

## Principles of Knee Rehabilitation

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## Pre-habilitation PHYSICAL PREPARATION

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## Pre-habilitation (Physical Preparation)

- Goal: Normalizing the knee prior to surgery after an acute injury
- 1) Decrease inflammatory response
  - 2) Good muscle control
  - 3) Normal gait pattern
  - 4) Normal, symmetrical motion with flexion and extension of the knee

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## Pre-habilitation

- Arrange for preoperative PT or Athletic training rehab to work on these areas
- Not always possible with certain injuries. (i.e. fractures and dislocations)

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## Pre-habilitation

(Physical Preparation)

- 1) Decrease inflammatory response-
  - Ice
  - Compression
  - Elevation
  - Anti-inflammatory

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## Pre-habilitation

(Physical Preparation)

- 2) Good muscle control-  
Good Quad set and control of Quads  
- do in combination with adduction to increase tolerance and get increased quad contraction

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## Pre-habilitation (Physical Preparation)

### 3) Normal Gait Pattern

- Walking without a limp
- May use crutches, cane or walker to ensure good weight transfer and normal walking patterns

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## Pre-habilitation (Physical Preparation)

### 4) Normal, symmetrical knee motion with flexion and extension

- Mobilizations (hands on work)
- AROM, AAROM, PROM
- Unloaded vs. loaded exercises
- Exercises to include-Stretches to emphasize end range motion, Feet on ball knee flex/ext,

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## Pre-habilitation MENTAL PREPARATION

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## Pre-habilitation (Mental Preparation)

- Just as important as physical preparation
- Patients/Athletes do much better when they know what to expect
- Especially true with complex and long rehabilitation protocols. (i.e. ACL reconstruction, menisectomy, TKR)

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## Pre-habilitation (Mental Preparation)

- Explain the operation
- Include:
  - What the surgeon will be doing, type of surgery-use models and charts
  - What if any medications he/she will be prescribed
  - Restrictions on weight bearing to include type of gait device they may need (walker, crutches) and instruct on use
  - How soon they will need to start exercises after surgery and where
  - Encourage them to talk to successful patients/athletes who went through same experience

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## General Principles (after knee surgery)

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## General Principles (After knee surgery)

- 1) Control Pain
- 2) Reduce Swelling
- 3) Increase Range of Motion
- 4) Normalize Gait
- 5) Increase Strength
- 6) Improve Balance
- 7) Functional Exercises, including sport specific
- 8) Return to full training
- 9) Return to full play

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## General Principles (After knee surgery)

- 1) Control Pain-
  - Mobilizations-joint and/or soft tissue
  - Modalities
  - Relaxation
  - Medications

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## General Principles (After knee surgery)

- 2) Reduce Swelling-
  - Ice
  - Compression
  - Elevation
  - Medications
  - Modalities
  - Soft tissue mobilizations/massage

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General Principles  
(After knee surgery)

3) Increase Range of Motion

- AROM, AAROM, PROM
- Active/Passive or Resistive stretching
- Mobilizations to joints and soft tissues

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General Principles  
(After knee surgery)

4) Normalize Gait-

- Avoid Limp by using assistive device
- Have patient/athlete concentrate on good leg and then mimic that side with affected leg

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General Principles  
(After knee surgery)

5) Increase Strength-

- WORK both sides-equally
- WORK patient/athlete by varying repetition speeds to improve motor control and multiple fiber recruitment

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General Principles  
(After knee surgery)

6) Improve Balance-

- Work both sides
- Eyes open and closed
- Vary the surface and angle

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General Principles  
(After knee surgery)

7) Functional Exercises-

- Include Sport Specific Drills
- Squats, Lunges, Stairs, Jumps-
- Emphasize correct positioning with knee in line over foot but not past the toes
- Slow and fast twitch fibers
- Motor control and correct positioning

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General Principles  
(After knee surgery)

8) Return to full training-

- Resume normal training schedule with running, lifting and sport specific training

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### General Principles (After knee surgery)

- 9) Return to Full Play-
  - Resume normal competitive sport with no restrictions
  - May need protective bracing

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# THE END

THANK YOU!

- Danny Kasproicz PT, ATC, LAT
- Boerne Physical Therapy Institute

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