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Review:Study on the injury of anterior cruciate ligament of knee joint caused by stop-jump in basketball and its treatment and rehabilitation

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Request for Review

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Article Title

Study on the injury of anterior cruciate ligament of knee joint caused by stop-jump in basketball and its treatment and rehabilitation

Abstract

OBJECTIVES: This paper aims to understand the effects of different running speeds on knee joint anterior cruciate ligament (ACL) injuries caused by stop-jump in basketball.
METHODS: Twenty basketball players from Hebei Sport University were used as experimental subjects. Relevant data were acquired by Vicon motion capture system and Kistler dynamometer. Each subject completed three stop-jumps under low-speed running (2 m/s) and high-speed running (4 m/s) conditions, and the data were compared.
RESULTS: At the moment of landing after the high-speed run-up and the stop-jump, the knee joint flexion angle was 22.36 ± 1.23°, the abduction angle was 12.36 ± 4.47°, and the flexion angular velocity was 552.61 ± 40.12°/s, all significantly higher than in the low-speed running ($p < 0.05$); the peak torques of knee joint extension, abduction, and external rotation were significantly greater, the Z-axis ground

reaction force was higher, and the peak vertical ground reaction force and horizontal ground reaction force were 1.68 ± 0.28 BW and 0.74 ± 0.14 BW, respectively, which were also higher. The athletes had greater peak knee flexion and extension torques nine months after ACL reconstruction than before surgery ($p < 0.05$).
CONCLUSION: The knee joint is subjected to greater stress and less stability after high-speed running, which increases the likelihood of ACL injury. ACL reconstruction has a good effect on the treatment and rehabilitation of ACL of the knee joint.

Review Type

Anonymous Reviewer/Anonymous Author

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Review Schedule

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Reviewer Guidelines

Review Guidelines

SIS Review Form

Novelty of the contribution *

This research has a novelty that is different from previous studies. The substance of the article can be used as a reference for scientific development and further issues

Innovation impact of the proposed concept *

The concept offered is not in accordance with the scope of the journal. Approaches to rehabilitation studies should be included in sports and health studies

Technical content and correctness of the contribution *

Techniques in the data collection process are adapted to the research topic. However, there must be major changes related to technology studies in the scope of the journal. This article as a whole is not included in this journal.

Importance of the manuscript for the thematic area *

It is recommended that this article be submitted to another journal that discusses sports and health studies.

Implementation potential of the proposed concept *

None

Completeness of the references *

The references are good and support the content of the article.

Quality of the writing *

Good and Comprehensive

Additional comments to the authors *

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THIS IS GIVEN TO

Ahmad Azmy

to acknowledge his reviewer work for the 10th volume of EAI Endorsed Transactions on Scalable Information Systems (ISSN 2032-9407). The journal can be accessed at https://publications.eai.eu/index.php/sis/index.

CARLOS VALIENTE
Head of the Publications Department
European Alliance for Innovation

Date
18. 09. 2023