Comparison of Electronic and Mechanical Handgrip Devices in Lowering Blood Pressure

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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.