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Abstract Submission Form

Poster Title: **Spine-Abductor Syndrome: The Association between Lumbar Spine Disease and Hip Abductor Tears**

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Introduction: Hip abductor tears result from overuse of the muscles of the hip and buttocks, and risk factors for this pathology include age-related deterioration, female sex due to a wider pelvis, and increased body mass index. As the literature supporting the sagittal (front to back) relationship between the lumbar spine and hip continues to increase, there may be a parallel coronal (side to side) relationship between lumbar spine disease and hip abductor tears. Perturbation in spinopelvic alignment may add stress to abductor muscles leading to overload and tears. As there is limited knowledge regarding this phenomenon, we sought to investigate the spine-abductor syndrome at the population level.

Methods: This study was conducted utilizing TriNetX, a federated research network that aggregates de-identified electronic health record data from over 92 million patients across the United States. Relative risks of encounter diagnoses and procedures for gluteal tears were calculated for the following characteristics: age greater than or equal to 45 years, female sex, obesity, lumbar spine pathologies, lumbar spine injections, and lumbar spine surgery. Also, we analyzed a subgroup of patients who were either diagnosed with a lumbar pathology, administered a lumbar injection, or received lumbar surgery in 2010 for abductor tear-free survival through August 23, 2023, utilizing a Cox proportional hazard model.

Results: Of the 8,475,800 patients with lumbar spine diagnoses, injections, or surgeries, 458,311 patients (5.40%) had gluteal tears, representing a relative risk of 13.61 (95% Confidence Interval [CI]:13.59-13.64). After controlling for age, sex, and obesity, survival analysis showed markedly increased hazard ratios for patients having a gluteal tear encounter diagnosis in the intervening 13 years (2010-2023) if they that had a lumbar spine pathology encounter diagnoses (Hazard Ratio [HR]: 4.84, 95% CI: 4.54-5.14), spine injections (HR: 7.65, 95% CI: 6.16-9.50), or spine surgery (HR: 6.57, 95% CI: 5.31-8.12) in 2010. The sizes of these cohorts were 144,462 patients, 12,166 patients, and 13,293 patients, respectively.

Conclusion: These findings suggest a strong association between lumbar spine pathology and abductor tears. Further biomechanical studies may elucidate the effects of lumbar spine disease on coronal alignment and loading of the abductor muscle. In practice, physical therapy regimens may need to be altered to decrease the overload on abductor muscle for patients with lumbar spine pathologies.