

# Y Balance Test - Upper Quarter Research

## Reliability, Baseline and Return to Sport Testing

Researchers have found the Y Balance Test Upper Quarter to have good reliability with ICC coefficients ranging from 0.80 to 1.0 for test-retest as well as intrarater reliability.<sup>1-4</sup> In addition, multiple studies found there was no difference in YBT-UQ performance between dominant and non-dominant limbs in professional and collegiate baseball players (including pitchers), collegiate swimmers, and the general population.<sup>1-4</sup> This indicates that YBT-UQ performance is a good measure in return to sport testing when rehabilitating shoulder and arm and back injuries or getting baseline measurements. Westrick et al<sup>4</sup> stated:

*"Similarity on the UQYBT between dominant and non-dominant limbs indicates that performance on this test using a noninjured UE may serve as a reasonable measure for "normal" when testing an injured UE."*

## A Unique Measure of UE CKC Ability

When compared to other upper extremity tests such as the Closed Kinetic Chain Upper Extremity Stability Test (CKCUEST) and the One Armed Hop Test researchers found that the YBT-UQ requires stability at the person's limit of stability in a one-arm push up position. The stability required during the YBT-UQ is unlike planks, side bridges, trunk flexor/extensor endurance tests and the CKCUEST. Westrick et al<sup>4</sup> reported:

*"There was a significant fair to moderate association between performance on the UQYBT and the CKCUEST, LTET, and push-ups. These results suggest the tests are interrelated but do not necessarily assess equal components of UE CKC ability."*

## Injury Prediction

A military study used the Y Balance Test Upper Quarter as part of an injury prediction algorithm. The researchers found prior history of injury, prior work restrictions, lower perceived recovery from prior injury, asymmetrical ankle dorsiflexion, decreased composite score or asymmetrical performance on the YBT-LQ or YBT-UQ, and pain with Functional Movement Screen or hop testing were associated with time loss injury in soldiers over a year period.

Thus, the Y Balance Test Upper Quarter is a reliable and valid means to determine a person's upper quarter functional symmetry for intake or return to sport/activity testing. Similar to the Y Balance Test Lower Quarter, the composite score needs to be compared to the age, gender, and sport/activity cut points which are found in the Move2Perform software.

## References

1. Butler R, Arms J, Reiman M, et al. Sex differences in dynamic closed kinetic chain upper quarter function in collegiate swimmers. *Journal of athletic training*. 2014;49(4):442-446.
2. Butler RJ, Myers HS, Black D, et al. Bilateral differences in the upper quarter function of high school aged baseball and softball players. *International journal of sports physical therapy*. 2014;9(4):518-524.
3. Gorman PP, Butler RJ, Plisky PJ, Kiesel KB. Upper Quarter Y Balance Test: reliability and performance comparison between genders in active adults. *Journal of strength and conditioning research / National Strength & Conditioning Association*. 2012;26(11):3043-3048.
4. Westrick RB, Miller JM, Carow SD, Gerber JP. Exploration of the Y balance test for assessment of upper quarter closed kinetic chain performance. *International journal of sports physical therapy*. 2012;7(2):139-147.

# Verbal Instructions For The Upper Quarter Y Balance Test

The following is a script to use while administering the Upper Quarter Y Balance Test. For consistency throughout all testing this script should be used during each test. Equipment needed: Y Balance Test kit and cloth tape measure

## Instructions

Please let me know if there is any pain while performing any portion of the test.

Please remove your shoes while performing the test.

Place your \_\_\_\_\_ hand on the center of the stance plate with your thumb just behind and parallel to the red starting line with the other hand on top of the reach indicator.

While maintaining the \_\_\_\_\_ hand on the platform, push the reach indicator in the red target area as far as possible with the opposite hand out to the side, then under and across, and finally over and across without resting between directions.

The reach hand must maintain contact with the reach indicator on the target area while it is motion (i.e. cannot shove the reach indicator).

Do not use the reach indicator for stance support (i.e. don't place hand on top of reach indicator).

Return the reach hand to the starting position under control.

Repeat two more times and then use the opposite arm in the same three directions.

Do you understand the instructions?

Have the participant perform each movement three times before alternating the supporting arm in the same direction.