

# The Effects of Holographic Technology on Resting Heart Rate in Division I Football Players

Joshua L. Hampton, B.S., M. S. SFM Candidate, Richard P. Shaughnessy, M.S., C.S.C.S.,  
Dr. Gayle Bush, PhD, Ashley E. Adkins, B.S., M. S. SFM Candidate  
Troy University

## Introduction

Holographic technology is an emerging field in the world of sports. Today, several universities currently utilize holographic technology within wristbands to improve athletic performance. The Corporation produces a line of hologram products created to provide various benefits to consumers (Performance Wristband 2011). These products utilize the principles of Traditional Chinese Medicine (TCM) to relay performance and health benefits to the user. Porcari et al. indicated performance jewelry such as Miracle Balance wristbands are among the latest products to promote athletic performance (2011). The Miracle Balance holographic wristbands operate through interaction with meridians to better resonate the flow of energy throughout the body (Performance Wristband 2011). Ahn noted the acupuncture community regards those acupuncture pathways as conduit for electrical signals (2008). Proposed benefits include improved balance, better sleep, and increased energy (Slim disc package, 2011). Previous studies have suggested a relationship between holographic wristbands and a reduction in resting heart rate (RHR) as well as blood pressure. The purpose of the first segment of research is to determine if a relationship exists between wearing the holographic wristband and a reduction of RHR and/or blood pressure in Division I football players after completing a 8-week strength and conditioning program.



## Methods

### Participants

Participants ages 20-23 were recruited from the Troy University football team. 59 Division I Football Players volunteered to participate in this study. Participants completed an informed consent, health history, pre-test

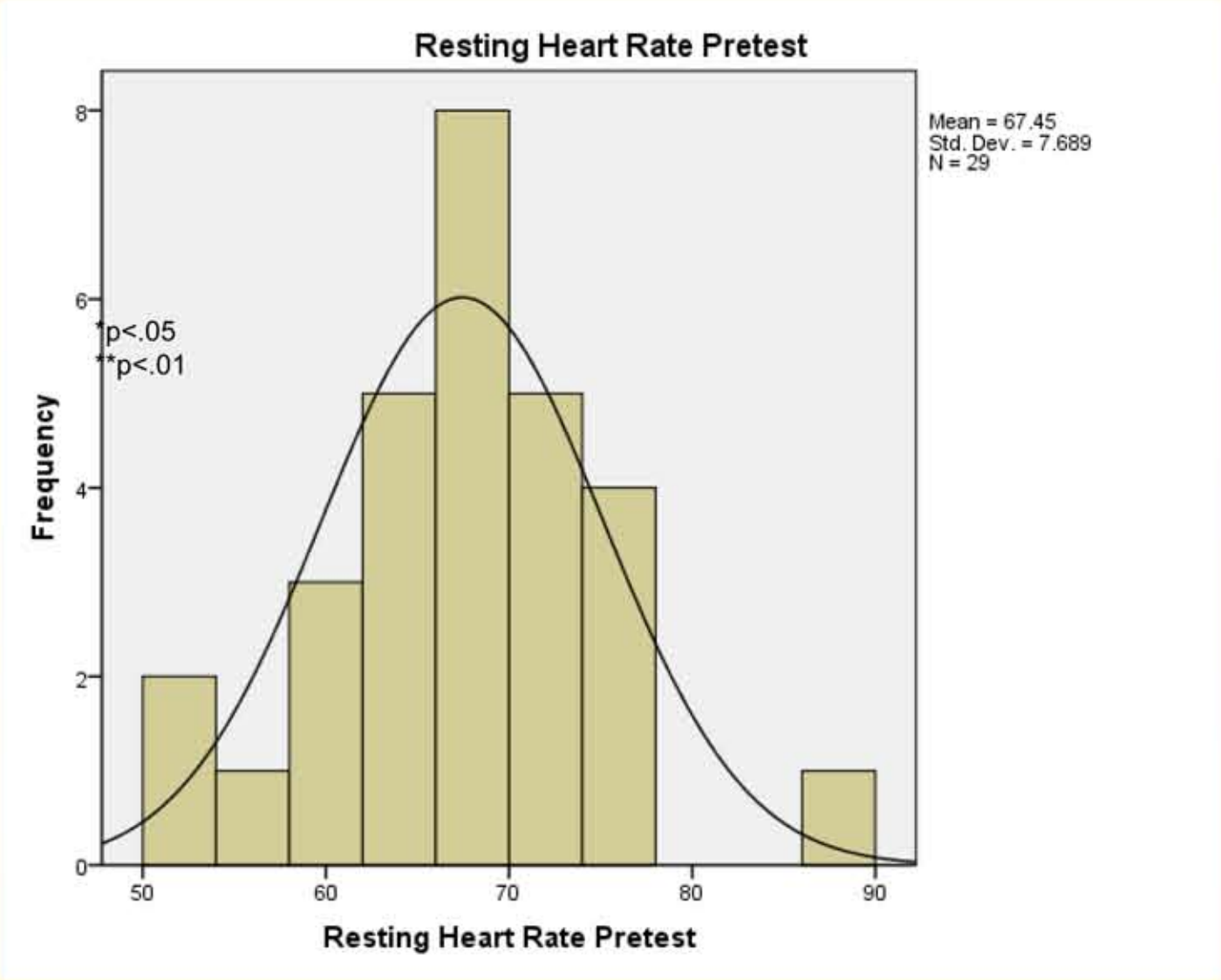
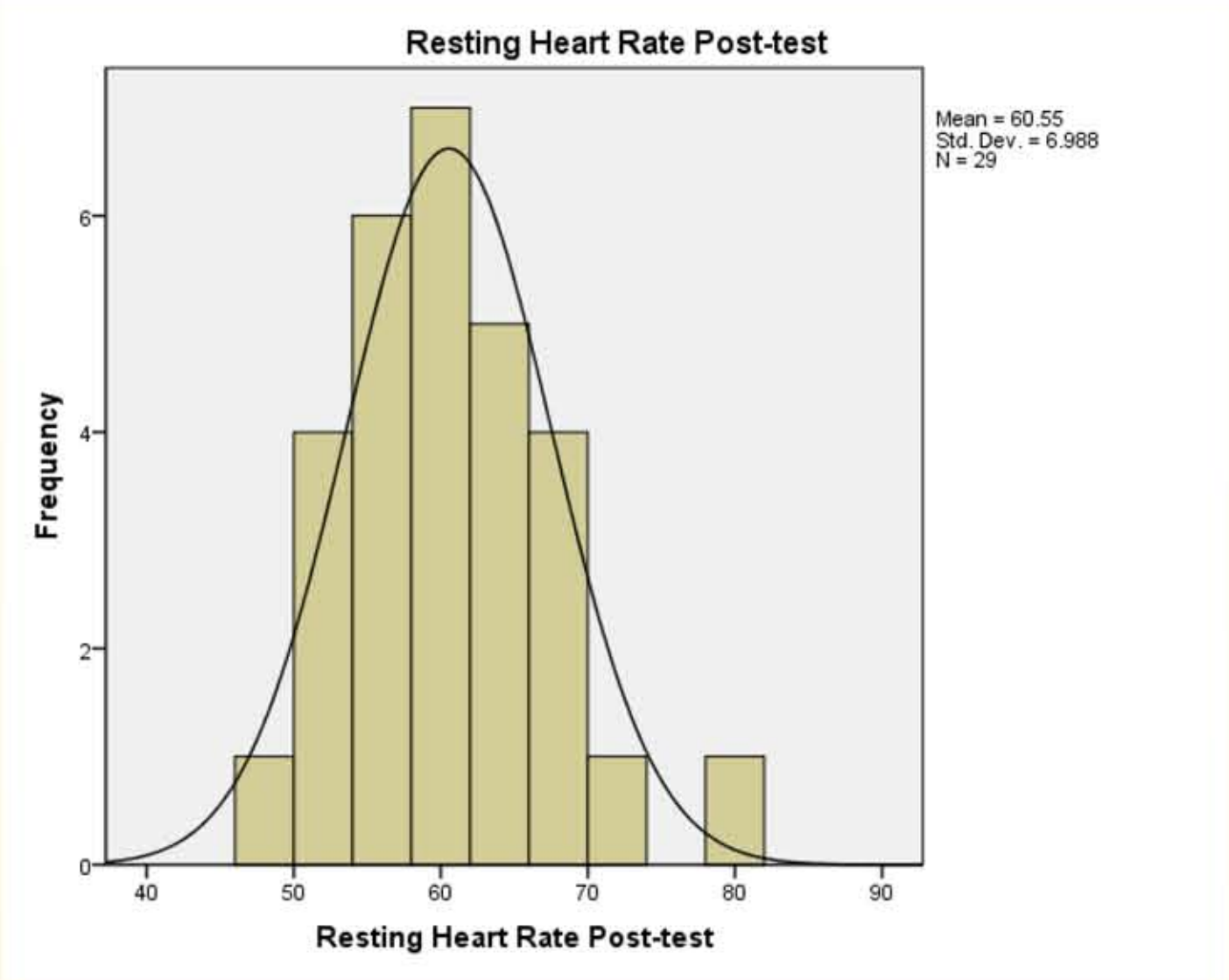
### Methods

A double-blind format was utilized to assign the experimental and control groups. Prior to implementation of the wristbands, participants were tested on Resting Heart Rate to determine baseline values by manually recording their radial pulse. A total of 29 participants were assigned the authentic holographic wristband and 29 participants were assigned a placebo wristband to complete their respective 8-week off-season strength and conditioning program. Post-program, participants were again tested on Resting Heart Rate at the radial pulse while wearing their respective wristbands to determine any possible improvements in cardiovascular health. The research hypothesis used to guide the study was “Compared to the placebo group, individuals wearing the programmed bands will exhibit a lower Resting Heart Rate”.

## Results

### Group One

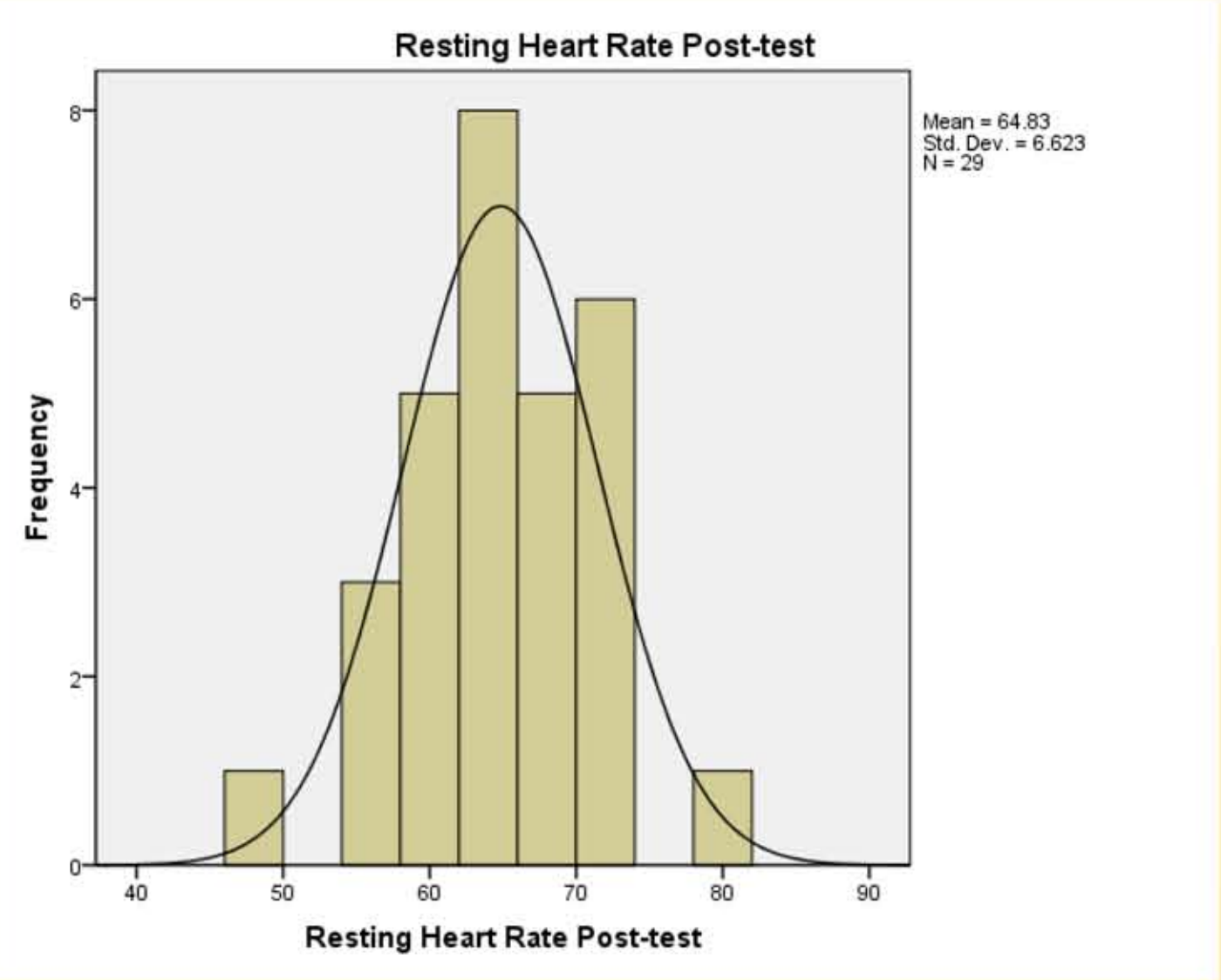
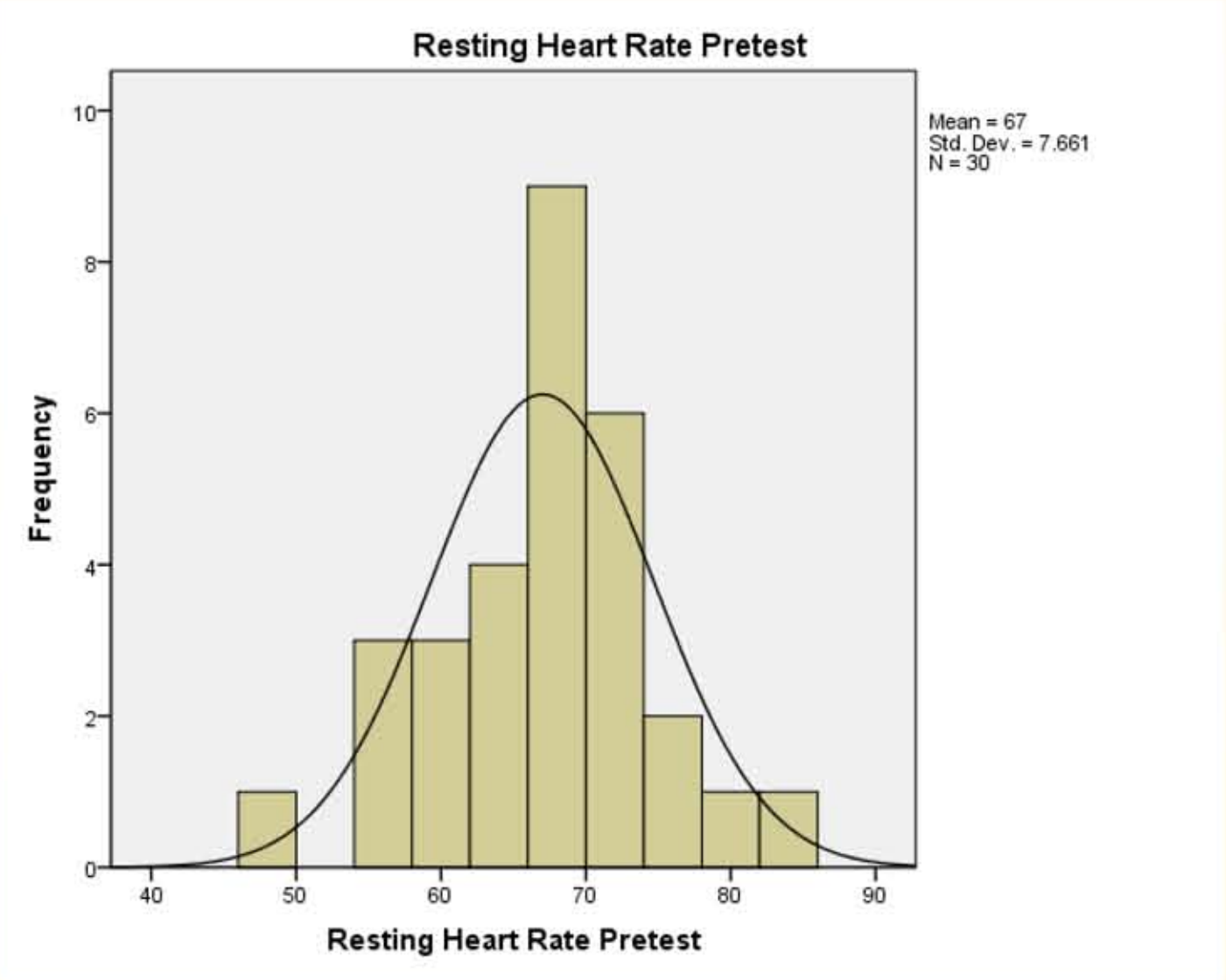
The experimental group that received the programmed wristbands designed to explore the affect of the holographic technology on Resting Heart Rate.



## Results

### Group Two

The control group that received the placebo wristband.



## Conclusion

### RESTNG HEART RATE RESULTS TABLE

The experimental and control groups each had 29 participants at pre and post tests. Pre and post mean change was calculated with a paired samples t-test for each group. Even though the experimental group showed more change than the control, both had a statistically significant improvement with lower resting heart rates (p>01). A one-way anova analysis was employed to find the between group differences between the experimental group that wore the programmed wristbands, and the control group that wore the placebo wristbands. At pretest, there was no significant difference between the groups mean resting heart rate. But at post-test there was a statistically significant difference between the groups at the p<.05 level (p=.020). The one-way anova analysis showed the mean change of the experimental group (6.89 bpm lower rhr) was statistically significant as compared to the control group (2.55 bpm lower rhr). The results suggest the application of holographic wristbands have a significant impact in lowering resting heart rate. Recommendations for future studies include: larger sample size, various sports teams, and mixed gender populations.

### RESTNG HEART RATE RESULTS TABLE

Resting Heart Rate	Tests						
	N Pre/post	Pretest mean	Post-test mean	Mean change	Post-test p value	Between group pretest p value	Between group post-test p value
Experimental Group	29 / 29	67.45	60.55	6.89	.000**	.973	.020*
Control Group	29 / 29	67.38	64.83	2.55	.000**		

\*

## References

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