TACSM Abstract

Effectiveness of Isometric Handgrip Devices for Assessing Blood Pressure

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ABSTRACT

Many health issues are associated with high blood pressure (e.g., arteriosclerosis and atherosclerosis). Some suggestions to control high blood pressure include to adopt an active lifestyle (e.g., maintain physical activities a few times a week) and to pay attention to the daily diet (e.g., minimize salt intake). However, a few studies found that the systolic blood pressure of the participants dropped significantly by using the CardioGrip (Kelley & Kelley, 2010; McGowan, Visocchi et al., 2006; McGowan, Levy et al., 2006; Taylor, McCartney, Kamath, & Wiley, 2003). These studies showed that individuals using the device for a month or so vary from a 55 mm Hg drop in systolic pressure to the rare but small increase. PURPOSE: The purpose of this study was to compare the effects of two isometric handgrips: (a) the Zona Plus (the latest model of the CardioGrip) and (b) the GoFit Adjustable Hand Grip on the blood pressures of the participants over a 6-week period. METHODS: Participants (N=28) were randomly provided with either one of the hand grip devices and were asked to do the following: (1) squeeze the device with the right hand and hold it for two minutes, (2) rest for one minute, (3) squeeze the device with the left hand and hold it for two minutes, (4) rest for one minute, and (5) repeat steps 1 to 3 once more. Participants were required to do the above steps on multiple occasions (3 days a week for 6 weeks) and their blood pressures were measured every two weeks. Mixed-design 2×2 repeated measures ANOVAs were utilized to examine the effects of the handgrip device and blood pressures. RESULTS: No significant interaction was found in systolic pressure ($F_{1,26} = 2.14$, $p>.05$). However, both the main effects of handgrip device ($F_{1,26} = 5.06$, $p<.05$) and blood pressure ($F_{1,26} = 8.19$, $p<.01$) were significant. On the other hand, there was no significant interaction in diastolic pressure ($F_{1,26} = 0.29$, $p>.05$) or main effect of the handgrip device ($F_{1,26} = 0.03$, $p>.05$). However, significant blood pressure main effect was found among the participants ($F_{1,26} = 7.10$, $p<.05$). CONCLUSION: Both handgrip devices are effective in lowering the systolic and diastolic blood pressures of the participants over a 6-week period. Interestingly, though both devices provide similar benefits in lowering blood pressures, there is a big difference in the cost between the Zona Plus ($400) and the GoFit Hand Grip ($10).