



REHABILITATION FOLLOWING AUTOLOGOUS CHONDROCYTE TRANSPLANTATION TO FEMORAL CONDYLE

	WEEK	RANGE OF MOVEMENT	WEIGHT BEARING	STRENGTHENING	GOALS
PHASE I Post operative	<u>In-patient</u> Post-Op 0 – 6 hours	Rest in full extension splint	Non-weight bear	Circulatory Exercises	Allow early cell adherence
PHASE 2 Proliferation/ Protective	<u>6 hours – Day 3</u>	Continuous passive movement machine. 0°-40° (as comfort allows), for 4-12 hours per day. Passive patella mobilisations.	Touch weight Bear gradually progress to ¼ body weight symptoms allow	Low resistance isometric exercises. Multi-angle Q and H contractions, including early proprioceptive exercises. OKC exercises 60° - 75°, no resistance, concentric and eccentric work. Maintenance exercises for rest of body	Restore full passive extension Prevent adhesions Aid joint nutrition Pain relief Reduce deconditioning Improve confidence Restore function for discharge home
	From discharge home	Continue to progress range as symptoms allow			Improve range of movement Restoration of kinematics. Increase function.
	Week 3			Active exercises against gravity	Increase strength
	Week 4			Add low resistance to active exercises. Vary speed of contractions Low resistance stationary cycling (1 legged)/Unicam bike® CKC exercises (as weight bearing allows) Hydrotherapy	Improve range of movement Continue to increase strength and proprioception Improve cardio-vascular and muscle endurance Physiological benefits gained from exercise
	Week 5		Increase weight bearing as symptoms allow		Increased loading to stimulate hyaline-like cartilage formation, without disturbing primitive repair tissue
PHASE 3 Transitional/ Loading	Week 6		½ body weight	Progress duration and resistances. Early plyometric exercises. Correct muscle balance as indicated	As transitional stage of repair is reached beneficial loading is increased. Improve strength, power and endurance Promote neuromuscular responses

	Week 7	Driving if patient can perform an Emergency Stop			
	Week 8		Gradually progress to Full Body Weight bearing	Gait re-education	Promote full function
	Week 9			Dynamic strength training. Progress proprioceptive exercises	Increase dynamic stability and Balance
PHASE 4 Strengthening	Month 3			Unrestricted static cycling. Stepping & rowing machines Through range OKC exercises Rest periods between exercise sessions	Continue to improve strength, power and endurance Varied exercises to prevent staleness. Prevent over-training
	Month 6			Light jogging on a sprung surface. Swimming including breaststroke Independent cycling	Improve sport specific function
	Month 8			Running	Increasing load and functional activities to aid remodeling Increase confidence
PHASE 5 Remodel/ Function	Month 9			Sport specific, agility training	Injury prevention
	Month 12			Earliest return to contact sport	Normal function will encourage continued remodeling

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KEY:
CKC Closed kinetic chain
H Hamstrings
OKC Open kinetic chain
Q Quadriceps

Ref: Bailey A, Goodstone N, Roberts S. et al
 Rehabilitation after Oswestry autologous chondrocyte implantation: the Ocell protocol.
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