



# REHABILITATION AFTER MULTIPLE LIGAMENT RECONSTRUCTION

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# Complex ligament reconstruction

- Attention on ACL/PCL rehabilitation
- Peripheral reconstruction should be protected during healing period (D0-D45):
  - Brace
  - Non weight bearing

# Rehabilitation

**PCL graft**

**≠**

**ACL graft**

Problem of Knee laxity control

Non “accelerated” rehabilitation

**SLOW**  
motion recovery

Problem of knee stiffness

“Accelerated” rehabilitation

**QUICK**  
motion recovery

# Rehabilitation

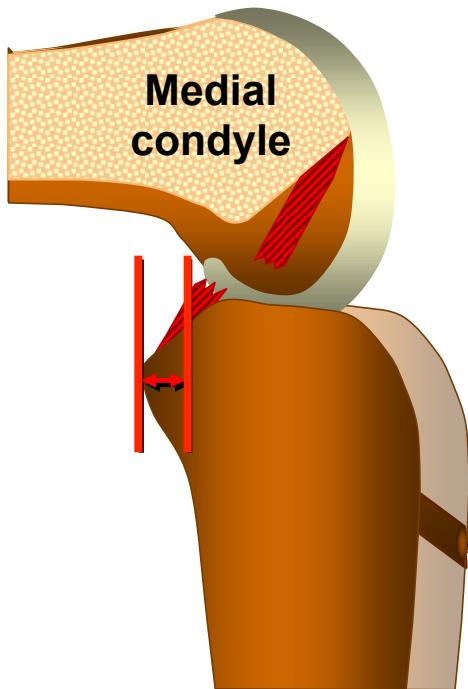
PCL graft

Non "accelerated" rehabilitation

SLOW  
motion recovery

PCL guides the rehabilitation!

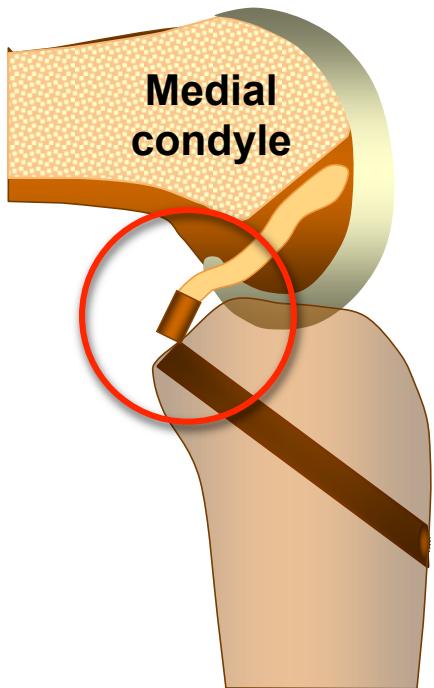
# Rehabilitation goals



**Surgery** → **Passive stability**

**Rehabilitation** → **Mobility**  
**Active stability**

# Requirements



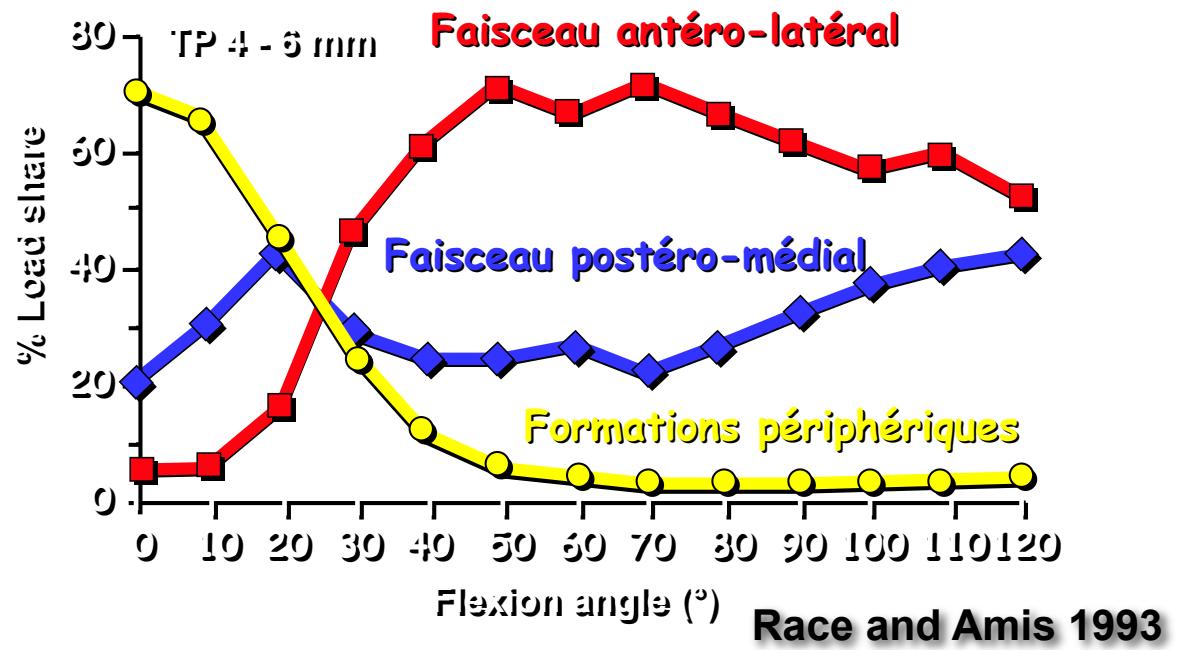
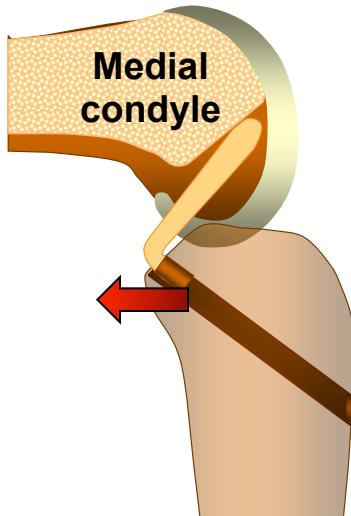
- Relative weakness of primary fixation
- Ligamentization of the graft
- Harvesting site healing

# Main principles

## 1. Knee "stiffening"

Slow flexion recovery

## 2. Graft protection



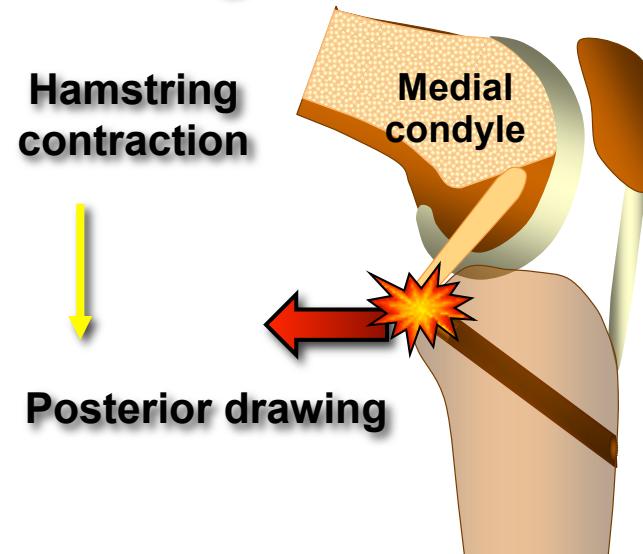
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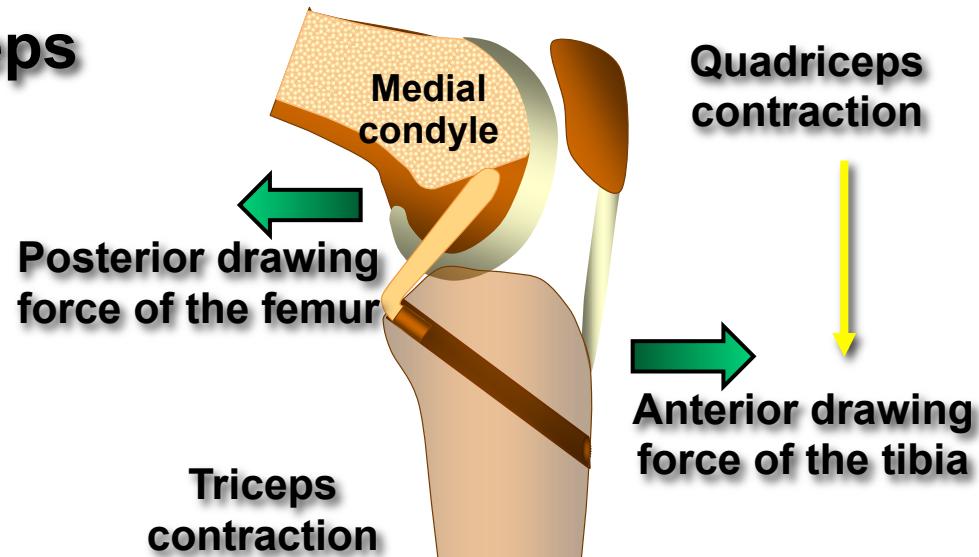
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Quadriceps and triceps  
strengthening



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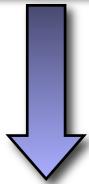
Quadriceps and triceps  
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## 3. Harvesting site protection

Pes anserinus or extensor mechanism

# Rehabilitation protocol

D1 - D45



**Brace all around the clock**



**Physiotherapy**



**No hamstrings exercise**



# Rehabilitation protocol

D1 - D45

- Teaching awareness on non use of hamstrings      + + +
- Recovery active extension      + + +
- Passive flexion increasing progressively from 0° to 90°
- Progressive weight bearing



# Rehabilitation protocol

D1 - D45

“Imprisonment” with “release on parole”



# Rehabilitation protocol

## D45 - D90

- No brace and autonomous walking
- Quadriceps and triceps strengthening (CKC)
- Passive flexion increasing progressively to 120°
- Starting physical exercises without resistance
- Bipodal proprioception training
- Hamstrings stimulation

# Rehabilitation protocol

D45 - D90

“under surveillance freedom”



Walking exercises with  
crutches without brace

# Rehabilitation protocol

D90 - D150

More flexion recovery

More quadriceps strengthening

Monopodal proprioception training

Controlled physical training (road cycling without toe clip,  
soft jogging, crawl swimming)

# Rehabilitation protocol

D90 - D150  
“Reintegration”



# Conclusion

**The important points in complex knee rehab is PCL**

Totally ≠ from ACL rehabilitation

Knee “stiffening”

Graduate and progressive flexion recovery

Temporary non use of hamstrings

Strengthening quadriceps and triceps