

## POST-OPERATIVE FEMORAL CONDYLE MICROFRACTURE REHABILITATION PROTOCOL

- Ensure patient achieves milestone prior to progression.
- Return to contact sports approximately 20 weeks post-op
- Return to gentle non-contact, non-competitive sports at physiotherapist's discretion but must be over 16 weeks post-op
- Any problems during rehabilitation please contact your physiotherapist or your Consultant Secretary.

WEEK	RANGE OF MOVEMENT	MOBILITY	TREATMENT	MILESTONE TO PROGRESS
Day of surgery	Immediate 0°-90° Passive ROM on CPM machine.	Touch weight bearing with EC	<ul style="list-style-type: none"> <li>• Use of ice and elevation</li> <li>• Ensure adequate pain relief</li> <li>• Apply CPM in recovery</li> <li>• Teach <b>passive</b> ROM exs to continue hourly on discharge</li> <li>• Static quads</li> <li>• SLR</li> <li>• Circulatory exercises</li> </ul>	<ul style="list-style-type: none"> <li>• No post-operative complications</li> <li>• Independent mobility with EC</li> <li>• Good understanding of home exercise programme</li> </ul>

WEEK	RANGE OF MOVEMENT	MOBILITY	TREATMENT	MILESTONE TO PROGRESS
<b>Week 1-4</b>	No limit to passive ROM. No active quads/hams through range.	Touch weight bearing with EC	<ul style="list-style-type: none"> <li>Continue ice and elevation</li> <li>Ensure adequate pain relief</li> <li>Hourly PROM flexn/extn exs in prone/sitting using unaffected leg for support</li> <li>Heel props</li> <li>Extension mobilisations if required</li> <li>Static Qs/SLRs</li> <li>Early VMO</li> <li>Gluteal strengthening</li> </ul>	<ul style="list-style-type: none"> <li>Minimal pain</li> <li>Full range extension</li> <li>SLR with no lag</li> </ul>
<b>Weeks 4-6</b>	No limit to passive ROM. Active movement limited to range that does not engage the lesion	PWB with EC	<ul style="list-style-type: none"> <li>Continue cryotherapy as required</li> <li>Continue regular PROM exs</li> <li>SLRs with resistance</li> <li>Isometric, co-contraction quads/hams in range that does not engage the lesion</li> <li>VMO/Gluteal strengthening</li> <li>Hydrotherapy if appropriate</li> <li>Proprioception exs</li> </ul>	<ul style="list-style-type: none"> <li>No pain</li> <li>Minimal/no effusion</li> <li>SLR x 10 with no lag</li> </ul>
<b>Weeks 6-12</b>	No limit to AROM	FWB, no walking aids	<ul style="list-style-type: none"> <li>Exs bike with increasing resistance</li> <li>Treadmill walking</li> <li>Step ups/cross trainer/rower</li> <li>CKC/OKC hams – increase resistance as tolerated</li> <li>CKC/OKC Qs – increase resistance as tolerated</li> <li>Squats, lunges</li> </ul>	<ul style="list-style-type: none"> <li>No pain</li> <li>No effusion</li> <li>Normal gait pattern</li> </ul>
WEEK	RANGE OF MOVEMENT	MOBILITY	TREATMENT	MILESTONE TO PROGRESS

<b>Weeks 12-16</b>	Full AROM	FWB	<ul style="list-style-type: none"> <li>• Progress strength training – no limits</li> <li>• Treadmill – commence light jogging and progress as symptoms allow</li> <li>• Progress to early change of direction running</li> <li>• Plyometrics</li> </ul>	<ul style="list-style-type: none"> <li>• No pain</li> <li>• No activity related swelling</li> <li>• Normal running pattern</li> </ul>
<b>Weeks 16-20</b>			<ul style="list-style-type: none"> <li>• Agility/cutting/twisting</li> <li>• Sport specific</li> </ul>	<ul style="list-style-type: none"> <li>• Symptom free sports specific training</li> </ul>
<b>From week 20 onwards</b>			<ul style="list-style-type: none"> <li>• Return to full competitive sport</li> </ul>	<ul style="list-style-type: none"> <li>• Fully fit for demands of specific sport</li> </ul>

## References:

- Asik, M, Ciftci, F, Sen, C, Erdil, M, Atalar, A (2008) The Microfracture Technique for the Treatment of Full-Thickness Articular Cartilage Lesions of the Knee: Midterm Results. *Arthroscopy: The Journal of Arthroscopic and Related Surgery*, 24 (11), 1214-1220
- Hurst, J, Steadman, R, O'Brien, L, Rodkey, W, Briggs, K (2010) Rehabilitation Following Microfracture for Chondral Injury in the Knee. *Clin Sports Med*, 29, 257-265
- McGinty, G, Irrgang, J, Pezzullo, D (2000) Biomechanical Considerations for Rehabilitation of the Knee. *Clinical Biomechanics*, 15, 160-166
- Mithoefer, K, Williams, R, Warren, R, Hollis, P, Spock, C, Jones, E, Wickiewicz, T, Marx, R (2005) The Microfracture Technique for the Treatment of Articular Cartilage Lesions in the Knee. *The Journal of Bone and Joint Surgery*, 87a (9) 1911-1920
- Mithoefer, K, Williams, R, Warren, R, Wickiewicz, T, Marx, R (2006) High-Impact Athletics After Knee Articular Cartilage Repair: A Prospective Evaluation of the Microfracture Technique. *American Journal of Sports Medicine*, 34 (9), 1413-1418
- Pearle, A, Warren, R, Rodeo, S (2005) Basic Science of Articular Cartilage and Osteoarthritis. *Clinics in Sports Medicine*, 24, 1-12
- Reinold, M, Wilk, K, Macrina, L, Dugas, J, Cain, E (2006) Current Concepts in the Rehabilitation Following Articular Cartilage Repair Procedures in the Knee. *Journal of Orthopaedic & Sports Physical Therapy*, 36 (10), 774-794
- Theodoropoulos, J, Dwyer, T, Whelan, D, Marks, P, Hurtig, M, Sharma, P (2012) Microfracture for Knee Chondral Defects: a Survey of Surgical Practice Among Canadian Orthopedic Surgeons. *Knee Surg Sports Traumatol*, 20, 2430-2437
- Tyler, T, Lung, J (2012) Rehabilitation Following Osteochondral Injury to the Knee. *Curr Rev Musculoskelet Med*, 5, 72-81
- Van Assche, D, Van Caspel D, Staes F, Saris, D, Bellemans J, Vanlauwe, Luyten, F (2011) Implementing one Standardised Rehabilitation Protocol Following Autologous Chondrocyte Implantation or Microfracture in the Knee Results in Comparable Physical Therapy Management. *Physiotherapy Theory and Practice*, 27(2), 125-136
- Vogt, S, Angele, P, Arnold, M, Brehme, K, Cotic, M, Haasper, C, Hinterwimmer, S, Imhoff, A, Petersen, W, Salzmann, G, Steinwachs, M, Venjakob, A, Mayr, H (2013) Practice in Rehabilitation after Cartilage Therapy: an Expert Survey. *Arch Orthop Trauma Surg*, 133, 311-320