



Centre of Orthopaedics and Traumatology
Hospital Brandenburg
Medical School "Theodor Fontane"

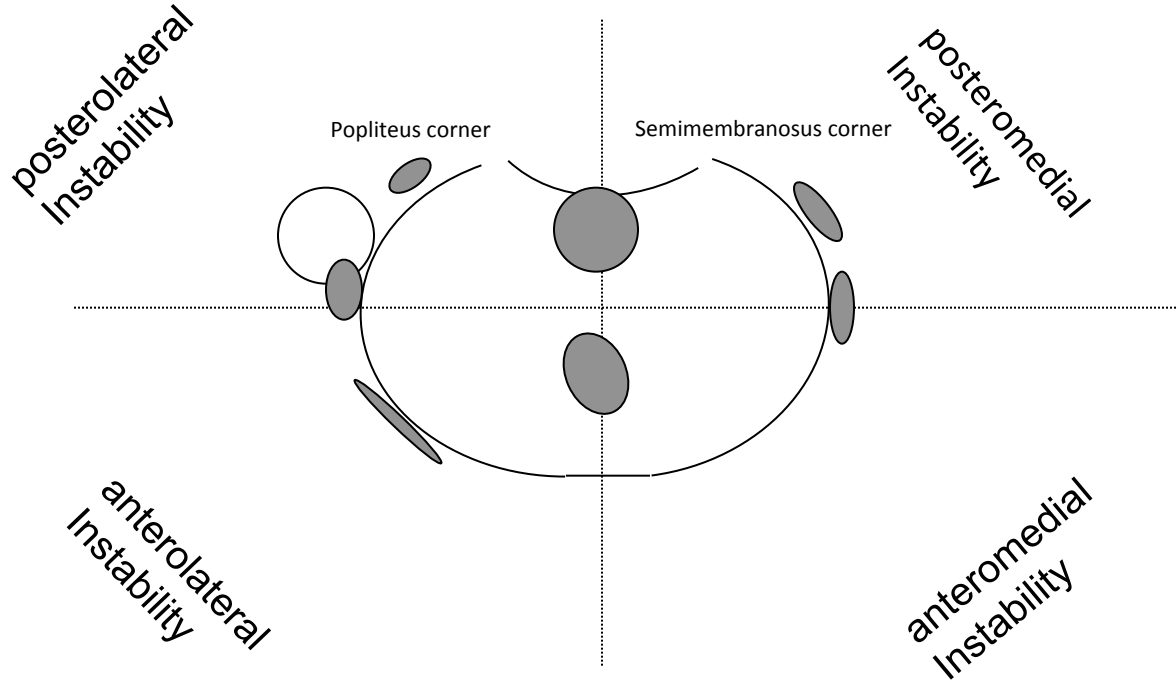


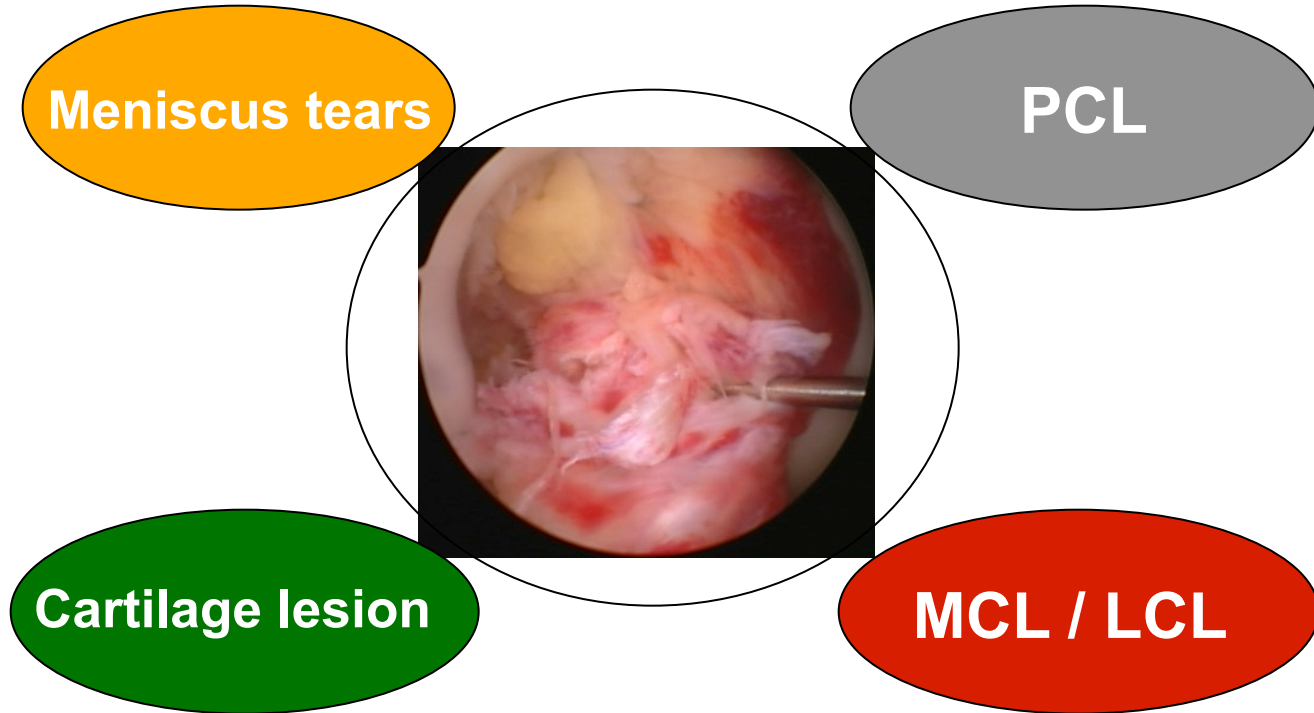
**Acute surgical treatment
of the medial aspect of the knee**

Roland Becker



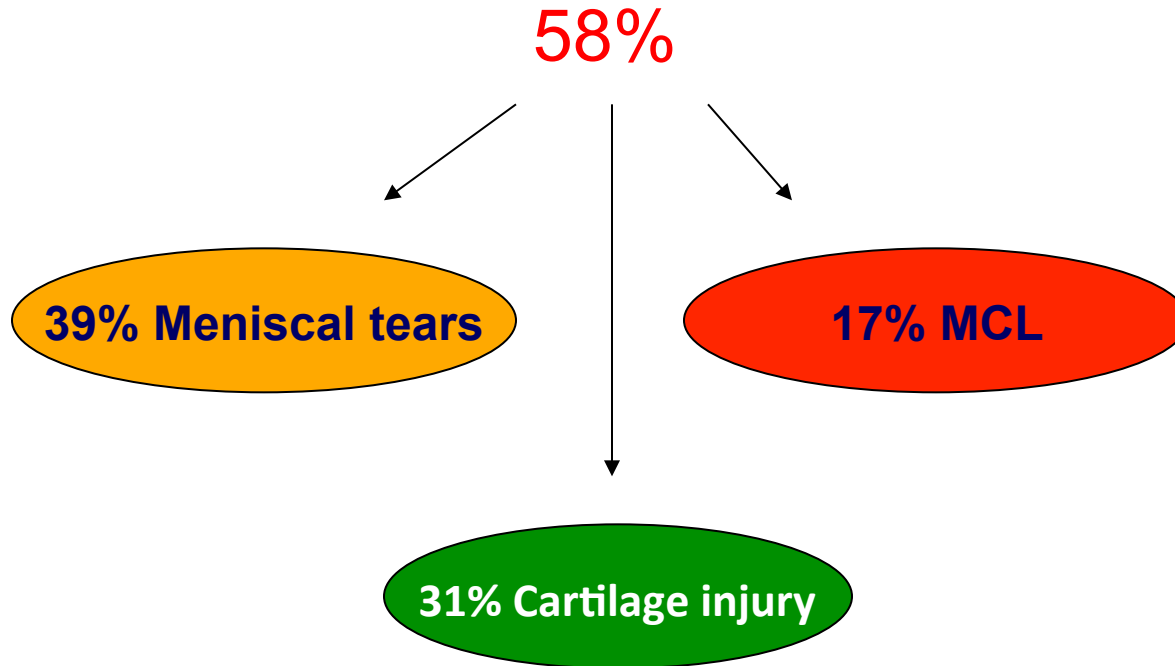
Isolated and combined instabilities







1375 Patients with ACL injury



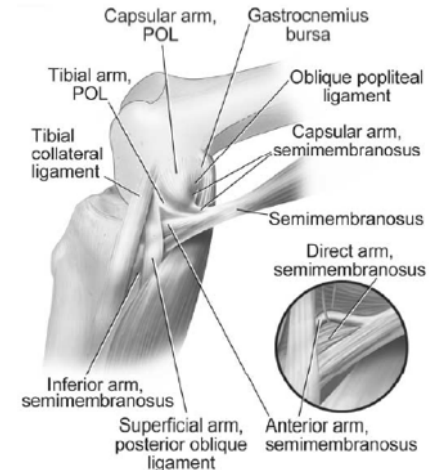


- Isolated ACL injury 51%
Natri et al., Scand J Med Sci Sports. 1995
- ACL + medial collateral ligament 16 - 38%
Duncan et al., AJSM 1995; 23
Cimino et al., Arthroscopy 1994; 10
- ACL + anterolat. capsule 30 - 50%
Musahl et al., AJSM 2016; August online publication
Feretti et al., Arthroscopy 2016, June 21, online publication
- ACL + lateral collateral ligament / PLS < 10%
- ACL + PCL < 5%



ACL and MCL injury

- Valgus-rotation injury
 - most common type of injury
 - high incidence of MCL injury





Classification by Houghston

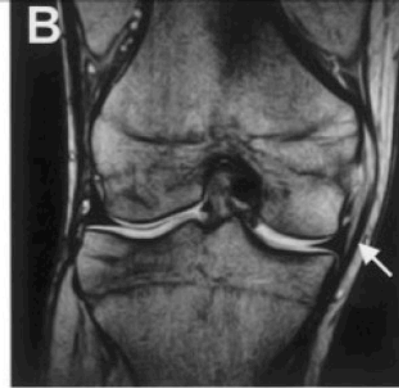
Severity of injury

- **Grade I** Partial ruptur of few fibres of the MCL, stabile in 0° and 30° of knee flexion
- **Grade II** sMCL# / POL intact, stabile in 0°, instabile in 30°
- **Grade III** sMCL# + POL #, instabile in 0° and 30°

Hughston, JBJS-Am 1976; Fetto et al., Clin Orthop 1978



Grad I



Grad II

Grad III



Grad IV



Accuracy of MRT in acute knee injury

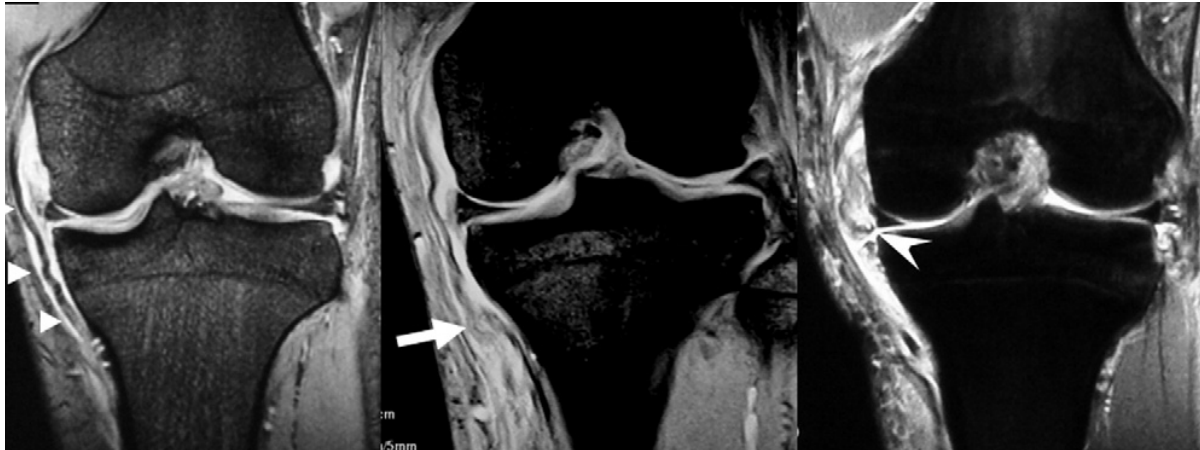
	Sensitivity	Specificity	PPV	NPV
Anterior cruciate ligament	90	94	77	98
Posterior cruciate ligament	100	100	100	100
Medial Meniscus	97	88	94	94
Lateral Meniscus	77	99	98	89

Fast Spin Echo without Fat Supression

	Sensitivity	Specificity	Accuracy
MCL	65.6	97.7	93.6
MM	94.1	81.3	90



„Wave sign“ in valgus rotation grade III



Waving of the
superficial layer

Waving of the
Distal end

Entrapment in the medial
compartment

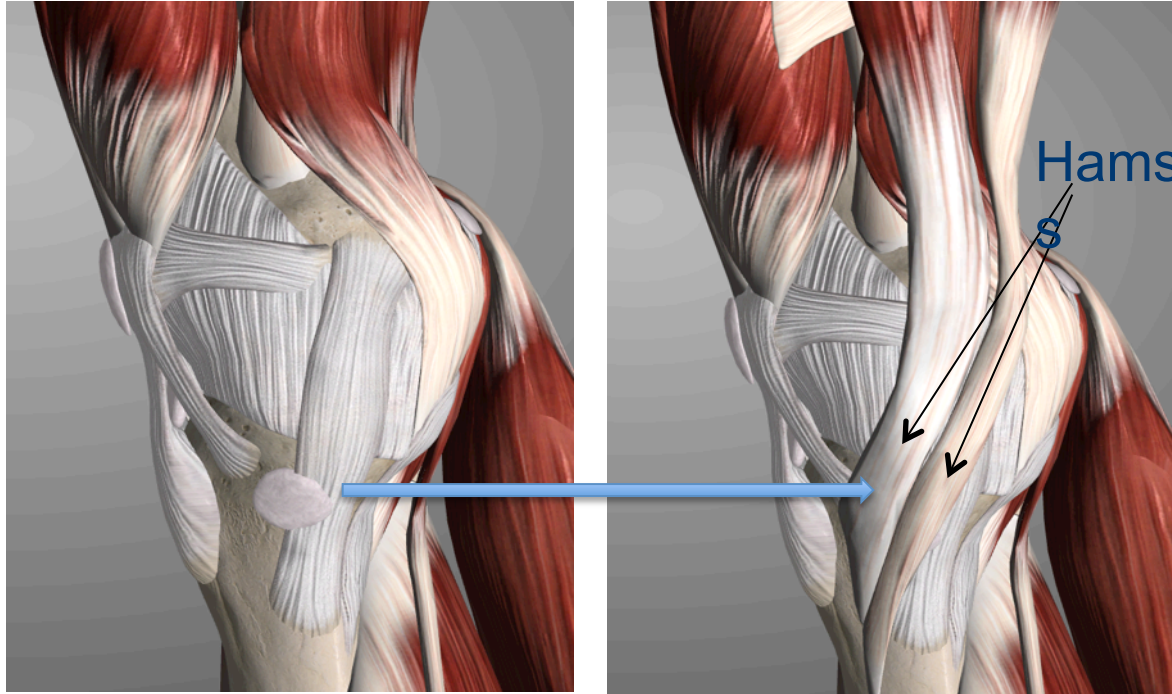


ACL and MCL tear (Gd I-II)

No medial instability in knee extension

1. Conservative treatment of the MCL
2. ACL reconstruction







Surgery of acute MCL injury

- Acute bony avulsion from the tibial site
- Large acute avulsion from the tibial site

Wilson et al., Orthopedics 2004





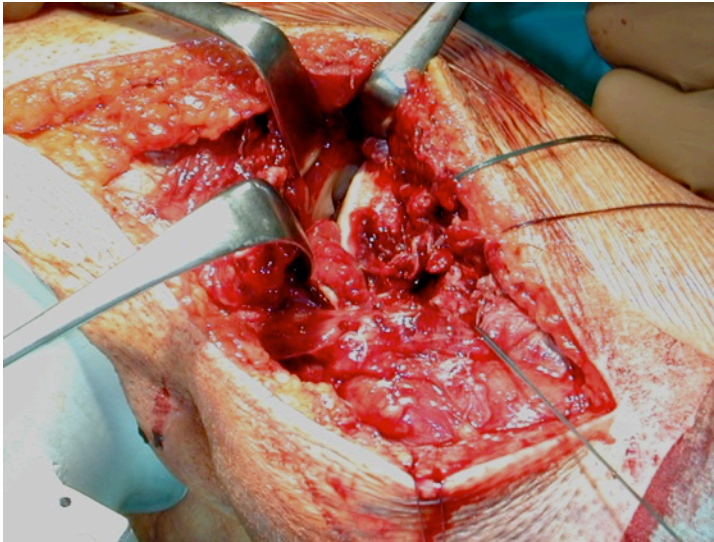
Surgery of acute MCL injury



Singel stage surgery recommended



Surgery of acute MCL injury



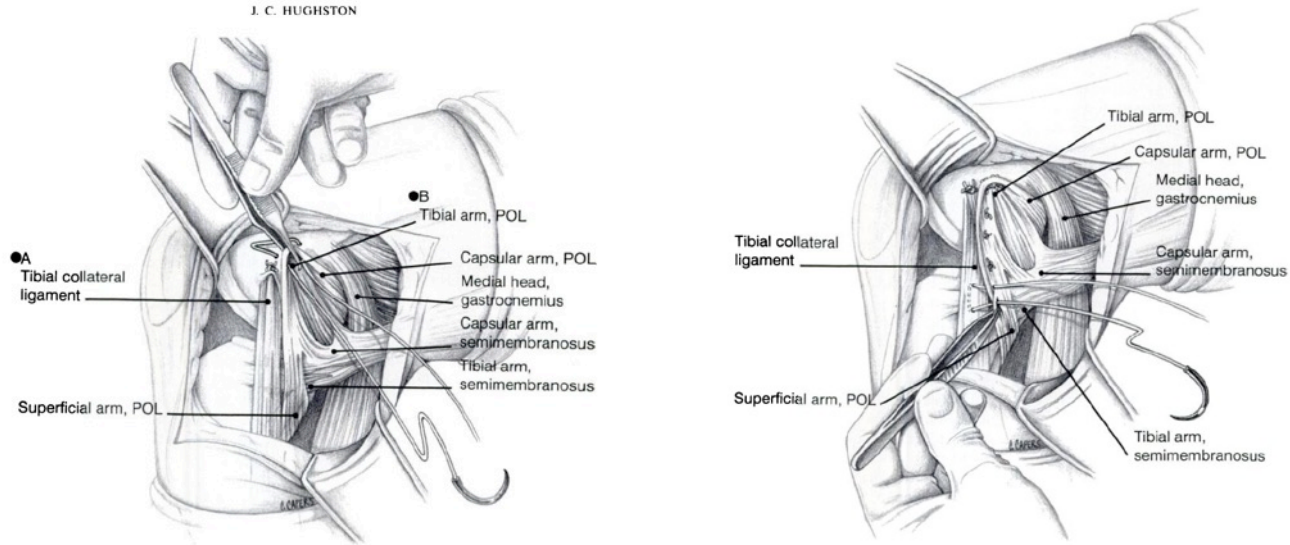
Courtesy S. Scheffler

In multiligament injuries primary repair with anchors



Surgery of acute MCL injury

Repair of the posterior oblique ligament by Hughston





ACL Surgery

- MCL tear and grad III instability in 0° + 30° of flexion

Increased incidence of persistent medial instability
Risk of secondary instability after ACL reconstruction

Kannus et al., Clin Orthop 1988

- Grade III Injury of the superficial and deep MCL (MRI)

In combination with ACL rupture increased rate of both medial and anterior injury

Nakamura et al., AJSM 2003



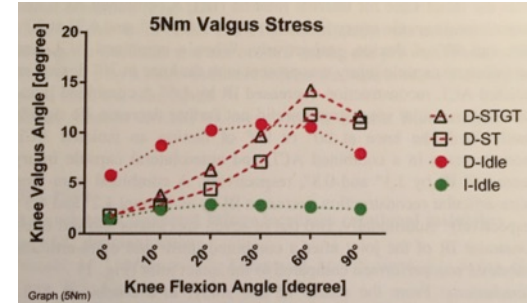
SINGLE STAGE PROCEDURE IN ACL AND MCL INJURY



Graft selection

Significant more valgus instability nach HT /ST harvest in
MCL insufficiency of the knee

Cadaver testing of valgus rotation: ACL - / MCL +
ACL - / MCL -
ACL recon. + ST/G-loading +
ACL recon. - ST/G-loading -



30% increase in valgus rotation
restoration of valgus stability
19% increase of valgus rotation



- Quadriceps tendon
- Patella tendon
- Allograft



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Hughston, JBJS-Am 1976; Fetto et al., Clin Orthop 1978

Therapy

- **Grade I** Conservativ
- **Grade II** Conservativ, some times surgery in case of subjective instability
- **Grade III** Surgery

*Reider et al., AJSM, 1994; Indelicato et al., Clin Orthop 1990
Jones et al., Clin Orthop 1986*



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Thank you



Chronic MCL instability



Reconstruction of both anterior (superficial) and posterior (deep) part of the MCL