EAI Endorsed Transactions on Scalable Information Systems





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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

You have been selected as a potential reviewer of the following submission. Below is an overview of the submission, as well as the timeline for this review. We hope that you are able to participate.

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 $22.36 \pm 1.23^{\circ}$, the abduction angle was $12.36 \pm 4.47^{\circ}$, and the flexion angular velocity was $552.61 \pm 40.12^{\circ}$ /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 \pm 0.28 BW and 0.74 \pm 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

13-09-2023	20-09-2023	04-10-2023
Editor's Request	Response Due Date	Review Due Date

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Reviewer Guidelines

Review Guidelines

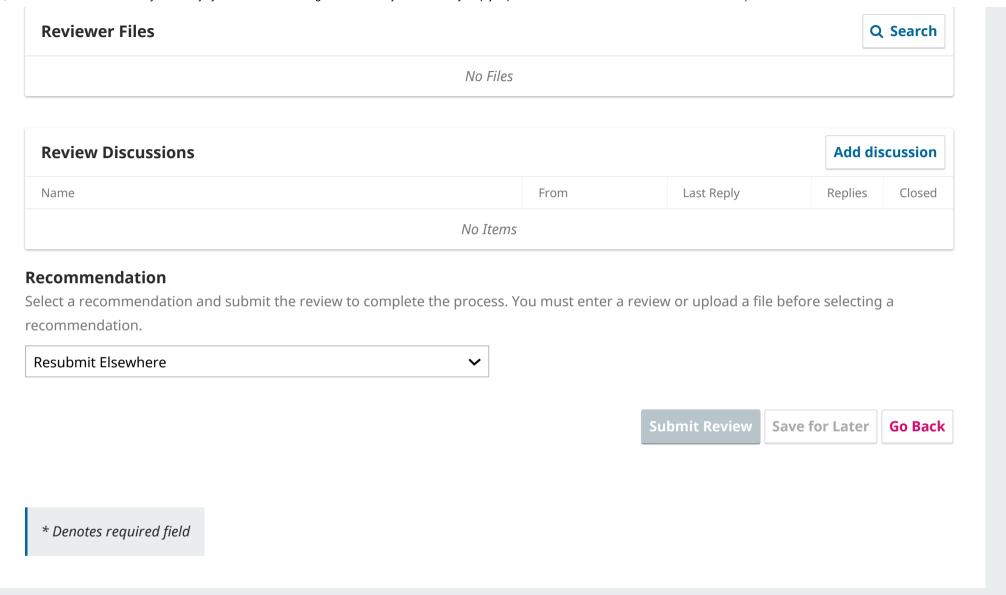
SIS Review Form

Novelty of the contribution *

Importance of the manuscript for the thematic area *

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Ahmad Azmy

to acknowledge his reviewer work for the 10th volume of EAI Endorsed

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CARLOS VALIENTE

Head of the Publications Department European Alliance for Innovation

Date 18. 09. 2023