



MaioRegen

Biojoint System

Rehabilitation Protocol





1st PHASE *(from surgery to the end of the 3rd month)*

OBJECTIVES

- reduce pain and inflammation
- initial recovery of range of motion
- recovery of walk

WEIGHT BEARING

- no weight bearing for 6 weeks: walking allowed with 2 crutches
- progressive recovery of full weight bearing from 6th to 8th week
(gradually lay aside one crutch, then the other)





RANGE OF MOTION

continue passive motion (CPM), 6 hours daily with 1 cycle per minute for the first 2 weeks
self assisted mobilization of the knee between 0° and 90°
pendulum exercises
passive mobilization of the patella

REHABILITATIVE EXERCISES

co-contractions of the quadriceps
electrostimulation and isometric contraction of the quadriceps
active mobilization of the ankle joint
stretching program for the posterior muscular chain
from the 3rd week: exercises in the swimming-pool
from the 6th week: stationary bicycling
bipodalic leg press with elastic resistance (resistance equivalent to 1/6 of total body weight)

CRITERIA FOR PROGRESSION TO 2nd PHASE

minimal or absent pain and swelling
full knee active extension
knee flexion at 120°
recovery of the correct gait cycle













2nd PHASE (*4th and 5th month*)

OBJECTIVES

recovery of full range of motion
initial strength recovery
recovery daily life activity

WEIGHT BEARING

full weight bearing, lessen daily physical activity in presence of swelling

RANGE OF MOTION

mobilizations of the patella
extension as the contralateral knee
active mobilization of the knee with heel reaching the buttock

REHABILITATIVE EXERCISES

stationary bicycling
elliptical device
walk on the treadmill
eccentric strengthening of the triceps muscle
proprioceptive exercises with bipodalic load
closed kinetic chain exercises:
horizontal eccentric bipodalic leg press (up with two legs, down with one)
monopodalic leg press with elastic resistance

CRITERIA FOR PROGRESSION TO 3rd PHASE

full range of motion
no pain and swelling
patient able to walk on a treadmill at 6 km/h for 10' without pain and effusion





3rd PHASE (*6th and 7th month*)

OBJECTIVES

progressive strength recovery
return to running on treadmill

WEIGHT BEARING

full weight bearing, if the knee tends to swell diminish the load and consult the surgeon

RANGE OF MOTION

maintenance of full range of motion
stretching exercises for quadriceps and hamstrings

REHABILITATIVE EXERCISES

high speed isokinetic training
open kinetic chain exercises
proprioceptive exercises with monopodal load
advanced proprioceptive exercises (bouncer)
running on the treadmill at 8 km/h

CRITERIA FOR PROGRESSION TO 4th PHASE

no pain and effusion
patient able to run on a treadmill at 8 km/h for 10' without pain and effusion
less than 20% between the two quadriceps and hamstrings in the Isokinetic testing





4th PHASE (*8th and 9th month*)

OBJECTIVES

recovery of coordination
recovery of full muscular strength and endurance

REHABILITATIVE EXERCISES

recovery of strength in the gym
aerobic conditioning
(bicycling, elliptical device, swimming, treadmill)

CRITERIA FOR PROGRESSION TO 5th PHASE

no pain and swelling
good coordination and good neuromuscular control
no difference between the two limbs in the Isokinetic testing





5th PHASE *(from the 10th to the 12th month)*

OBJECTIVES

recovery of sport specific skills
return to sport

REHABILITATIVE EXERCISES

exercises on the field
(at least 3 times a week for 4 weeks before returning to his/her own sport)
maintenance program in the gym
(strength exercises and aerobic conditioning)

CRITERIA FOR A RETURN TO SPORT

no pain and swelling
range of motion as the contralateral limb
strength as contralateral limb
patient able to run at 8 km/h for 30'