Background Previous research has shown that muscle imbalances may be an important risk factor for lower limb injuries in runners. No studies have evaluated hip musculature imbalance in sprinters. Identifying pre-season strength and imbalances of the hip gluteal musculature can have an important impact on injury prevention within this population.

Objective To describe the muscle performance and imbalances between limbs related to the hip extensor, external rotators and abductors in sprinters.

Design Athletes were assessed during the pre-season period.

Participants All participants (n=69) were federated at the Spanish athletics federation and involved in high-level track and field training sessions (minimum 5 sessions per week) for at least the last 3 years. All of them had undertaken similar training demands in the past.

Interventions We measured the maximum number of repetitions without compensatory movements of each leg during the straight knee bridge exercise (test 1), hip external rotation in prone (test 2) and hip abduction in side-line (test 3). Data analysis and comparison in between limbs were calculated.

Results No significant differences in between limbs were observed in all three tests (p<0.005). The assessment of the hip external rotators (test 2), have shown the worse performance among this population with 30.8% of the athletes on the dominant limb and 35.3% on non-dominant limb not being able to perform even 1 rep without compensation.

Conclusions We did not observe significant imbalances in between limbs. The hip external rotators muscles demonstrated the worst performance with a high number of athletes not being able to perform the test. The weakness of the external rotators and compensations associated with it can have several different impacts on the lower limb function during running, therefore possible importance for injury prevention strategies.

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Background Ballet dancers experience changes in body alignment in repeated practice to achieve the ideal turn-out position, and they have different alignments from that of the non-ballet dancers. However, no quantitative data have been reported to support their differences in lower extremity alignment (LEA).

Objective To compare differences in clinical measures of static LEA between female ballet students and female non-ballet students.

Design Descriptive and cohort study.

Setting Controlled laboratory setting.

Patients (or Participants) Eighty-four female ballet students and fifty-one female non-ballet students were recruited.

Interventions (or Assessment of Risk Factors) Every participant read and signed the consent form that was approved by the Institutional Reviews Board (IRB). The static LEAs were measured using four instruments, Height gage, 6° Goniometers, PALM inclinometer, and Bubble inclinometer.

Main Outcome Measurements Twelve static LEAs including leg-length, quadriceps angle, tibiofemoral angle, prone rearfoot angle, forefoot angle, tibial torsion, tibial varum, hip antversion, pelvic tilt, standing quadriceps angle, standing rearfoot angle and navicular drop were measured.

Results Ballet students showed greater mean in tibial torsion (M_{diff}=4.55, SE=.83, t_{(260)}=5.51, p=.000, 95% CI: 2.92 – 6.18), anterior-posterior pelvic tilt (M_{diff}=1.93, SE=.46, t_{(228)}=4.10, p=.000, 95% CI: 1.00 – 2.86), and standing rearfoot
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 ($M_{diff} = -8.65, \ SE = .56, t_{(254.04)} = -16.16, p = .000$, 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 anteverision ($M_{diff} = -11.47, \ SE = .72, t_{(156,153)} = -15.87, p = .000$, 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.

**257 INFLUENCE OF LOWER QUARTER Y-BALANCE TEST™ SCREENING PROTOCOL ON DYNAMIC BALANCE OUTCOMES**

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**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 ($p=0.000$) and in limb length composite scores (right limb $p=0.000$, left limb $p=0.000$) 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.