

# GENDER DIFFERENCES IN PERFORMING CONSTRAINED AND UNCONSTRAINED UPPER QUARTER Y-BALANCE TESTS

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## Introduction

- ❖ The Upper Quarter Y-Balance Test (UQYBT) is a functional mobility test that evaluates unilateral upper body function to identify risk factors for injury or poor performance.
- ❖ The reliability of the UQYBT as an instrument to assess shoulder girdle function has been established.
- ❖ Yet, it is not clear the contribution of thoracic rotation range of motion (ROM) and upper body strength to the performance in constrained and unconstrained UQYBT within gender.

## Purpose

- ❖ To investigate the relation between trunk mobility and upper body strength with constrained and unconstrained UQYBT reach scores within gender.

## Methods

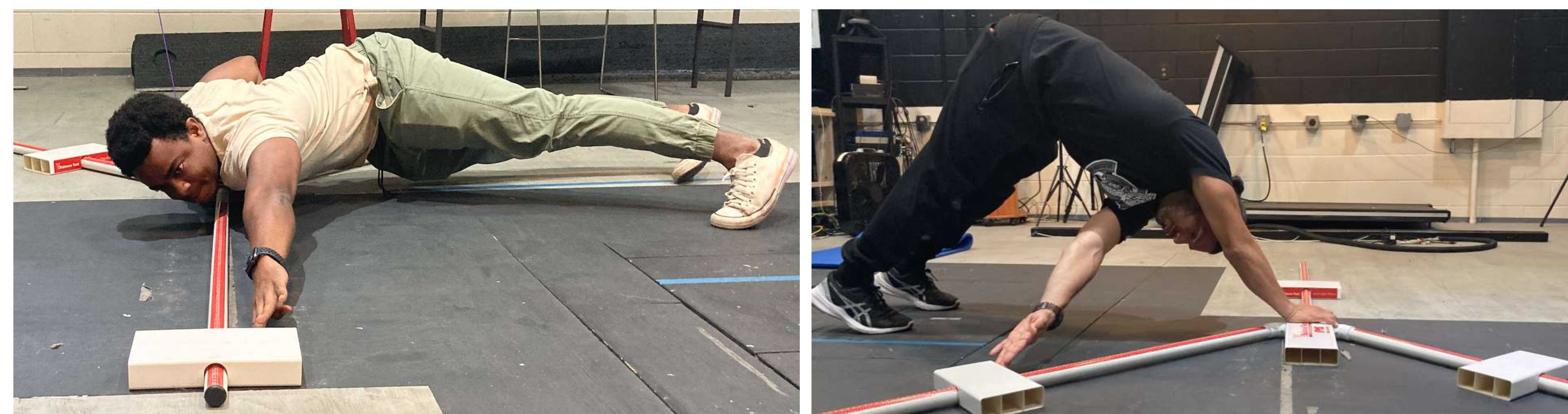
- ❖ 14 male and 14 female college students participated in two testing sessions.
- ❖ 1<sup>st</sup> session: participants performed maximal pushup test and maximal seated trunk rotation mobility test.
- ❖ 2<sup>nd</sup> session: consisted of two UQYBT protocols, constrained (CUQYBT) with straight supporting arm and no hip flexion, and unconstrained (UCUQYBT) in which elbow and hip flexion were allowed.
- ❖ Participants performed three reaches in the medial (MR), inferolateral (IR), and superolateral (SR) directions in each protocol.

## Methods (Cont.)

- ❖ Maximal relative reach scores in each direction were identified.
- ❖ Paired t-tests were performed to compare the scores per gender.
- ❖ Maximal trunk rotation ROM and the maximal pushup score within gender were correlated with the reach scores for each UQYBT protocol, using Pearson correlation. Significance levels were set to 0.05.

## Results

- ❖ Female participants performed 30±8 pushups and trunk rotation of 135±26 deg, whereas male did 50±14 pushups and trunk rotation of 136±14 deg.
- ❖ Males had higher significant reach scores in the UCUQYBT than CUQYBT (p-values<0.001), for both the dominant and non-dominant for all 3 reaches:
  - ❖ MR dominant (102±12.2 vs 87±9.1 cm), non-dominant (104±11 vs 88±6.9 cm); IR dominant (101±11.5 vs 71±8.6 cm), non-dominant (101±12.1 vs 71±9.2 cm); SR dominant (67±10.4 vs 59±10.5 cm), non-dominant (71±11.2 vs 62±10.7 cm).



Unconstrained UQYBT Medial Reach      Unconstrained UQYBT Inferolateral Reach

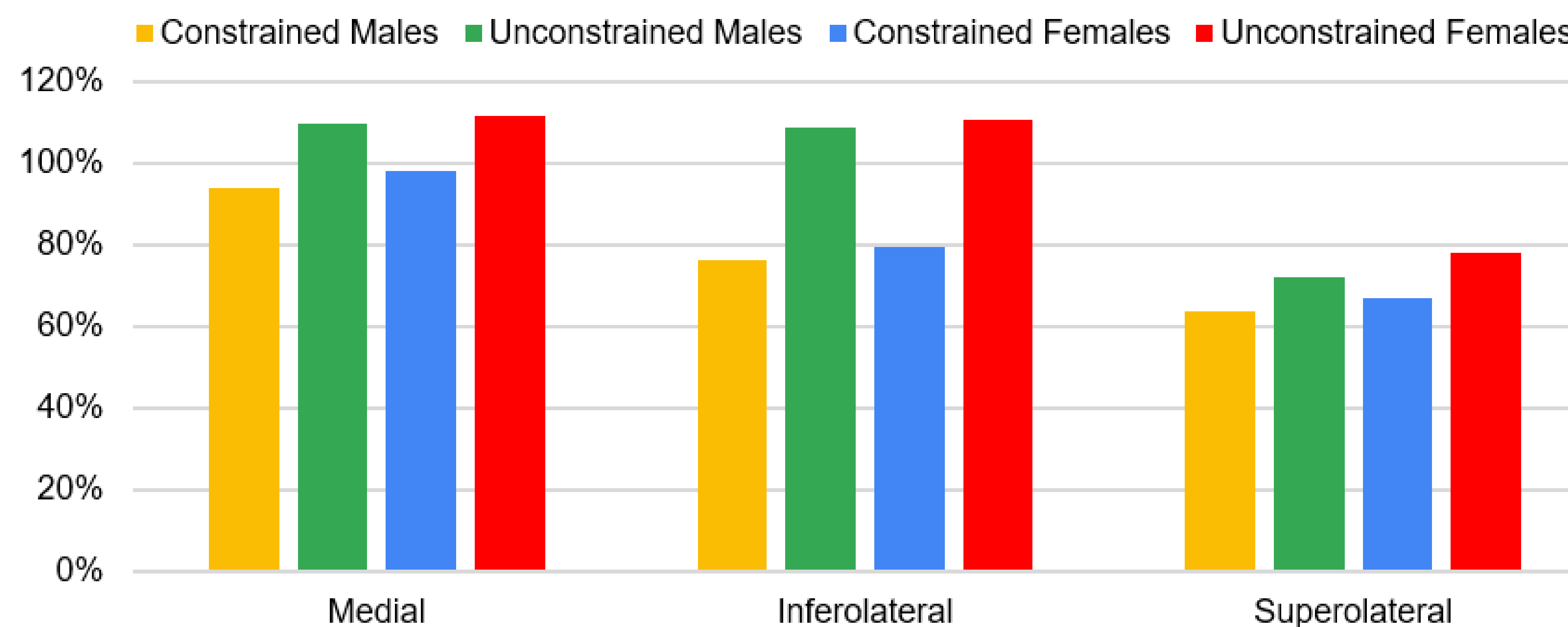


Figure 1. Reach Scores Differences in Males and Females.

## Results (Con.)

- ❖ Similar was observed in females for the dominant side, UCUQYBT had higher reach scores than CUQYBT (p-values<0.001):
  - ❖ MR (94±8.5 vs 82±7.5 cm); IR (93±9.7 vs 67±8.3 cm); SR (65±10.7 vs 56±10.7 cm).
- ❖ Whereas in the non-dominant side the same was observed only in IR (93±7.6 vs 67±1 cm), p-values<0.05.
- ❖ Pearson correlation identified moderate positive correlation (r=0.54, p-value<0.05) between trunk ROM and IR in the UCUQYBT for dominant side and strong correlation (r =0.71, p-value<0.01) for non-dominant side, in males.
- ❖ No significant correlations between trunk ROM and reach scores were observed for females.

## Conclusion

- ❖ The main finding of this study established the substantial difference in reach scores between CUQYBT and UCUQYBTs for both genders.
- ❖ Moreover, it seems that greater trunk mobility is associated with superior UQYBT reach scores in males, whereas greater trunk mobility in females did not influence performance.

## Practical Application

- ❖ Sport practitioners should pay close attention to the protocol in place when testing upper body functionality with the UQYBT and when comparing reach scores from various sources.