



**Cartilage Restoration Procedure**  
**Dr. David R. Guelich**  
**Phase 1: Week 1-8**

WEEK	EXERCISE	GOAL
1-8	ROM-Passive	0-90° (wk 4)
	<b>Femoral condyle defect:</b> 0-45°	
	<b>Trochlear defect:</b> 0-30°	
	Range of motion to increase to reach goals based on area of defect as noted by Dr. Guelich	0-110° (wk 5) 0-120° (wk 8)
	Gastroc/Soleus stretch	
	Hamstring/ITB stretch	
	Heel/Wall slides to reach goal	
	Patella mobs	
	Ankle pumps	
	STRENGTH	
	Quad/Hamstring/Gluteal sets	
	Multi-angle isometric (0-60°)	wk 4
	Multi-angle isometric (90-30°)	wk 6-8
	SLR in all 4 planes as tolerated	
	Hip flexion	
	Selective ROM activity-depending on defect site as noted by Dr. Guelich	
	<b><i>Trochlear repair- only isometric training with quads, NO active motion through range</i></b>	
	WEIGHT BEARING	
	NWB with crutches	NWB to PWB (wk 4-6)
	<b><i>Microfracture</i></b>	<b><i>(wk 3-5)</i></b>
	BRACE	
	Locked at 0° extension for protection	
	MODALITIES	
	E-stim/biofeedback as needed	
	Ice 15-20 minutes	

**GOALS OF PHASE:**

- ROM 0-120°
- NWB to PWB with one crutch
- Control pain, inflammation, and effusion
- Adequate quad/VMO contraction

**Phase 2: Week 8-36  
Cartilage Restoration Procedure**

<b>WEEK</b>	<b>EXERCISE</b>	<b>GOAL</b>
8-36	<p>ROM</p> <p>Passive, 0-135° Patella mobs Gastoc/Soleus stretch Hamstring/ITB stretch Heel/Wall slides to reach goal</p> <p>STRENGTH</p> <p>SLR in 4 planes with ankle wt/tubing Mini-squats (0-30°) Wall squats Initiate 3-6" lateral/forward step-up/downs Leg press (0-60°)/Total Gym Knee extension (90-30°) Hamstring curls (0-90°) Multi-hip machine in 4 planes Heel raise/Toe raise</p> <p>BALANCE TRAINING</p> <p>Weight shift (side-to-side, fwd/bkwd) Initiate single leg balance work Progress to wobble board, ½ foam roller Single leg balance with plyotoss Sportscord balance work</p> <p>WEIGHT BEARING</p> <p>NWB to PWB to FWB with quad control</p> <p>BRACE</p> <p>Discharge by week 8 or as noted by Dr. Guelich</p> <p>AEROBIC CONDITIONING</p> <p>Bicycle when 110° flexion is reached EFX for endurance Treadmill with 2-3% incline to reduce joint loads Swimming (as noted by Dr. Guelich)</p> <p>MODALITIES</p> <p>Ice 15-20 minutes</p>	<p>0-135°</p> <p>FWB (wk 8) D/C (wk 6-8)</p>

**GOALS OF PHASE:**

- PWB to FWB with quad control
- ROM 0-135°
- Increase lower extremity strength and endurance
- Control pain and inflammation
- Enhance proprioception, balance, and coordination

## **Phase 3: Week 36-52**

### **Cartilage Restoration Procedure**

**WEEK**  
36-52

#### **EXERCISE**

**ROM**

Continue all stretching activities from previous phases

**STRENGTH**

Continue all strengthening activities from previous phases increasing weight and repetition

Reverse/Lateral lunges

Straight leg dead lift

Stool crawl

**BALANCE TRAINING**

Advance to dynamic balance work with different surfaces

**RUNNING/CONDITIONING PROGRAM**

Initiate running on minitramp, progress to treadmill as tolerated in a straight plane

Initiate jump rope for endurance and impact

Initiate walking program for endurance

Swimming (kicking)

Bicycle for endurance

Continue to increase time and resistance on the above

**FUNCTIONAL TRAINING**

Initiate light plyometric work

Initiate lateral movement (shuffle, slide board)

Initiate sport specific/functional drills at month 6

Progress into sport training at month 9

**MODALITIES**

Ice 15-20 minutes as needed

#### **GOALS OF PHASE:**

- Maintain full range of motion
- Maximize lower extremity strength and endurance
- Initiate sport specific activity
- Initiate functional activity