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INTRODUCTION: Idiopathic in-toeing and out-toeing are common orthopedic conditions that are sometimes treated via surgical intervention. Motion analysis can be an important tool for determining the change in rotation of the lower limb when running versus walking. Past studies have focused on rotational analysis of the pelvis, but do not consider those of the foot and hip in the transverse plane. This study aims to quantify rotational changes that occur in participants with idiopathic in-toeing and out-toeing when running versus walking of the pelvis, hip, and foot relating to the transverse plane.

RESULTS: There were 328 participants that completed a gait analysis study. 145/328 (44.2%) displayed a change in gait (in at least one level of pelvis, hip or foot) when running, greater than ten degrees. In regard to foot progression and hip rotation, participants with an in-toeing diagnosis displayed an outward change when running. The opposite held true for out-toeing participants; they displayed a more inward change when running. When measuring pelvic rotation, participants that exhibited a change in gait showed a more pronounced external change, regardless of diagnosis.

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