

Know Your Knees

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How Knee Injuries Occur

Gymnastics performance demands elements of power and form that rely on the knee joint for balance and stability. The knee is a vulnerable joint composed of many areas that are easily injured. Activities that involve repeated running and landing place the knee under stress. Missed landings or incorrectly executed somersaults or twisting somersaults may result in significant injury.

Common Knee Injuries

Most knee injuries are the result of overuse or tendon strains of large muscle groups that connect to the knee. These muscles are the quadriceps and hamstrings. Occasionally, forces generated by missed landings cause joint cartilage and/or ligament tears and bone fractures. However, most common pain symptoms are the result of repetitive stress to the tendons that control the gliding joint surfaces of the knee cap (called the patella femoral joint).

Occasionally, abnormal alignment or kneecap instability can wear on cartilage of the knee cap and cause painful grinding. Common knee injuries include:

- Ligament tears (often to the anterior cruciate ligament)
- Tendon injuries (called tendonitis) at the kneecap
- Cartilage softening or breakdown
- Occasionally, cartilage tears or bone fractures

Be Alert for the Following Symptoms

- Tenderness around the knee cap
- Tenderness to touch at the top prominence at the front of the shin bone
- Swollen or puffy appearance around the front of the knee
- Limited motion or a feeling of stiffness in the knee
- Sensitivity to touch at the sides of the knee when the knee is extended or bent
- Painful locking or catching of the knee
- Knee pain with standing, walking or running
- Painful grinding at the knee cap

Diagnosing and Treating Knee Injuries

Comprehensive evaluation, including radiological tests like x-rays and Magnetic Resonance Imaging (MRI) are needed to diagnose injuries that cause joint swelling, pain on weight bearing or loss of motion. Some injuries may require arthroscopic surgery to repair ligament and cartilage tears.

Rehabilitating Knee Injuries

Usually, a physician can prescribe conditioning exercises to correct muscle imbalance and promote flexibility after pain subsides. These exercises can be carried out by a physical therapist, coach or trainer working with the gymnast. Strength training and/or knee sleeves designed to enhance muscle and tendon balance hasten the gymnast's return to tumbling, dismounts and vaulting. While the knee is mending, practice can focus on skills such as swing events that do not stress the knee.

Preventing and Treating Knee Injuries

1. Reducing fatigue of the large muscle groups of the leg is the single most important measure for preventing knee injuries. A tired athlete is more apt to falter in technique and become injured.
2. Alternate tumbling and vaulting to reduce fatigue and repetitive impact.
3. Use skill cushions for tumbling, vault landings, and apparatus dismounts.
4. Make certain gymnasts are able to complete rotations with proper landing when performing somersaults with twists and twists within multiple somersaults.
5. Always use skill cushions or landing pits when practicing landings from complex skills.

For Gymnasts with Knee Injuries or Pain:

1. Gymnasts with knee pain should be seen by a physician familiar with athletic injuries.
2. If a knee cap malalignment disorder is diagnosed, have the gymnast wear knee sleeves during training.
3. Ensure that ligament instability is corrected before running or landing dismounts are re-introduced into training.

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