

**CMI**<sup>TM</sup>

 **Menaflex**<sup>TM</sup>  
COLLAGEN MENISCUS IMPLANT

The CMI<sup>TM</sup> collagen meniscus implant has been renamed Menaflex<sup>TM</sup>. All CMI references throughout this brochure can be replaced with Menaflex.



*The ReGen<sup>®</sup> CMI<sup>TM</sup> is a type I collagen implant designed to facilitate growth of new tissue to replace removed or missing meniscus tissue in the human knee.*

## Rehabilitation Program

Summary for Patients, Surgeons and Physiotherapists



REGENERATING TISSUE | RESTORING MOBILITY | REJUVENATING LIFESTYLES

# Rehabilitation after CMI™ Implantation

## Exercise Program

### Introduction

After arthroscopic meniscus surgery, patients wish to return to their daily routines as quickly as possible. Adherence to a rehabilitation program following CMI implantation, or any other type of arthroscopic surgery, is therefore just as important as the surgery itself.

Patients who have undergone CMI implantation often feel able to return to their accustomed activities sooner than they had expected. It is vital to remind the patient that although the knee operated upon may not be causing discomfort, the actual healing process has only just begun.

The exercise program for rehabilitation following CMI implantation covers a period of six months. The program was designed by experienced CMI users and physiotherapists to serve as a guideline towards successful rehabilitation.

The program offers a balanced combination of strengthening and motion exercises providing protection for the newly formed tissue throughout the delicate process of regeneration. It is therefore critical to adhere strictly to the rehabilitation guidelines set out in this brochure, to ensure the best possible regeneration of the meniscus tissue.

## Day One through Week Four

### Motion

Only passive motion exercises on CPM machine or motion exercises using the well leg to support the operated leg.

- Range of motion: 0 to 60 degrees (setting CPM machine: 0-0-60 degrees)

### Exercises in Sitting Position

Healthy leg provides support and leverage (see figure A).

Using the healthy leg, raise flexed leg to full extension of affected knee joint, then lower slowly (see figure B).

There should be no active muscle contraction in the affected leg.

- Range of motion: 0 degrees (full extension) to 60 degrees flexion
- Repeat exercise 500 times, three times daily
- Duration: approximately 10 to 15 minutes for each session

### Brace

Must be worn at all times except when performing passive motion exercises, unless otherwise specified

- Brace setting: full extension, 0 degrees

### Weight-bearing

Crutches must be used at all times during ambulation.

#### Week One

No weight should be placed on the affected leg when ambulating with crutches.

When standing, the affected leg may rest on the ground (corresponds to partial weight bearing of 10 to 15 kg).

#### Week Two

Partial weight bearing of up to 30% of body weight may be placed on the affected leg when ambulating with crutches.

#### Week Three through Four

Gradual increase of partial weight bearing from 30 to 50% of body weight on affected leg when ambulating with crutches.

### Patella Mobilization

Three times daily patella mobilization supervised by physiotherapist or following instructions of physiotherapist.

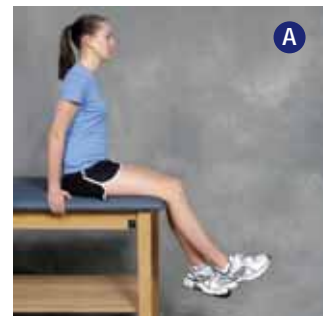
### Strengthening

#### Exercises in horizontal position

Exercise with leg outstretched. Start exercises as soon as muscle tone permits.

Outstretch affected leg and raise repeatedly (see figures C & D).

- Repeat exercise 30 times, twice daily
- Duration: approximately 5 minutes for each session



60° flexion



Full extension



Leg fully extended



Leg raised



90° flexion



Full extension

## Week Five through Week Six

### Motion

Passive motion exercises on CPM machine or motion exercises using the well leg to support the operated leg.

- Range of motion: 0 to 90 degrees (setting of CPM machine: 0-0-90 degrees)

### Exercises in Sitting Position

Healthy leg provides support and leverage (see figure E).

Using the healthy leg, raise flexed leg to full extension of affected knee joint, then lower slowly (see figure F).

There should be no active muscle contraction in the affected leg

- Range of motion: 0 degree (full extension) to 90 degrees flexion
- Repeat exercise 500 times, three times daily
- Duration: approximately 10 to 15 minutes for each session

### Brace

Must be worn at all times except when performing passive motion exercises, unless otherwise specified

- Brace setting: full extension, 0 degrees

### Weight-bearing

Gradual increase of partial weight bearing from 50 to 90% of body weight on affected leg when ambulating with crutches.

### Patella Mobilization

Three times daily patella mobilization supervised by physiotherapist or following instructions of physiotherapist.

### Strengthening

#### Exercises in horizontal position

Exercise with leg outstretched. Outstretch affected leg and raise repeatedly (see figures C & D).

- Repeat exercise 30 times, twice daily
- Duration: approximately 5 minutes for each session

## Week Seven through Week Eight

### Motion

Begin active motion exercises and gradually increase to full range of motion as tolerated.

### Exercises in Sitting Position

Actively raise flexed leg to full extension of affected knee joint, then lower slowly. Keep foot flexed during entire exercise. Independent exercise of affected leg, without support of a healthy leg (see figure H).

- Range of motion: 0 degrees (full extension) to full flexion as tolerated (see figures G & H)
- Repeat exercise 500 times, three times daily.

### Brace

Must be worn at all times except when performing motion exercises, unless otherwise specified.

- Brace setting: 0 to 90 degrees

### Weight-bearing

Increase to full weight bearing on the affected leg while ambulating with crutches.

As soon as patient is able to walk without a limp, the crutches can be discarded.

### Patella Mobilization

Three times daily patella mobilization supervised by physiotherapist or following instructions of physiotherapist.

### Strengthening

#### Exercises in horizontal position

Repeated raising of outstretched leg (see figures J & K).

- Repeat exercises 30 to 50 times, twice daily

#### Short arc quadriceps extension exercise

Flex outstretched affected leg to 20 degrees, then slowly return to full extension (see figure I).

- Repeat exercise 30 times, twice daily
- Duration: approximately 5 minutes for each session

#### Cycling (home trainer) without resistance

Brace must be worn during exercise

Day 1: cycle for 3 minutes

Day 2: cycle for 5 minutes

Increase by up to 5 minutes daily as tolerated to a maximum of 45 minutes.



Go beyond 90° flexion as tolerated



Full extension



20° downward flexion



Leg fully extended



Leg raised

## Week Nine through Four Months

### Motion

Unrestricted full range of motion

### Brace

Discontinue use of brace.

### Weight-bearing

Full unrestricted weight-bearing

### Strengthening

#### Cycling (home trainer) with increased resistance

- Duration without brace: maximum 45 minutes, daily

#### Shallow knee bends

- Range of motion: 0 to 30 degrees (see figure L)
- Repeat exercise 20 times, twice daily

#### Water exercise (optional)

Run in deep water using a floatation vest.

Make sure that the water is deep enough that the foot does not touch the bottom of the pool.

Day 1: 5 minutes

Increase by up to 5 minutes daily as tolerated to a maximum of 45 minutes.



Knee bends

## Five Months to Six Months

### Strengthening

#### Exercises with elastic resistance cord

Lateral agility exercises using an elastic resistance cord, e.g. Sport Cord® (see figures M & N).

- Repeat exercises at same tension: Week one through two: repeat 20 times, once or twice daily, every other day
- Week three through four: repeat 30 times, once or twice daily, every other day
- At two-weekly intervals, increase to a maximum of 50 times, twice daily, every other day



Lateral agility exercise



The rehabilitation program following CMI implantation is usually completed after six months. Please note, however, that this program is a general guideline. The program should be adapted to meet the patient's specific needs. Should you have questions or concerns relating to this rehabilitation program, please contact your ReGen® representative.

## ADDITIONAL PATIENT INSTRUCTIONS

*The ReGen® CMI™ is a type I collagen implant designed to facilitate growth of new tissue to replace removed or missing meniscus tissue in the human knee.*

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