angle ($M_{diff}$=4.81, $SE$=.51, $t_{268}$= 9.42, $p$=.000, 95% CI: 3.81 – 5.82) than non-ballet students. In contrast, ballet students had lesser mean than non-ballet students in tibiofemoral angle tibiofemoral angle ($M_{diff}$=-1.05, $SE$=.31, $t_{268}$=-3.39, $p$=.001, 95% CI: -1.64 – -0.44), prone rearfoot angle ($M_{diff}$=-8.65, $SE$=.56, $t_{2254.04}$=-16.16, $p$=.000, 95% CI: -9.71 – -7.60), tibial varum ($M_{diff}$=-2.52, $SE$=.23, $t_{1559.90}$=-10.98, $p$=.000, 95% CI: -2.96 – -2.06), hip anteversion ($M_{diff}$=-11.47, $SE$=.72, $t_{1566.35}$=-15.87, $p$=.000, 95% CI: -12.90 – -10.04), and navicular drop ($M_{diff}$=-4.45, $SE$=.42, $t_{182.22}$=-10.44, $p$=.000, 95% CI: -5.29 – -3.61).

**Conclusions**
Significant results from the alignment indicate that ballet movement and turn-out position may suggest changes in LEA, therefore, clinicians should consider these aspects while preventing and treating dancer injuries.

### Abstract

**Background**
The Lower Quarter Y-Balance Test™ (LQYBT) is commonly used to determine risk of injury or readiness for return to sport. However, clinicians conduct the assessment with differing test protocols potentially altering test outcomes.

**Objective**
To determine if differences in reach distances, composite score, and limb symmetry exist between LQYBT testing protocols.

**Design**
Prospective cohort study.

**Setting**
Controlled laboratory research.

**Participants**
48 non-injured participants: 32 females, 16 males (21.4±0.3 years, 170.6±9.2 cm, 72.9±14.2 kg).

**Interventions**
Participants completed four testing protocols including barefoot with hands fixed at their hips, barefoot with hands free to move, shod with hands fixed at hips, and shod with hands free to move.

**Main Outcome Measures**
Maximum reach distance was recorded for each limb in the anterior, posteromedial, and posterolateral directions. Limb length composite scores and limb symmetry index (LSI) were calculated for each LQYBT assessment.

**Results**
No statistically significant differences were observed in reach distances, composite scores, or LSI between shod and barefoot protocols. Significant differences were observed in reach distances ($p=0.00$) and in limb length composite scores (right limb $p=0.00$, left limb $p=0.00$) between protocols comparing hands fixed at hips and hand free to move, although no differences were observed in LSI between these conditions when participants were shod ($p=0.27$) or barefoot ($p=0.49$).

**Conclusions**
No differences were observed when participants wore athletic shoes or were barefoot during assessments. Reach distance and limb composite score differences were present when participants were allowed to move their arms and counterbalance their movement during the LQYBT, although no differences in LSI was observed. Results suggest if LSI is used to make clinical decisions, any LQYBT testing protocol can be used. However, testing protocols could influence clinical decisions if reach distances or composite scores are used to make patient care decisions.