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Comparison of Electronic and Mechanical Handgrip Devices in Lowering Blood Pressure

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Abstract

Hypertension causes billions of deaths per year (Millar et al., 2013). The Zona Plus™ is an expensive tool designed to lower blood pressure (BP) using isometric exercise. This exercise may be achieved using a less expensive Handgrip Dynamometer. **PURPOSE:** The purpose of this research is to determine if the Zona or Handgrip Dynamometer is more efficient at lowering BP and most cost effective for patients. **METHODS:** Twenty subjects used the Zona and twenty subjects used the dynamometer three times per week for six weeks. BP was taken once per week prior to the treatment. A maximum voluntary contraction (MVC) was recorded for each hand before every treatment. Participants were required to hold the handgrip at 30% of their MVC for four two-minute contractions. A paired samples T test was used to analyze changes in participants' BP. A one-way ANOVA was used to compare the BP changes between the Zona and the Handgrip. **RESULTS:** The results indicated no significant changes in participants' pre- and post- treatment after training when using the Zona for either stolic ($p=0.225$) or diastolic BP ($p=1.000$). There was also no significant difference in participants' post treatment systolic BP ($p=0.199$), however, the post treatment for diastolic increased significantly ($p=0.027$ BP between those that used the Zona Plus™ and Handgrip Dynamometer. **CONCLUSION:** Though the Dynamometer is more cost efficient, neither the Zona nor the Dynamometer resulted in lowered BP.