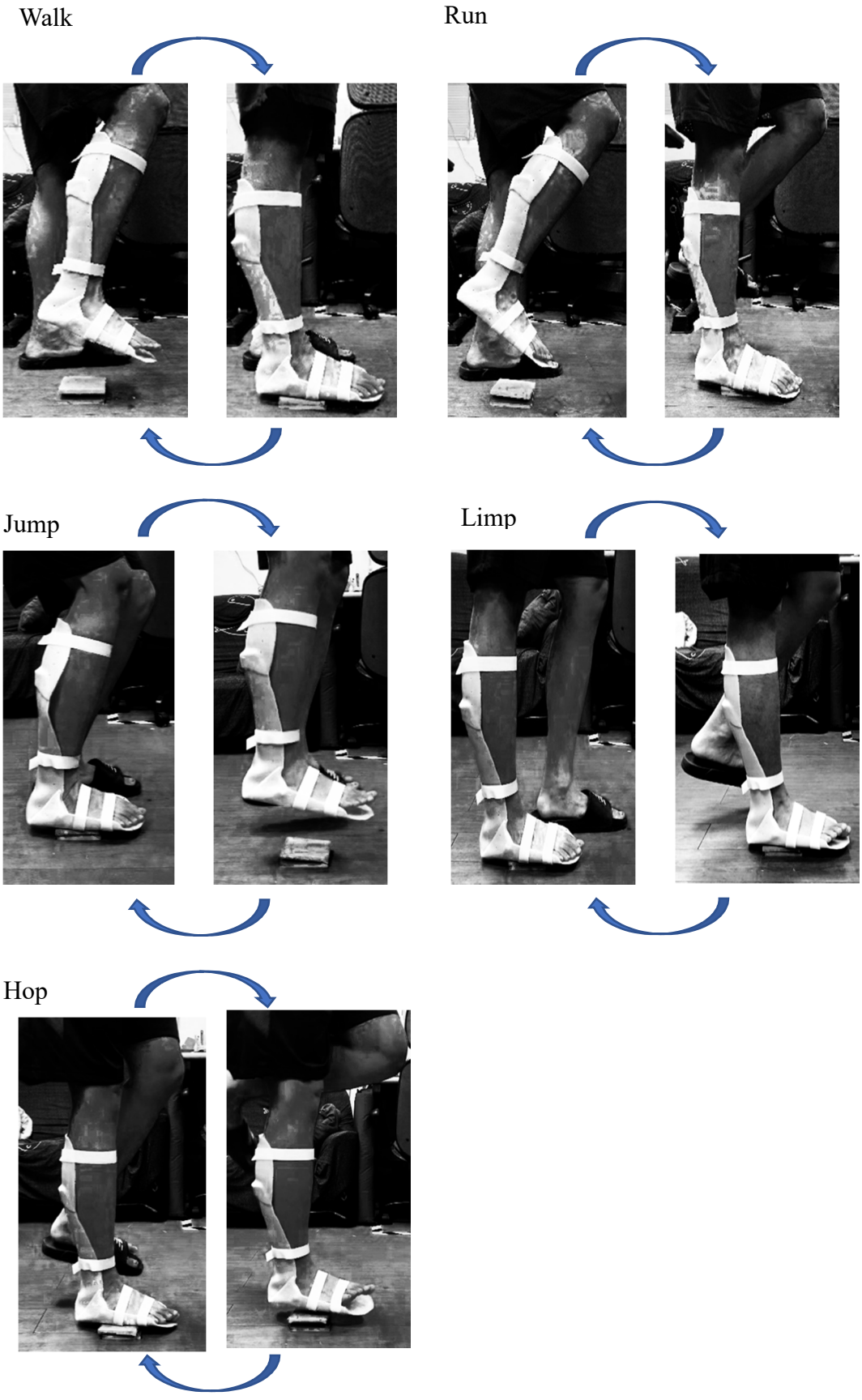

Figure S7. Isolated motion schematic image of five different action (walk, run, jump, limp, hop) in rehabilitation device application.

Table S1. Tester Information.

age	**weight**	**height**	**gender**
23 y	56 kg	169 cm	male
24 y	85 kg	183 cm	male
23 y	48 kg	162 cm	female