



REVIEWER'S REPORT

Manuscript No.: IJAR- 50405

Date: 24/02/2025

Title: "The Influence of Quadriceps-to-Hamstring Strength Ratio on ACL Stability"

Recommendation:

- ✓ Accept as it is
- Accept after minor revision.....
- Accept after major revision
- Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality		✓		
Techn. Quality		✓		
Clarity		✓		
Significance	✓			

Reviewer Name: Dr. S. K. Nath

Date: 25/02/2025

Reviewer's Comment for Publication:

The study addresses a highly relevant issue in sports medicine—ACL injuries and the role of muscle strength balance in injury prevention and rehabilitation. The suggestion for targeted hamstring strengthening, especially for female athletes, is practical and evidence-based. The mention of injury prevention programs like the FIFA 11+ protocol adds credibility and offers actionable solutions.

Reviewer's Comment / Report

Strengths

1. **Relevant and Well-Defined Research Topic:** The study addresses a highly relevant issue in sports medicine—ACL injuries and the role of muscle strength balance in injury prevention and rehabilitation.
2. **Clear Research Objectives:** The paper effectively outlines its aims, objectives, and hypothesis, providing a clear framework for the study. The focus on gender differences in muscle strength and injury risk adds depth and relevance.
3. **Solid Methodology:** A cross-sectional design with a sample size of 50 competitive athletes ensures focused research. The use of handheld dynamometry and established clinical tests like the Lachman and pivot shift tests enhances the reliability of data collection.
4. **Comprehensive Results:** The paper presents clear findings, identifying the optimal Q:H ratio (0.6–0.8) for ACL stability. Gender differences are effectively highlighted, supporting the need for targeted interventions.
5. **Practical Recommendations:** The suggestion for targeted hamstring strengthening, especially for female athletes, is practical and evidence-based. The mention of injury prevention programs like the FIFA 11+ protocol adds credibility and offers actionable solutions.
6. **Extensive Literature Review:** The reference list is comprehensive and up-to-date, covering key studies on ACL injuries, muscle strength balance, and rehabilitation strategies.

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Areas for Improvement

- 1. Sample Size Limitation:** A sample size of 50 athletes limits the generalizability of the findings. A larger cohort, including different sports disciplines, would strengthen the conclusions.
- 2. Lack of Longitudinal Data:** Since the study is cross-sectional, it cannot establish causality. A longitudinal design tracking athletes over time would provide stronger evidence for the link between muscle imbalances and injury risk.
- 3. Limited Discussion of Confounding Variables:** Factors such as training frequency, injury history, and hormonal influences (particularly relevant for female athletes) are not adequately discussed.
- 4. Simplistic Statistical Analysis:** While regression models and t-tests were used, the paper could benefit from more advanced statistical methods (e.g., multivariate regression) to control for potential confounders.
- 5. Formatting and Language Issues:** Minor typographical and grammatical errors are present, such as inconsistent percentage formatting. The paper could benefit from clearer section headings and improved paragraph structuring for readability.
- 6. Visual Data Representation:** Graphs or charts illustrating the relationship between Q:H ratios and ACL stability outcomes would enhance the presentation of results.
- 7. Deeper Gender Analysis:** While the paper mentions gender differences, it lacks an in-depth discussion on physiological and hormonal factors contributing to these disparities.

Suggestions for Improvement

- 1. Expand the Sample Size:** Including athletes from a broader range of sports and backgrounds would improve the validity and applicability of the findings.
- 2. Incorporate Long-Term Follow-Up:** Conducting a longitudinal study would help establish whether improving Q:H ratios over time reduces ACL injury rates.
- 3. Strengthen Statistical Analysis:** Utilize advanced statistical techniques to account for potential confounders and better assess the relationships among variables.
- 4. Improve Visual Aids:** Include graphs, tables, or charts to visually represent key findings, such as gender-based differences in Q:H ratios.
- 5. Expand Discussion on Gender Differences:** Delve deeper into the anatomical, hormonal, and biomechanical factors that contribute to higher ACL injury rates in female athletes.
- 6. Refine Language and Structure:** Address grammatical errors and restructure some paragraphs for clearer and more concise communication.