

# The Effect of Static versus Dynamic Stretching Programs on the Lower Body Power Assessments of the Broad and Vertical Jumps on Male Collegiate Football Players

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## Abstract

Football is a sport that requires power to be successful. The broad and vertical jumps are used for talent identification as it relates to power. Increases in range of motion should increase power and therefore better performance on the broad and vertical jumps. This study analyzed dynamic versus static stretching and its effects on jumping performance, determining which had a greater positive effect on performance. This study used skill players from the Gardner-Webb University football team. The participants participated in the study during their off-season training (15 weeks), but their respective stretching protocols were implemented into the training. To determine which stretching protocol was more beneficial, the study looked at percentage of change.

## Purpose

- The purpose of this study was to determine which stretching protocol would be more beneficial to power and jump performance.
- It was hypothesized that static stretching that occurs during an off-season workout will lead to greater increases in power assessed by the broad and vertical jumps.

## Selection Criteria

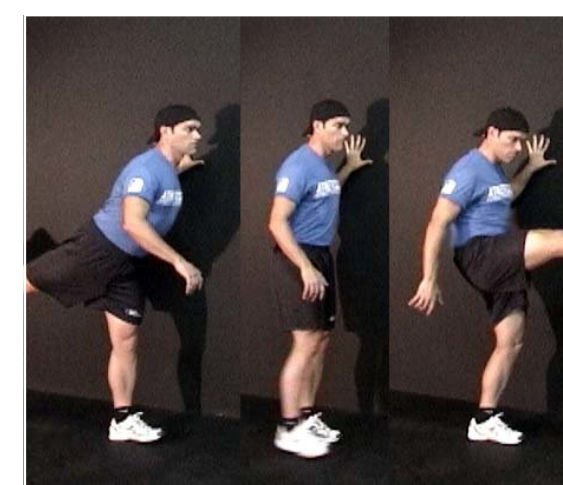
- Skill Players
  - Runningbacks, Wide Receivers, Defensive Backs
  - Players are known to be explosive
  - Lowers the chance of ability being the limiting factor in jump performance
  - Similar lifts
- No Hospitalization for Lower Body Injury
  - Mobility (screws, scar tissue, lingering issues, bony blocks, etc.)
  - Performance (ability limited, rehabilitation process)
- Completion of at least One Year of Winter/Spring Collegiate Training
  - Training age can affect performance
  - Unfamiliarity

## Methods

Time Period	Action
Selection	Volunteers from team meeting
Pre-Test	Questionnaire, familiarization to jumps, range of motion assessments, initial jump performances
Intervention	Performance of respective stretching protocol, implemented into training program
Post-Test	Range of motion assessments, final jumps

## Procedures

### Dynamic Stretching



Leg Swings  
Active Dorsi- and plantar flexion  
High Knees

### Static Stretching



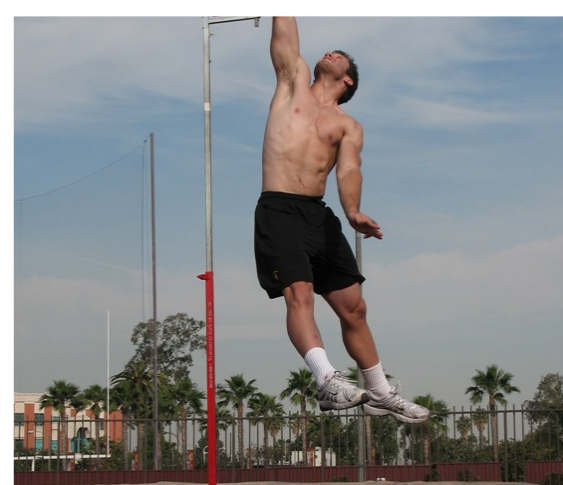
Hamstring Stretch  
Calf Stretch  
Hip Flexor Stretch

### Broad Jump



Jump for horizontal distance measured by tape measure  
Three jumps performed

### Vertical Jump



Jump for vertical distance measured by portable force plate  
Three jumps performed

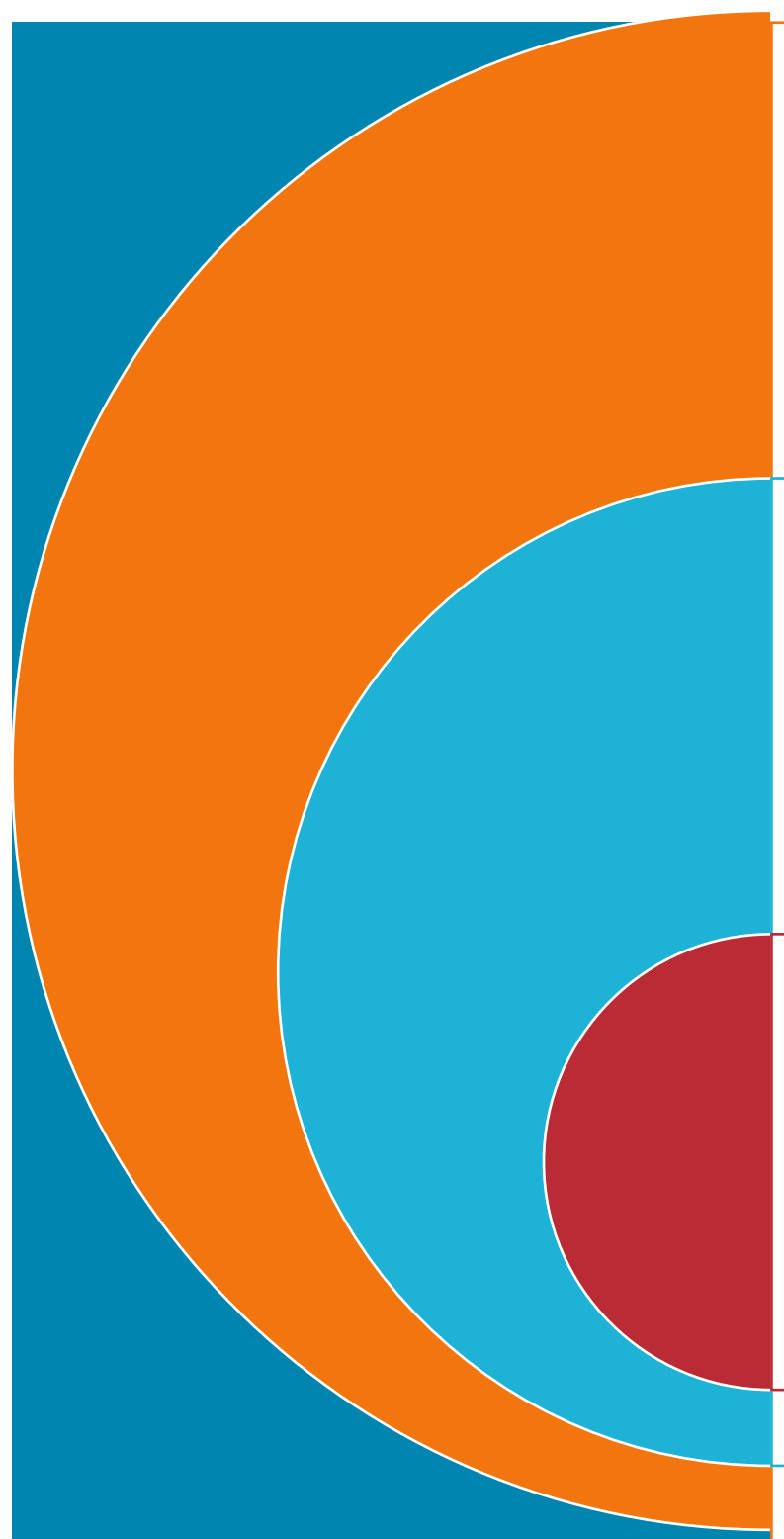
## Data Analysis

### Descriptive Statistics

Independent Groups t-Tests: broad jump and percentage of change, vertical jump and percentage of change

Pearson Product-Moment Correlation: total range of motion and sum of jump performance

## Discussion



### Potential Applications

- Off-season Training for Collegiate Athletes
- Mobility and Jump Performance

### Limitations

- Mass gain from resistance training
- Small Sample Size
- Genetic Ability

### Further Research

- Expanding the current findings
- Non-football athletes

## Sample Programming

### Monday (Dynamic Group)

- Front Squat 5x5 superset with 3x10 leg swings

### Monday (Static Group)

- Front Squat 5x5 superset with 3x30s hamstring stretch

### Wednesday (Dynamic Group)

- 5x3 Bench Press superset with 3x10 active dorsi-and plantar-flexion

### Wednesday (Static Group)

- 5x3 Bench Press superset with 3x30s calf stretch

### Friday (Dynamic Group)

- Back Squat 5x5 superset with 3x10 high knees

### Friday (Static Group)

- Back Squat 5x5 superset with 3x30s hip flexor stretch

## Acknowledgments

I would like to thank the members of the Gardner-Webb Football team and coaching staff for allowing this study to take place. Also, I would like to acknowledge the Gardner-Webb Athletic Performance staff for use of their facilities and implementation of the study into their off-season training.