Knee Replacement in the Recreational Athlete

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Introduction

- In the early development of knee replacement surgery,
  - the goal of the procedure
    - provide a knee to walk comfortably
    - activities of daily living
Introduction

Over the last three decades:

• these modest goals have dramatically changed.
• As the knees and hips of active people
• signs of arthritic wear and tear
  • solutions have been sought
  • maintain their active lifestyles.
Introduction

• Implant manufactures
  • improved function
  • and durability
• Surgeons
  • improved operative techniques
• The result is that it is now possible
  • to lead active lifestyles
  • to continue participation in recreational sports
  • and relatively vigorous exercise programs.
Surgical goals

- **ANATOMY RESTORED:**
- anatomically positioned on the femur, tibia, and patella
- three dimensionally to restore proper overall leg alignment.
Surgical goals

• COLLATERAL LIGAMENTS BALANCED:
  • The medial and lateral collateral ligaments
  • evenly balanced to provide side-to-side stability to the knee.
  • In the process, preoperative malalignment such as a
  • “bowed” or “knock-kneed” deformity must be corrected.
Surgical goals

• POSTERIOR STABILITY ACHIEVED:
  • either preserving the PCL
  • or by substituting for it with a PCL sacrificing implant design.
Surgical goals

• ACL & PCL preserved:
Surgical goals

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Surgical goals

- ACL & PCL preserved:
  - Kinematics
  - Proprioception
  - Range of motion
Improved Rehab Timeline

• The “Quadriceps Sparing”
  • avoids cutting into the quadriceps muscle.
  • operative protection of the quad muscle
  • allowed for the return of early quadriceps function
  • perform a straight leg raise immediately after the effects of the “numbing” blocks
Improved Rehab Timeline

• Better initial pain management
  • femoral and sciatic nerve blocks to
  • “numb” the leg for 12 – 24 hours post op
  • allows for more effective early therapy.
Recovery Timeline

1. Hospital stay: 1 – 2 nights.

2. CPM machine for early motion used night of surgery.

3. Twice-daily in-hospital therapy starts the day after surgery.

4. Full weight bearing is allowed as soon as the effects of the sciatic and femoral nerve blocks
Recovery Timeline

1. Patients are permitted to get off the walker / crutches as soon as tolerated. In the athlete this usually occurs in less than 1 – 2 weeks.

2. Physical therapy (home and outpatient) is required for 4 – 6 weeks post operatively.

3. Independent exercise program to maintain quad & hamstring strength recommended indefinitely.

4. Light recreational sports allowed at 6 weeks post op (golf, walking, fitness program).

5. Vigorous exercise program expected at 3 – 4 months (i.e. tennis)
General Instructions

- Most adult recreational athletic activities and exercise programs are possible in knee replacement patients.
- Activities that subject the knee
  - to excess wear,
  - impact,
  - or risk of injury
  - should be avoided.
General Instructions

Activities allowed:

- brisk walking
- exercise bikes,
- elliptical trainers,
- and treadmills

- are good aerobic substitutes of running.
General Instructions

- Activities **allowed with caution**:
  - running
  - stair climbing machines
  - use of excessive weight on leg press or knee extension machines

- can create soreness and swelling
- exposure of the patella to peak stresses.

- exercises program should be of a low weight – high repetition
- (30 reps or more) strategy.
- The routine use of ice after exercising
- minimize swelling and soreness during the 1st year
Sports Specific Instructions

Specific recreational sports:

Basketball:
running, jumping and torque is not recommended.

Tennis:
is well tolerated,
most other racquet sports.
Sports Specific Instructions

Specific recreational sports:

Biking:
even competitively
well tolerated.

An experienced snow skier or water skier
resume their sport,
a fall and subsequent ligament injury to the knee
significant impact on the function and stability of the knee
lead to revision surgery.
Sports Specific Instructions

Specific recreational sports:

A golfer:
start hitting balls,
chipping and
putting as soon as 4-6 weeks after surgery.
After complete healing, a golfer should be able to walk the course if desired.

Horseback riding is permissible.
Conclusions

Knee replacements:
- improvements in implant designs
- and surgical techniques,
- return to most recreational sporting activities
- and reasonable exercise programs is possible.

The life goal after a knee replacement:
- stay fit,
- have fun in life,
- and choose activities
- will allow enjoyment of the new knee for many years to come.
Thank you!