## Factors Predicting Meniscal Failure in Hamstring Autograft ACLR with Concomitant Meniscus Repair

Eric Milliron, Parker Andrew Cavendish, Anjali S Kashyap, Cole Veliky, Emily Coffey<sup>1</sup>, Robert Andrew Magnussen, David Clint Flanigan<sup>2</sup>

<sup>1</sup>Ohio State University College of Medicine, <sup>2</sup>OSU Sports Medicine Ctr

## INTRODUCTION:

Meniscal injury rates continue to rise in athlete and elderly populations, accounting for 10-20% of all orthopedic surgeries per year. Meniscal and anterior cruciate ligament (ACL) tears tend to occur concomitantly, up to 77% of the time. While many studies have analyzed predictive risk factors for isolated meniscal repairs, limited studies consider how a healing ACL may impact meniscal integrity and overall outcomes. The purpose of this study is to evaluate a variety of predictive factors that may affect failure rates of meniscal repair in concomitant hamstring autograft ACLR. METHODS:

Patients who underwent concomitant hamstring autograft ACL reconstruction and meniscus repair during the study period of 2012 to 2022 at our single academic center were identified. Inclusion criteria included patients who had received at least 1 year follow-up and who had the following variables documented: gender, smoking status, sport involvement, previous knee injury/surgery/repair, laterality of repair, concurrent additional surgery (i.e. MCL, LCL, PCL) and meniscal tear type. Both total and stratified measurements (i.e. separated by medial, lateral, and combined medial and lateral meniscal repairs) of stated variables were analyzed against failure rates with statistical significance determined to be p-value <0.05.

RESULTS: 663 patients met inclusion criteria, with 311 patients (170 male, 141 female) having an average age of 24.2 ( $\pm$ 8.7) years and BMI of 29.9 ( $\pm$ 4.2) regarded in final analysis. Preliminary findings indicate statistically significant failure rates with laterality of repair (p=.022\*) and medial meniscal tear type (p=.04\*). Medial meniscal tears failed 25.2% of the time, while lateral and combined medial and lateral repairs failed 9.8% and 19.6% of the time, respectively. Bucket handle, posterior horn, and undetermined tear types were associated with the highest failure rates of 45.5%, 42.9%, and 26.5% respectively. Notably, lateral meniscal repairs encompassed a different array of tear types associated with higher failure rates, i.e. Vertical (26.9%), Horizontal Cleavage (16.7%), Complex (12.5%), but were not statistically significant

DISCUSSION AND CONCLUSION: Medial meniscal repairs with concurrent ACLR utilizing hamstring autograft displayed significantly higher failure rates as compared to lateral or combined medial and lateral meniscal repairs. Of these repairs, bucket handle, horn, and undetermined types displayed highest re-tear rates, with tear types varying between laterality of meniscal repair.