

Back to basketball: how I avoided ACL surgery

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AN OBSESSION...WITH SPORT AND MEDICINE

From the moment I started playing basketball, I was obsessed with the sport. I spent days, months, and years learning the game of basketball and sweating on the basketball court. Sometimes, I would imagine myself as Jeremy Lin on the court at Madison Square Garden!

After leaving high school, I came to Fudan University Shanghai Medical College (China), where I majored in clinical medicine and played for the college's basketball team as the captain. Seeing a lot of sports injuries on the basketball court made me rethink the relationship between sports and medicine. I realized I wanted to learn more, and I chose sport and exercise medicine as my career.

In 2019, I began my postgraduate studies in Sport and Exercise Medicine at Huashan Hospital (China) affiliated with Fudan University. I am now in the third year of my Ph.D., engaging in research into skeletal muscle injury and rotator cuff tear under the supervision of my mentors.

A NEW BEGINNING...AND AN ABRUPT END!

In September 2019, in my first basketball game as a new graduate student, I felt in good physical condition and performed well in the first half. However, due to a lighting failure in the gymnasium, the half-time was prolonged for nearly an hour! At the beginning of the second half, I did a crossover, with the knee slightly bent. Suddenly, I felt that my knee joint was 'displaced' and then 'reset' in an instant. That moment was like a buzzer beater in the game—the ball was flicked out of my fingertips, time seemed to stop, and I could hear my heart beating. Then with a muffled 'bang' of the buckling knee joint, I fell to the ground.

THE INJURY: FROM PHYSICIAN TO PATIENT

On the night of the injury, the pain was not severe. I immediately iced the knee, wore a knee pad, and raised the injured leg with a pillow to reduce swelling before going to bed. The morning after the injury,

the pain was severe. My injured knee was extremely effused, and I was unable to bend or straighten it. I wore a knee brace and used crutches to avoid weight bearing on my injured knee.

Based on my professional knowledge, I thought the anterior cruciate ligament (ACL) might be torn; but I still hoped for the best outcome. My teacher and mentor, Dr Jiwu Chen, performed a physical examination for me and confirmed that the stability in my injured knee was good (with negative tests for Lachman's, anterior drawer and pivot-shift). However, an MRI scan taken at day 6 postinjury indicated that my ACL was torn, although, luckily meniscus was intact. Dr Chen (an expert in sports medicine) gave me some practical suggestions, including wearing a knee brace immediately and using crutches to avoid any secondary injuries (figure 1).

This injury instantly changed my role from a doctor to a patient. My life after this injury was not easy, with limitations such as hand numbness caused by holding crutches, difficulties in the shower or going to the toilet.

DECISION TIME: EARLY ACL RECONSTRUCTION OR CONSERVATIVE MANAGEMENT?

I read a lot about acute ACL injury, and I learned that current treatment options are still controversial. I encountered articles reporting that results did not differ between rehabilitation plus early ACL reconstruction, vs rehabilitation plus optional delayed ACL reconstruction.¹⁻³ Considering my busy academic schedule and good joint stability, I decided to take the conservative treatment route.

Early rehabilitation is particularly important in conservative treatment and Dr Jiwu Chen and the sports medicine team of Huashan Hospital customised a detailed rehabilitation protocol for me. This focused on pain/inflammation control, gaining range of motion (ROM), strength, and ultimately, return to play.

Thirty-three days after injury, I was able to get back on the basketball court practising shooting with a heavy knee brace. A repeat MRI looked encouraging. Compared with the distorted and broken fibres in the MRI of the sixth day, the MRI



Figure 1 The smile after MRI reexamination. Photo of me (right) and Dr Jiwu Chen (left) under the plaque of 'with both a benevolent mind and heart'.

demonstrated that the intensity signal of the ACL was much improved with fibres in continuity at the thirty-five days after injury. Probably, the ACL was only partially torn, and the residual continuous fibres could not be shown because of the oedema in the acute inflammation phase.⁴ Previous study showed that early MRI (≤ 6 weeks) was less accurate than that late MRI group (> 6 weeks) in diagnosing ACL injuries, with a particular tendency to overrate the injury severity.⁵

Through progressive and supervised rehabilitation, I managed to progress to 90° sidestep cutting manoeuvres at 66 days, returned to training at 150 days, and full basketball at 200 days postinjury. One year after the injury, I gradually returned to optimal performance and helped my team to win the championship of Men's Basketball Cup of Fudan University. Now my knee is functioning well, and the ACL looks normal on MRI. But I do still have occasional mild pain in my knee, and a certain level of 'psychological block'.

LEARNING AS PATIENT AND DOCTOR

In the past 3 years, two of my teammates also suffered ACL ruptures. Because of my good outcome, they too chose conservative treatment. Unfortunately both failed, and underwent ACL reconstruction surgery. One of them did not comply with the doctor's instructions and returned to sports prematurely; the other was overweight and had an ACL rupture with a torn meniscus. Our differing scenarios and outcomes gave me food for thought.

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In my opinion as a patient and as doctor, a positive outcome depends on three elements:

1. Good clinical joint stability and MRI findings of a partial ACL tear without other damage (ie, meniscal tear).
2. Early intervention of a professional rehabilitation team.
3. The patient's good compliance with the doctor.

My case also raises questions about the timing of ACL reconstruction. The accuracy of MRI to distinguish complete from partial ACL tear when performed shortly after acute injury remains to be tested. Many doctors may recommend that surgery should be performed as soon as possible after a clear diagnosis of complete ACL tear by MRI. However, my case suggests that, through standard conservative treatment, supervised rehabilitation and MRI confirmation, some patients can return to sports successfully. This question deserves more consideration for future research.

I realize my good outcome may be related to only having a partial ACL tear, the absence of other damage and

early rehabilitation. The full effect of my conservative treatment still needs to be tested over time to see if problems arise in the future. But for now, this doctor is no longer a patient and is back to basketball!

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