

# Knee Dislocations

## Immediate and Definitive Care

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### In brief

**The consequences of a knee dislocation can be devastating. The significant associated risks of severe arterial, venous, or neurologic compromise make this a limb-threatening injury. Therefore, it's essential that the physician make an expedient diagnosis based on physical findings, assess neurovascular status rapidly, splint the knee, and provide immediate transport to an emergency department. A closed reduction is often performed in the emergency room or operating room. Spontaneous reduction makes diagnosis more difficult, and the examiner must suspect knee dislocation in globally unstable knees to definitively diagnose the injury.**

**C**omplete, traumatic dislocation of the knee involving multiple ligament ruptures with subsequent tibiofemoral translocation is an uncommon injury, but extremely serious because of its complications. Recognizing a dislocation of the tibia from the femur may seem obvious, but often this injury reduces spontaneously. Also, any disruption of the knee articulation can cause a vascular or



neurologic injury, and impairment of the popliteal artery for more than 8 hours often necessitates an amputation. Therefore, it is paramount that sports physicians immediately recognize this injury and begin thorough primary treatment.



For CME credit, see page 116

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### Low Incidence, but Underdiagnosed

Although knee dislocations—sports related or otherwise—are not common, they can be limb threatening. The most cases identified in a literature search were 53 in 10 years reported by Meyers et al.<sup>1</sup> Shields et al<sup>2</sup> noted 26 cases over 27 years at the Massachusetts General Hospital. Robbins<sup>3</sup> reported only 2 knee dislocations out

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Knee Dislocations  
Anatomy and Pathophysiology

**Table 1. Profile of Low-Velocity Knee Dislocations Treated in One Clinic, 1986-1994**

Patient	Age	Sex	Involved Knee	Mechanism of Injury	Direction of Dislocation	Vascular Injury	Neurologic Injury	Ligament Surgery
1	16	M	R	ATV Injury	Anterior	N	N	Y
2	48	F	L	Fall	Anterolateral	N	Y†	Y
3	17	F	R	Gymnastics	Posterolateral	N	N	Y
4	18	M	R	Basketball	Anterolateral	N	N	Y
5	14	F	R	Soccer	Posterolateral	N	N	Y
6	39	M	R	Fall	Anterior	Y	Y†	N
7	26	M	L	Baseball	Anterior	Y*	Y†	Y
8	39	M	L	Snowmobile	Posterolateral	Y	Y‡	Y

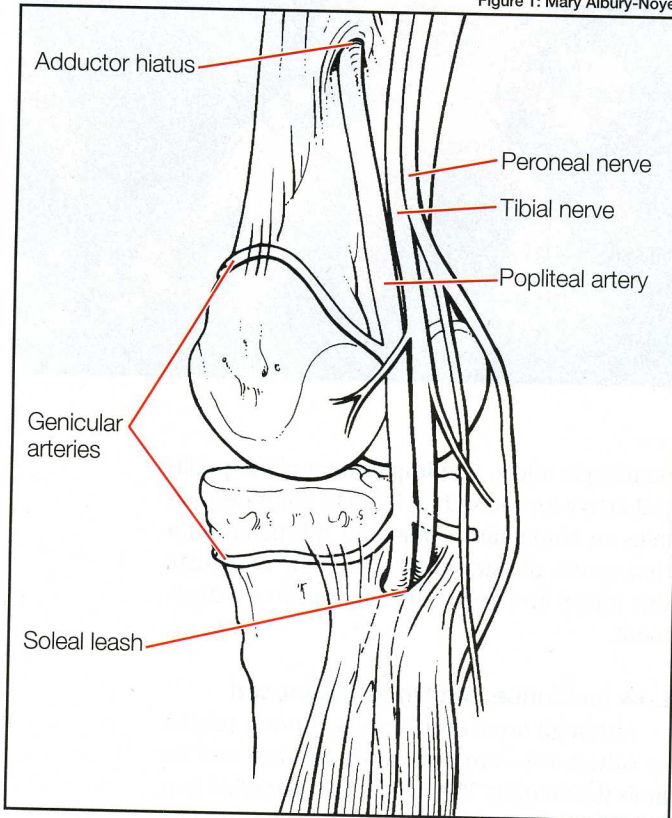
\* Led to a forefoot amputation

† Permanent neurologic injury

‡ Transient neurologic injury

ATV = all-terrain vehicle

Figure 1: Mary Albury-Noyes



**Figure 1. Because the popliteal artery and vein are anchored proximal and distal to the knee, they are susceptible to severe damage during tibiofemoral dislocation. The tibial and peroneal nerves, however, are not similarly anchored and therefore carry a much lower risk of injury.**

of 140,000 admissions, and the Mayo Clinic found just 14 dislocations among 2 million admissions.<sup>4</sup> However, because knee dislocations are universally believed to be underdiagnosed, the incidence is probably higher than noted in the literature. In 9 years, the senior author (BRB) has treated an average of one knee dislocation annually in a busy referral, sports-based knee and shoulder practice (table 1).

### Anatomy of the Knee

The knee has six ligamentous or cartilaginous stabilizers. The anterior cruciate ligament (ACL) and posterior cruciate ligament (PCL) prevent anterior and posterior tibial translation, respectively. The medial and lateral collateral ligaments stabilize against varus and valgus forces, while the menisci act as rotational stabilizers and transmitters of axial loads.

The popliteal artery and vein are tethered at the adductor hiatus (figure 1). Within the popliteal space, the vessels have five branches—the genicular arteries—that anastomose about the knee. The popliteal artery and vein then descend between the medial and lateral gastrocnemius and beneath the soleal leash, where they are anchored. Because of this proximal and distal tethering, any displacement of the femur or tibia stretches the artery and vein and often leads to tears with anterior dislocations or com-

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