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9-4-2014

# Comparison of Electronic and Mechanical Handgrip Devices in Lowering Blood Pressure

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### Recommended Citation

Webb, Katie; Musarra, Brandon; O'Keefe, Megan; Strunk, Shana; Perkins, Courtney; Sparks, Kenneth E.; Kullman, Emily; and Lam, Eddie T.C., "Comparison of Electronic and Mechanical Handgrip Devices in Lowering Blood Pressure" (2014). *Undergraduate Research Posters 2014*. 38.

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# *Comparison of Electronic and Mechanical Handgrip Devices in Lowering Blood Pressure*

College of Education and Human Services

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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.