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# Title: Clinical Study on the Treatment of ACL Avulsion Fractures Using 3D Printing Technology: A 2-Year Efficacy Observation

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# Disclosures:

Jilin Province Peoples Hospital

All relevant financial disclosures have  
been mitigated.





# Objective:

- To explore the auxiliary value of 3D printing technology in the arthroscopic treatment of ACL tibial avulsion fractures and its postoperative efficacy.



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# Methods:

- From May 2020 to July 2022, 20 pediatric patients with ACL tibial avulsion fractures caused by sports injuries and treated at our hospital were selected as subjects and randomly divided into two groups. The control group underwent traditional arthroscopic treatment of ACL tibial avulsion fractures, while the observation group received preoperative 3D printing software processing, model creation, external design, and rehearsal, followed by arthroscopic treatment of ACL tibial avulsion fractures.



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## Results:

The operation time ( $46.7 \pm 6.5$  minutes) and hospital stay ( $19.3 \pm 2.5$  days) in the observation group were significantly shorter than those in the control group ( $P < 0.05$ ). The Lysholm knee score of the observation group at 2 years post-operation ( $89.37 \pm 4.25$  points) was higher than that of the control group ( $P < 0.05$ ).



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# Conclusion:

- The combination of 3D printing technology and arthroscopy in the treatment of ACL avulsion fractures offers advantages such as minimal trauma, high precision, shorter operation time, and reduced hospital stay, with good long-term postoperative joint function recovery.
- Keywords: ACL; fracture; 3D printing technology



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