ABSTRACT

**Background:** Participation in high school cross-country continues to increase with over 492,000 participants during the 2016-17 cross-country season. Several studies have indicated a high incidence of running-related injuries (RRI) in high school cross-country runners. Risk factors for RRI can be divided between intrinsic and extrinsic risk factors. Intrinsic risk factors such as structural asymmetries have received less attention in recent years.

**Purpose:** The primary purposes of the current study were to (1) describe the prevalence of leg-length inequality among female and male high school cross-country runners, and (2) to determine whether leg-length inequality was associated with increased RRI in female and male high school cross-country runners.

**Study Design:** Prospective observational cohort study.

**Methods:** Three hundred ninety-three (222 males, 171 females) athletes competing in high school cross-country running were followed, prospectively. The runners’ right and left leg-lengths were measured with a standard cloth tape measure in a supine position. Incidence of low back/lower extremity RRI during practices or competitive events was monitored using the Daily Injury Report.

**Results:** A similar percentage of leg-length inequality greater than 0.5 cm was found among female (19.3%) and male (22.1%) runners. No statistically significant associations were found between leg-length inequality and RRI for female or male runners, with the exception that after adjusting for BMI, males with a leg-length inequality >1.5 cm were over seven times more likely to incur a lower leg RRI (Adjusted Odds Ratio = 7.47; 95% CI: 1.5, 36.9; p = 0.01) than males with a leg-length inequality ≤0.5 cm. Side of RRI was not associated with side of longer limb length.

**Conclusions:** While leg-length inequality was not associated with RRI, in general, males with a leg-length inequality >1.5 cm were at greater likelihood of sustaining a lower leg RRI.

**Level of Evidence:** 2b

**Keywords:** Asymmetry, Leg-length, High school, Cross-country running, Prospective, Running-related injury