


Rules of rehabilitation to minimize the risk of stiffness
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Rules of rehabilitation

- Pain relief ++ (immediate post surgery, hematoma, ...)
- Mobilisation
- Education

Rules of rehabilitation to minimize the risk of stiffness

Literature

 After TKA

Rehabilitation's tools

- CPM (continuous passive motion)
- Pain killers § NSAI (pain relief)
- NMES (Neuromuscular electrical stimulation)
- Muscular strengthening
- Home-made exercise program
- Manual physical therapy
- Aquatic therapy
- Ergometer cycling


PAIN RELIEF Nerve block

- RCT study
- continuous sciatic nerve block / single-injection sciatic nerve block after total TKA
- earlier rehabilitation with more effective ambulation (P < 0.05).

Does continuous sciatic nerve block improve postoperative analgesia and early rehabilitation after total knee arthroplasty? A prospective, randomized, double-blinded study., Cappelleri Get al

CPM

- N=84 TKA
- Distribution to 1 of the 3 standard rehabilitation regimes:
- no-CPM / 1-day-CPM / 3-day-CPM.
- WOMAC, SF-12,ROM preoperatively and on postoperative days 3, 5, 14, 42, and 90
- no statistically significant difference among the 3 groups

 no benefit in immediate functional recovery post-TKA

To use or not to use continuous passive motion post-total knee arthroplasty presenting functional assessment results in early recovery. Maniar RN et al, Arthroplasty2012 Feb;27(2):193-200

NMES

- applied to the surgical limb's quadriceps muscle for the first 6 weeks following surgery,
- improve the speed of recovery from TKA + long-term increases in strength and functional performance
- the greatest strength and functional losses occur immediately after surgery, there is emerging evidence that strength and functional gains can be made after the acute postoperative recovery period



NMES

- + utilization of a comprehensive intensity strength training program +
- + traditional rehabilitation approaches

Non-invasive interactive neurostimulation (InterX™) reduces acute pain in patients following total knee replacement surgery: a randomised, controlled trial

Atick K Nigam¹, Deree M Taylor² and Zula Yabuzov³*

Quadriceps strengthening

- muscle inactivation (rather than muscle atrophy or joint pain) the cause of the weakness +++



progressive resistive strengthening exercises

- + neuromuscular electrical stimulation

Instr Course Lect 2010;59:119-30.

Quadriceps strength in relation to total knee arthroplasty outcomes. Saleh KJ et al

Aquatic therapy

- Common for shoulder rehab ...
- the timing of aquatic therapy influences clinical outcomes after total knee arthroplasty (TKA)
- Multicenter RCT (n=185).
- Randomly assigned to aquatic therapy (pool exercises aimed at training of proprioception, coordination, and strengthening) after 6 D versus 14 days after TKA.



No effect size for early aquatic therapy after TKA

Arch Phys Med Rehab; 2011 Dec 16.

Multicenter Randomized Controlled Trial Comparing Early Versus Late Aquatic Therapy After Total Hip or Knee Arthroplasty. Liebs TR, et al

Ergometer cycling

- Effect of ergometer cycling after TKA on quality of life and patient satisfaction.
- randomly assigned to ergometer cycling beginning two weeks after knee replacement
- No significant differences between the study groups were seen after the knee arthroplasties.



No support the use of ergometer cycling after TKA

JBJS Am2010 Apr;92(4):814-22.

Ergometer cycling after hip or knee replacement surgery: a randomized controlled trial. Liebs TR et al

Early High-Intensity Rehabilitation Following Total Knee Arthroplasty Improves Outcomes ?

- A HI program : strength and functional performance
- knee ROM =

BADE MJ, STEVENS-LAPSLEY, J december 2011, 41(12) journal of orthopaedic & sports physical therapy

Rehabilitation or not rehab ... to avoid stiffness ?

- 150 (TKA)
- group A : outpatient physiotherapy (6 weeks) / group B : 0
- ROM (preop and 1-y), knee scores SF-12
- ROM 108° in both group at 1 y
- No difference in any of the outcome measures



outpatient physiotherapy does not improve the ROM after TKA

Mockford BJ et al, J Arthroplasty 2008 Dec;23(8):1110-4.

Does a standard outpatient physiotherapy regime improve the range of knee motion after primary total knee arthroplasty?

Evidence Based Medicine

Effectiveness of multidisciplinary rehabilitation on activity and participation in adults following TKA ?

- Inpatient : more rapid functional Independence, shorter hospital stay, fewer post-operative complications
- Home-based multidisciplinary care : functional gain QoL and reduced hospital stay



Silver level evidence : early multidisciplinary rehabilitation can improve outcomes at the level of activity and participation

Cochrane Database Syst Rev 2008 Apr 16;(2):CD004957.
Multidisciplinary rehabilitation programmes following joint replacement at the hip and knee in chronic arthropathy.et.al.

Conclusion Rehabilitation ?

- EDUCATION ++++
- In preoperative and postoperative
- Pain relief
 - To avoid stiffness ?? : Move your knee !