

# Etiology and Nursing Care of Children's Knee Joint Sports Injury Diseases

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## ABSTRACT

The objective is to explore the etiology, diagnosis, treatment, and prevention of children's knee joint sports injury. The medical records of hospitalized children with sports injuries from 2019 to 2021 were retrospectively analyzed. The total number of hospitalized children with knee joint sports injury increased from 27 in 2019 to 46 in 2021. The main diseases are meniscus injury, dislocation of patella, avulsion fracture of tibial intercondylar crest, ligament injury, articular cartilage injury, and other diseases. Children's sports injuries occur in different ages groups, with the highest incidence in the age group of 7-14, and the incidence rate of boys is about 1.5 times that of girls. Moreover, the number of knee joint sports injury diseases in children is increasing, especially for school-age children. Low energy injury is the most common cause of injury, but high energy injury may lead to serious knee joint function damage, which should be paid great attention.

## KEYWORDS

Children's knee joint nursing, Children's sports injury, Knee joint of children, Nursing and prevention, Sports injury

## INTRODUCTION

With the rapid development of China's economy and the continuous improvement of people's living standards, parents pay more attention to the health of their children, and the development of children's athletic ability is increasingly common. However, due to its unique characteristics, children's sports knee joint injuries and diseases are an easy to miss diagnosis and often misdiagnosed. For China, the field of children's sports medicine is still in the primary stage of development. Limited facilities in school physical education, the allocation of physical education curriculum is unreasonable, extracurricular physical education training pursues achievements, and the implementation of physical and mental health education curriculum gradually appears problems (Richardson et al., 2005). In this study, the children with knee joint sports injuries admitted in 2019-2021 were analyzed retrospectively, aiming at studying the causes of knee joint sports injuries and diseases in children. At the same

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time, the causes were analyzed and the corresponding preventive measures were discussed to avoid or reduce the occurrence of knee joint sports injuries and diseases in children as much as possible.

## RELATED MATERIALS AND METHODS

### Related Content of Knee Joint Injuries

Knee joint injuries are divided into acute and chronic injuries. Acute injuries include muscle strain, meniscus injury, cartilage injury, and ligament injury (anterior and posterior cruciate ligaments, as well as internal and external collateral ligament injuries). Chronic injuries include: chronic injury transformed from acute injury, patellar tendon end disease, patellar cartilage, and traumatic arthritis. The knee joint, as a highly mobile joint, is easy to injure during exercise. Acute injury may damage muscles, cartilage, and ligaments. For children, acute injury may turn into chronic injury if it is not treated promptly and effectively. Knee ligament injury is also known as knee ligament injury. It is commonly seen in sports injuries, mainly manifested as knee joint pain, swelling, and limited knee joint movement. The ligament in a knee joint ligament injury refers to the ligaments surrounding the knee joint, such as the anterior cruciate ligament, medial collateral ligament, lateral collateral ligament, posterior cruciate ligament, medial patellar ligament, and lateral patellar ligament. Knee joint injuries exhibit early histological fibrosis. After a knee ligament injury, conservative or surgical treatment is required based on the severity of the injury. Tendons are similar to ligaments, connecting muscle fibers and musculoskeletal structures. This type of replacement structure is also known as a graft, which is a ligament that medical staff can refer to when removing a part of the patient's pathological knee joint. After the surgery, the patient will smoothly undergo another course of rehabilitation training. Severe injury in sports and excessive movement of knee joint are the main reasons for knee joint injuries. The common causes of knee joint sports injuries in children include: sprains, falls, bruises, abrasions, impact injuries, and other violent injuries that are more prone to occur in highly adversarial activities, such as basketball and football, long term participation in repetitive jumping exercises, or frequent mountain climbing, building climbing, and squatting, and incorrect exercise methods and lack of reasonable exercise protection. Children should be extra careful in the process of antagonistic sports, and exercise that is harmful to the knee joint should be moderate. However, if the knee joint has been injured and feels unwell, it is likely that the knee joint injury has occurred and medical attention should be sought in a timely manner. The pressure on the knee joint in different postures is shown in Figure 1.

The main symptoms of knee joint sports injuries in children are obvious pain, swelling, and limited mobility immediately after injury. When taking X-rays at the hospital, it may be difficult to accurately diagnose meniscus or cruciate ligament injuries due to joint swelling. For months or years, there may still be discomfort such as joint weakness, pain, and interlocking, and even no obvious discomfort. Therefore, it is necessary to seek further consultation with a sports injury specialist to make a clear diagnosis. Chronic strain may cause pain when walking, squatting, or jumping on a flat road and may also be manifested as limited joint movement, swelling, interlocking, softness, and fatigue.

### Patient Information

From January 2019 to December 2021, 108 children (112 knees) with knee joint injuries were selected from the hospital of study. There were 66 males and 42 females. The age ranged from 4 to 14 years with an average of (7.5 2.6) years. Body mass index ranged from 18.5 to 26.3 kg/m<sup>2</sup>, with an average of (20.5 2.4) kg/m<sup>2</sup>. In 2019, a total of 27 children were treated, accounting for 3.5% (27/753) of the total number of patients with knee joint sports injuries. In 2014, 35 children were admitted, accounting for 4.0% (35/861) of the total number of patients with knee joint sports injuries. In 2021, there were 46 cases, accounting for 4.6% (46/997) of the total number of patients with knee joint sports injuries.

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