



## OCD Injuries in Young Athletes

BY: David L. Marshall, MD

**Osteochondritis Dissecans** is a painful condition that occurs when a piece of bone and cartilage separate from the surface of a joint. Boys slightly outnumber girls in the incidence of OCD and it usually occurs between the ages of 10-20. There is usually no history of a specific traumatic event such as a fall, but the pain gradually develops over days to weeks. There may be swelling of the joint and a sense of "catching" or "locking" in the joint. This condition commonly occurs in the knee, ankle and elbow, and less commonly in the shoulder, hip and wrist. The exact cause of OCD is unknown but current theory states that the cause is most likely multifactorial, with repetitive trauma, ischemia, and heredity possibly playing a role.

**Anatomy** The ends of most of our long bones are "capped" or coated with a thin layer of articular cartilage, similar to a Teflon coating on a frying pan. This layer of articular cartilage allows the ends of the bones to glide smoothly back and forth during joint motion, similar to a smooth hockey puck gliding across ice.

softens, and may become fragmented and displaced, forming a loose body in the joint. (figure 1).

**Elbow** OCD of the elbow is seen most frequently in baseball pitchers, quarterbacks, gymnasts and swimmers, particularly breaststrokers. The repetitive motions associated with these activities exert compressive forces across the lateral (outside) part of the elbow. The athletes will complain of lateral elbow pain that gradually worsens with time. Rarely can the athlete identify a specific event that started the pain. There may be associated swelling in the elbow, and they may have a limited ability to fully extend the elbow. If a loose body has formed, there will be mechanical symptoms such as catching or locking.

X-rays will show a defect or lucency in the capitellum on the lateral side (outside) of the elbow. (figure 2). Magnetic Resonance Imaging (MRI) may be used to grade or stage the injury, look for loose bodies if suspected, and evaluate the integrity of the overlying articular cartilage.

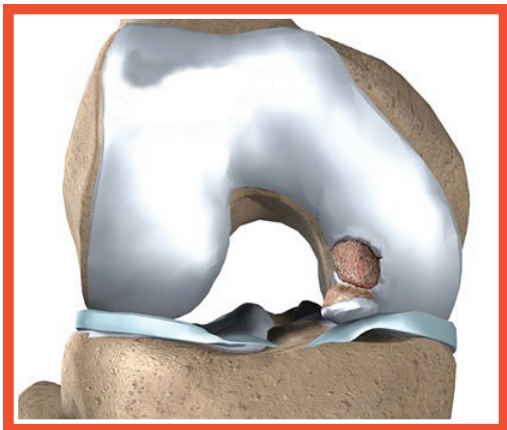


figure 1



figure 2

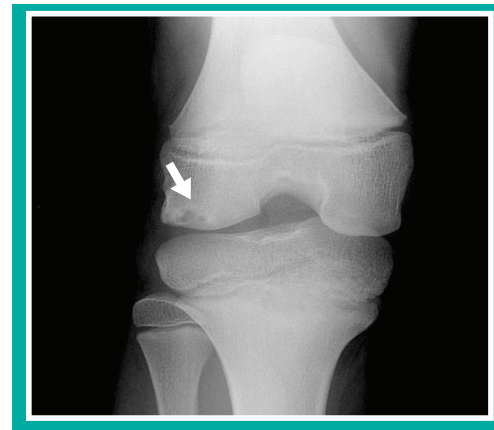


figure 3

The articular cartilage does not have its own blood supply, it is nourished by the joint fluid which is produced by the synovium (joint lining). The repetitive stress during running, jumping (knee and ankle) and throwing (elbow), exerts a compressive load or force across the joint compromising the already tenuous blood supply to the area. The combination of limited blood supply and the microtrauma from chronic compression leads to a stress fracture-like phenomenon in the subchondral bone. This is termed *avascular necrosis*. As the avascular necrosis of the subchondral bone progresses, the overlying articular cartilage

**Knee** OCD of the knee most frequently occurs in sports involving running and jumping. This exerts mechanical loads across the articular surface of the end at the femur, or thigh-bone. The medial femoral condyle is involved in approximately two-thirds of the time. The athletes will complain of pain in the front or inside of the knee that worsens with running and jumping. There may be mild swelling associated with activity as well. They usually cannot identify a specific traumatic event. There may also be a sense of catching, locking, or popping sensations in the knee.

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X-rays will show a lucency in the femoral condyle, however, very early lesions may have negative x-rays if the subchondral bone is not yet affected (*figure 3*). MRI may be used to stage the injury and look for loose bodies if mechanical symptoms are present.

**Ankle** OCD of the ankle is seen in athletes who participate in running and jumping activities, especially those that involve high-impact landings or landing "short" such as gymnastics, tumbling, cheerleading, basketball and volleyball. The bone



figure 4

involved in the ankle is the talus. The pain usually develops gradually over time but there may be a history of a bad ankle sprain that failed to heal. The athletes will usually complain of activity-related pain around the front or sides of the ankle joint. There may be associated swelling or catching, but pain is the predominant complaint.

X-rays will show a lucency in the talar dome, often at the medial or lateral corners (*figure 4*), but can also occur in the mid-talus. MRI can be used to grade the lesion or to identify the articular surface defect if the x-rays are negative but clinical suspicion is high.

**Treatment** The treatment of OCD is intended to restore normal joint function, decrease pain and reduce the risk of future osteoarthritis in the joint. Patients with OCD should be referred to a pediatric sports medicine specialist to minimize the risk of complications. For lesions that are low grade and stable, especially in skeletally immature athletes, conservative treatments may be all that is necessary. This includes limiting running and jumping activities in the case of the knee and ankle. Crutches and/or casting may be needed in some circumstances. For the elbow, strict restriction from throwing and impact activities is required. During this time of restriction, physical therapy may be added for range of motion and strengthening. Ice and anti-inflammatory medications may be helpful in relieving pain, as well. Serial x-rays can be obtained to monitor radiographic evidence of healing. Once the symptoms improve and x-rays show evidence of healing, the athlete can slowly progress back to their sport(s). This is best monitored by a physical therapist.

If the symptoms or x-ray abnormalities persist, surgical intervention may be required. This involves debridement and/or drilling of the lesion to promote blood supply and "filling in" or healing of the lesion. Large fragments may be fixed back into place with a compression screw or pin and smaller fragments can be removed.

**Notes:**



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