

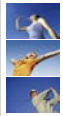
sports medicine
excellence group

sports clinic
Hannover | Innsbruck
KONRAD ADAMI CENTER

Multiligament Injuries

Clinical examination and imaging

Christian Fink



sports clinic

Multiligament Injuries

- Acute vs chronic
- Associated injuries

sports clinic

History

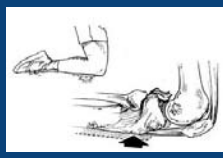
Injury Mechanisms

- HIGH ENERGY TRAUMA
- CONTACT VERSUS NON CONTACT
- HYPEREXTENSIONS Injury




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Inspection - bruises

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Inspection - bruises




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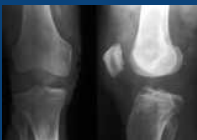
Inspection - swelling, effusion



Definition: KNEEDISLOCATION

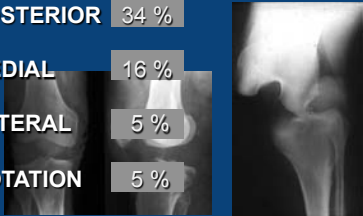
(3 oder more stabilizing structures)

- ACL/PCL
- MCL/LCL
- „Postero medial/lateral corners“



KNEEDISLOCATION

- **ANTERIOR** 40 % (Hyperextension)
- **POSTERIOR** 34 %
- **MEDIAL** 16 %
- **LATERAL** 5 %
- **ROTATION** 5 %



Complications

**Vascular – Nerv Injuries
Compartmentsyndrom**

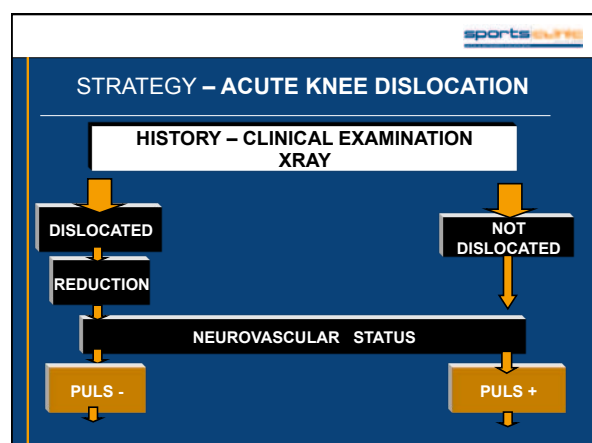
Vascular Injuries

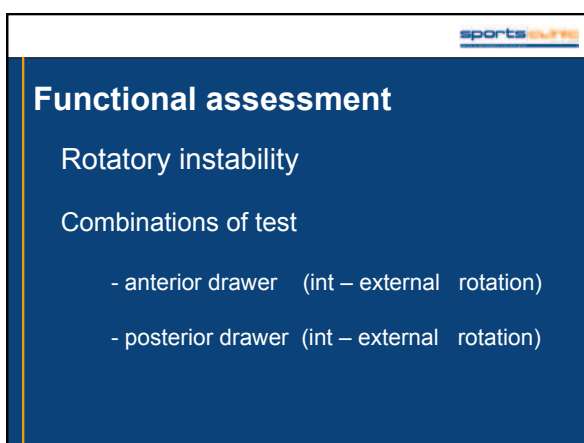
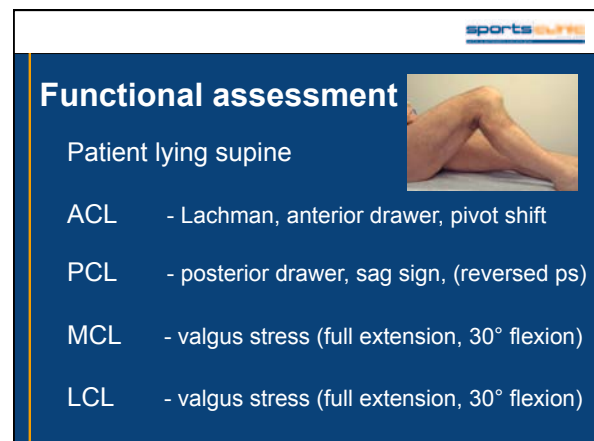
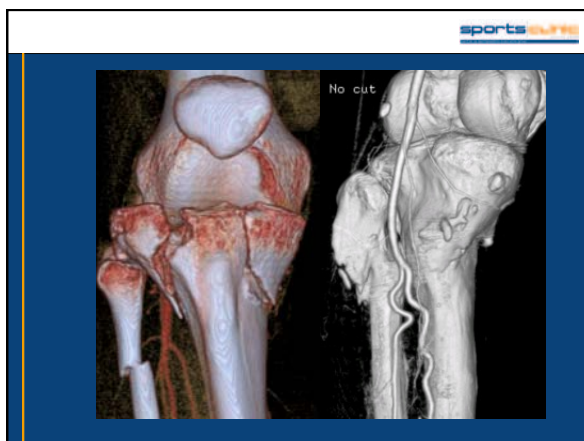
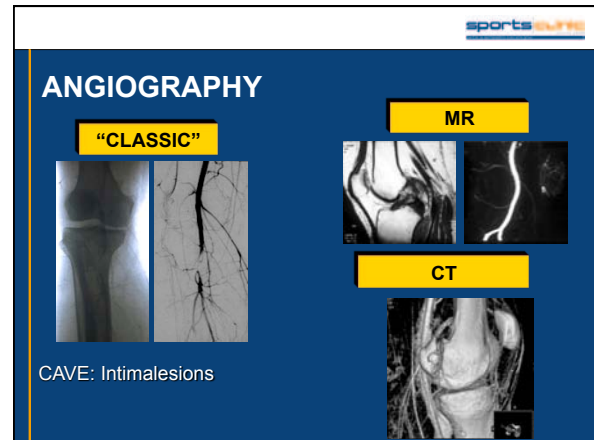
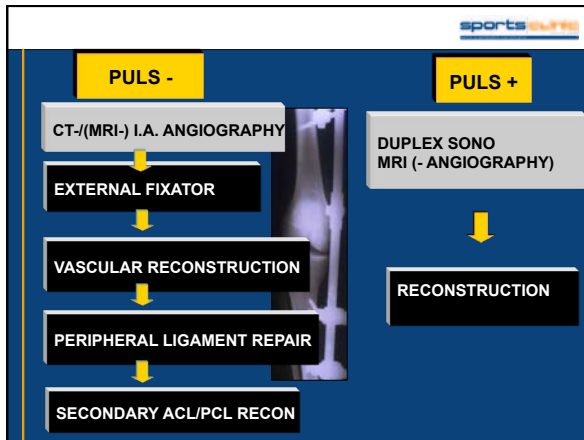
→MANTKE	R	Akt TRAUMAT	31,2 %
→KENDALL	RW	J Trauma	16 %
→TREMANN	GS	Arch SURG	23 %
→KAUFMANN	SL	RADIOL	32 %
→ESSKA Multicenter Study			7,7 %

Nerve Injuries

→ALMENKINDER LC	Clin ORTHOP	16 %
→SISTO DJ	Clin ORTHOP	40 %
→ESSKA Multicenter Study		15%

→ DORSAL DISLOCATION!!



sports **CUTTING**

Functional examination under Fluroscopy



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sports **CUTTING**

Functional examination under Fluroscopy

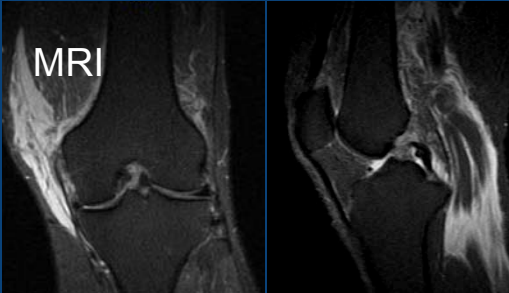


--- extremely helpful for surgical planning

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sports **CUTTING**

MRI

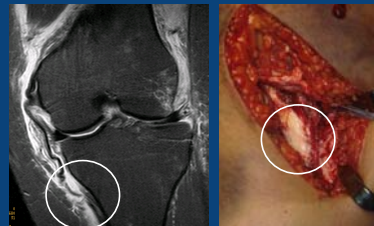


SOFT TISSUE TRAUMA –

Fluid loss during arthroscopy – Compartment Syndrome

sports **CUTTING**

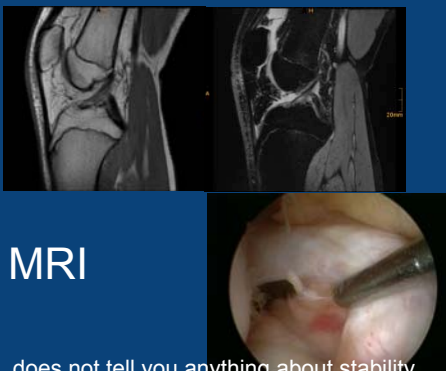
MRI



Location of ligament rupture

sports **CUTTING**

MRI

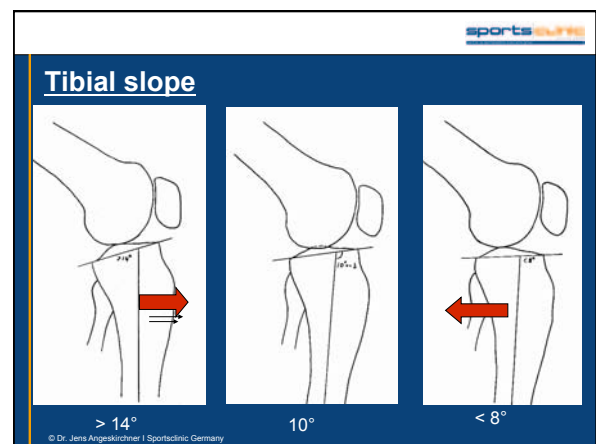
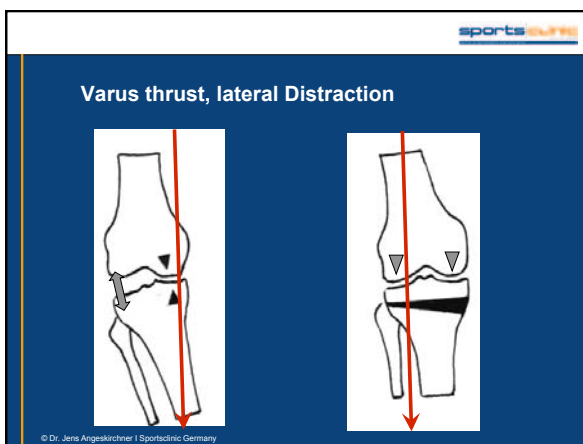
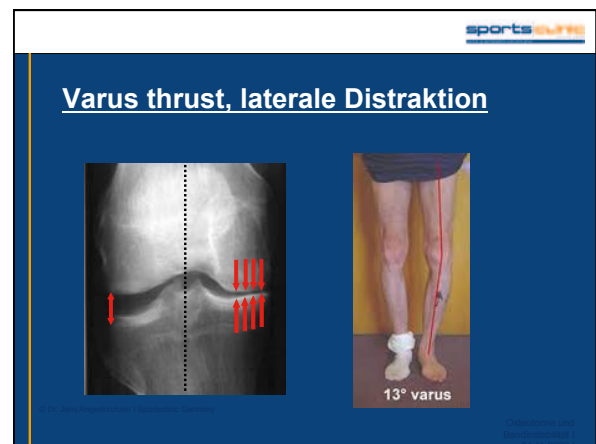
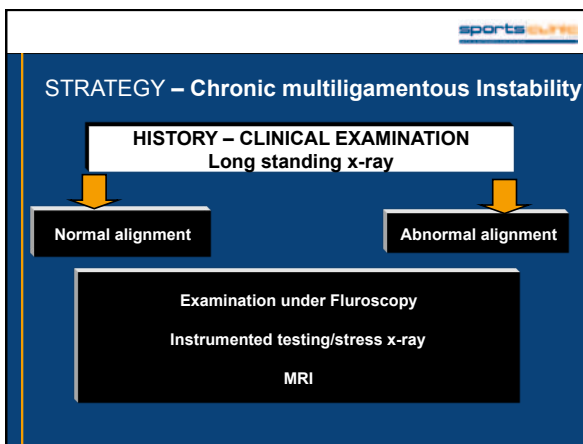
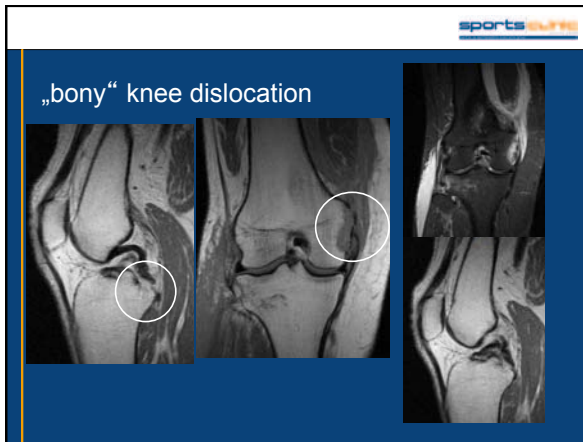


does not tell you anything about stability

sports **CUTTING**

„open“ Knee dislocation





Summery: Clinical examination

- **Acute:** Neurovascular status – repeatitly
- Inspection (bruises/swelling/effusion)
- Stability

Summery: Clinical examination

- **Chronic:**
 - alignment and tibial slope
- Stability
 - All tests – rotational Components (Fluoroscope)

Summery: Imaging

(a matter of availability)

- Ultrasound, Angiography - vascular Status
- CT angiography – bony components + vascular
- MRI (Angiography) – ligaments, cartilage and meniscus
- X-ray (acute- dislocation?, chronic- alignment)

THANK YOU!

