





Rehabilitation Protocol













Postoperative Rehabilitation Program After Biologic Joint Reconstruction

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

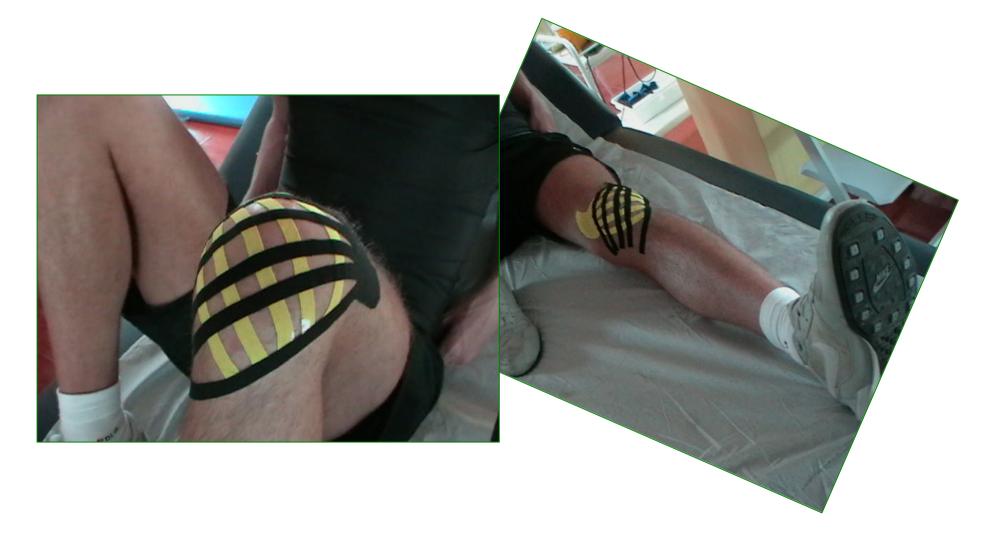
no weight bearing for 6 weeks: walking allowed with 2 crutches progressive recovery of full weight bearing from 6th to 8th week (gradually lay aside one crutch, then the other)



















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 quardiceps
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 acitve 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

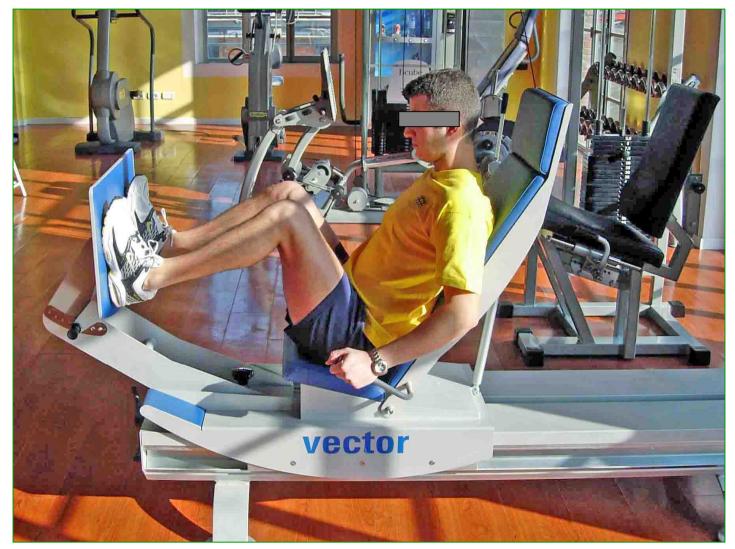
full range of motion no pain and swelling patient able to walk on a treadmill at 6 km/h for 10' without pain and effusion



















3rd PHASE (6th and 7th month)

OBJECTIVES

progressive strength recovery return to running on treadmill

WEIGHT BEARING

full weight bearing, if the kneee 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 monopodalic 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

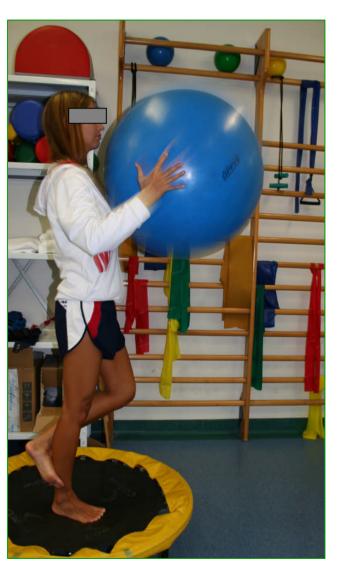




















5th PHASE (from the 10th to the 12th month)

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'



