

Appendix Table A1: Strength and ROM for control group and for hip surgery group assessed before surgery to 3 months and 6 months after surgery (n=134).

	Before hip surgery (32 days±36)		3/12 after surgery (95 days±8)		6/12 after surgery (188 days±16)		Control group (N=67)	
	SL	Non-SL	SL	Non-SL	SL	Non-SL	Dominant	Non-dominant
Hip Strength (Nm/kg)								
Extension	0.76±0.33	0.85± 0.33	0.92± 0.36	0.93± 0.33	0.95±0.37	0.96± 0.37	1.11±0.36	1.10±0.38
Asymmetry (SL/non-SL)	↓11% (p=0.119)		↓2% (p=0.899)		↓1% (p=0.891)		1% (p=0.822)	
Abduction	1.26±0.40	1.38± 0.36	1.33± 0.34	1.40± 0.33	1.47±0.39	1.50± 0.34	1.51±0.36	1.58±0.33
Asymmetry (SL/non-SL)	↓8% (p=0.082)		↓4% (p=0.259)		↓2% (p=0.648)		4% (p=0.266)	
Adduction	1.01±0.38	1.19± 0.37	1.19± 0.35	1.25± 0.36	1.30±0.37	1.32± 0.36	1.40±0.39	1.42±0.41
Asymmetry (SL/non-SL)	↓8% (p=0.177)		↓6% (p=0.282)		↓2% (p=0.709)		1% (p=0.732)	
Squeeze test	1.07±0.29		1.11±0.29		1.16±0.29		1.23±0.32	
External rotation	0.53±0.18	0.57± 0.17	0.59± 0.17	0.61± 0.17	0.60±0.18	0.63± 0.20	0.74±0.19	0.73±0.23
Asymmetry (SL/non-SL)	↓7% (p=0.163)		↓2% (p=0.550)		↓4% (p=0.437)		1% (p=0.874)	
Internal rotation	0.52±0.20	0.56± 0.19	0.59± 0.17	0.58± 0.17	0.60±0.18	0.61± 0.20	0.70±0.19	0.69±0.17
Asymmetry (SL/non-SL)	↓8% (p=0.232)		↑1% (p=0.786)		↓2% (p=0.813)		1% (p=0.771)	
Flexion - sitting	0.92±0.33	1.02± 0.31	0.94± 0.28	1.06± 0.29	1.03±0.35	1.08± 0.30	1.31±0.40	1.32±0.38
Asymmetry (SL/non-SL)	↓9% (p=0.093)		↓10% (p=0.019*)		↓5% (p=0.354)		1% (p=0.893)	
Flexion - supine	1.26±0.47	1.45± 0.46	1.29± 0.43	1.44± 0.40	1.43±0.40	1.50± 0.42	1.79±0.37	1.78±0.35
Asymmetry (SL/non-SL)	↓15% (p=0.019*)		↓9% (p=0.051)		↓4% (p=0.350)		1% (p=0.832)	
Range of movement (degrees)								
Flexion	108± 10	115± 7	111± 9	116± 8	112± 9	116± 7	114±8	114±7
Asymmetry (SL/non-SL)	↓6% (p<0.000*)		↓4% (p=0.001*)		↓3% (p=0.037*)		↔ 0% (p=0.843)	
Extension	13± 6	14± 6	15± 7	15± 7	15± 6	15± 6	16± 6	15± 7

SL = surgical limb, non-SL = non surgical limb, * = significant difference, 3/12 = three months post surgery, 6/12 = six months post surgery, $\pm$ = standard deviation, $\uparrow$ = greater, $\downarrow$ = lesser, $\leftrightarrow$ = no difference

Appendix Table A2: Strength and ROM for control group and for hip surgery groups (divided by pathology) assessed before surgery and 3 months and 6 months after surgery.								
	Before hip surgery (32 days±36)		3/12 after surgery (95 days±8)		6/12 after surgery (188 days±16)		Control group (N=67)	
	SL	Non-SL	SL	Non-SL	SL	Non-SL	Dominant	Non-dominant
Hip Strength (Nm/kg)								
Extension								
Combined	0.76± 0.33	0.85± 0.33	0.92± 0.36	0.93± 0.33	0.95± 0.37	0.96± 0.37	1.11±0.36	1.10±0.38
Osseous	0.80± 0.37	0.90± 0.38	0.96± 0.39	0.96± 0.35	0.98± 0.40	0.99± 0.39		
Chondral	0.69± 0.25	0.77± 0.22	0.85± 0.28	0.86± 0.28	0.91± 0.32	0.92± 0.35		
Abduction								
Combined	1.26± 0.40	1.38± 0.36	1.33± 0.34	1.40± 0.33	1.47± 0.39	1.50± 0.34	1.51±0.36	1.58±0.33
Osseous	1.31± 0.38	1.42± 0.32	1.33± 0.35	1.39± 0.34	1.49± 0.39	1.52± 0.34		
Chondral	1.17± 0.41	1.30± 0.40	1.33± 0.33	1.40± 0.39	1.43± 0.32	1.46± 0.34		
Adduction								
Combined	1.01± 0.38	1.19± 0.37	1.19± 0.35	1.25± 0.36	1.30± 0.37	1.32± 0.36	1.40±0.39	1.42±0.41
Osseous	1.16± 0.36	1.24± 0.36	1.21± 0.36	1.25± 0.37	1.35± 0.37	1.35± 0.35		
Chondral	1.00± 0.42	1.11± 0.41	1.15± 0.35	1.26± 0.36	1.21± 0.38	1.26± 0.38		
Squeeze test								
Combined	1.07±0.29		1.11±0.29		1.16±0.29		1.23±0.32	
Osseous	1.10± 0.28		1.11± 0.30		1.17± 0.30			
Chondral	1.03± 0.31		1.10± 0.29		1.12± 0.28			
External rotation								
Combined	0.53± 0.18	0.57± 0.17	0.59± 0.17	0.61± 0.17	0.60± 0.18	0.63± 0.20	0.74±0.19	0.73±0.23
Osseous	0.56± 0.19	0.59± 0.18	0.62± 0.18	0.63± 0.16	0.62± 0.18	0.64± 0.18		
Chondral	0.47± 0.17	0.53± 0.18	0.55± 0.17	0.58± 0.19	0.57± 0.19	0.61± 0.24		
Internal rotation								
Combined	0.52± 0.20	0.56± 0.19	0.59± 0.17	0.58± 0.17	0.60± 0.18	0.61± 0.20	0.70±0.19	0.69±0.17
Osseous	0.52± 0.19	0.58± 0.19	0.59± 0.18	0.58± 0.15	0.60± 0.18	0.61± 0.17		
Chondral	0.51± 0.22	0.52± 0.20	0.59± 0.22	0.58± 0.20	0.60± 0.26	0.61± 0.21		
Flexion – sitting								
Combined	0.92± 0.33	1.02± 0.31	0.94± 0.28	1.06± 0.29	1.03± 0.35	1.08± 0.30	1.31±0.40	1.32±0.38
Osseous	0.92± 0.35	0.98± 0.28	0.94± 0.28	1.04± 0.29	1.00± 0.34	1.06± 0.30		

Chondral	0.93± 0.30	1.08± 0.36	0.94± 0.28	1.08± 0.30	1.08± 0.35	1.11± 0.31		
Flexion – supine								
Combined	1.26± 0.47	1.45± 0.46	1.29± 0.43	1.44± 0.40	1.43± 0.40	1.50± 0.42	1.79± 0.37	1.78± 0.35
Osseous	1.34± 0.49	1.50± 0.45	1.29± 0.45	1.43± 0.41	1.48± 0.43	1.52± 0.41		
Chondral	1.13± 0.42	1.38± 0.48	1.31± 0.39	1.45± 0.40	1.35± 0.35	1.46± 0.44		
Range of movement (degrees)								
Flexion								
Combined	108± 10	115± 7	111± 9	116± 8	112± 9	116± 7	114±8	114±7
Osseous	107± 9	115± 7	110± 9	115± 8	110± 9	114± 7		
Chondral	111± 11	117± 7	114± 9	118± 7	117± 8#	118± 8		
Extension								
Combined	13± 6	14± 6	15± 7	15± 7	15± 6	15± 6	16± 6	15± 7
Osseous	14± 7	14± 7	14± 7	14± 7	15± 6	15± 6		
Chondral	13± 5	14± 5	16± 6	16± 6	15± 6	15± 6		
External rotation								
Combined	37± 10	40± 10	40± 9	41± 10	40± 9	41± 9	41± 10	41± 10
Osseous	37± 10	40± 9	39± 10	41± 10	39± 10	41± 9		
Chondral	39± 10	39± 9	41± 8	43± 10	41± 8	41± 9		
Internal rotation								
Combined	22± 12	25± 12	24± 11	26± 12	24± 12	25± 12	30±10	30±12
Osseous	20± 11	22± 11	22± 9	23± 10	22± 12	23± 10		
Chondral	25± 13	30± 14#	28± 13#	30± 13#	28± 12#	29± 13#		
SL = surgical limb, non-SL = non surgical limb, Combined = Osseous + Chondral (n=67), Osseous = FAI morphology addressed during surgery (+/- chondrolabral pathology) (n=42), Chondral = nil bony morphology addressed during surgery (n=25), 3/12 = three months post surgery, 6/12 = six months post surgery, ± = standard deviation, # - significantly greater ROM in the Chondral v Osseous group (p>0.05) Note: no significant strength differences between Osseous & Chondral groups for either limb at any testing stage (p>0.05)								

Appendix Table A3: Characteristics of participants divided by pathology (N = 134)

	Control group (N= 67)*	Combined hip surgery group (N=67)*	P value** (Control v combined hip surgery)	Osseous subgroup (N=42)*	Chondral subgroup (N=25)*	P value** (Osseous v Chondral)
Age (y)	31 ± 8 (18-51)	31 ± 8 (18-51)	0.77	30 ± 8 (18-47)	31 ± 8 (19-46)	0.51
Sex	48 men/19 women (72% male)	48 men/19 women (72% male)	1.00	36 men/6 women (86% male)	12 men/13 women (48% male)	1.00
Height (m)	1.77 ± 0.09 (1.59, 2.05)	1.78 ± 0.09 (1.57, 2.01)	0.59	1.80 ± 0.08 (1.65, 2.01)	1.75 ± 0.11 (1.57, 1.95)	0.03#
Weight (kg)	80 ± 16 (53, 120)	83 ± 15 (51, 127)	0.23	85 ± 13 (60, 116)	79 ± 17 (53, 127)	0.01#
BMI (kg/m2)	25.1 ± 3.5 (19.0, 33.0)	25.9 ± 3.4 (19.8, 35.1)	0.21	26.2 ± 3.6 (20.6, 35.1)	25.3 ± 3.2 (19.8, 33.4)	0.32
Occupation	41 military/26 civilian (61% military)	61 military/6 civilian (91% military)	<0.00#	39 military/3 civilian (93% military)	20 military/5 civilian (80% military)	<0.00#
Symptomatic side	na	Right = 35/Left = 32	na	Right = 23/Left = 19	Right = 12 /Left = 13	na

* Data are mean ± SD (range) unless otherwise indicated. ** Independent t-test for continuous variables and chi-squared for categorical values, na = not applicable. Continuous variables are reported as means±SD and categorical variables as frequencies and percentages. Combined = Osseous + Chondral (n=67), Osseous = FAI morphology addressed during surgery (+/- chondrolabral pathology) (n=42), Chondral = nil bony morphology addressed during surgery (n=25), # = significant difference between groups.

Appendix Table A4: Post hoc between limb comparisons at each time-point (n=67)			
Strength measure	Baseline	3 months	6 months
Abduction	✖	✓	✓
Adduction	✖	✖	✓
ER	NA	NA	NA
IR	✖	✓	✓
Flex (sit)	NA	NA	NA
Flex (supine)	✖	✖	✓
Ext	✖	✓	✓
✓ indicates no significant difference between limbs ✖ indicates significantly lower strength in symptomatic limb (p<0.05) NA indicates no interaction effect, so no post-hoc comparisons performed			

Appendix Table A5: Post hoc comparisons between time-points (n=67)					
Outcome	Direction	Limb	Baseline to 3 months	3 months to 6 months	Baseline to 6 months
Strength	Abduction	Surgical*	-	↑	↑
		Non-surgical*	-	↑	↑
	Adduction	Surgical*	↑	↑	↑
		Non-surgical*	-	-	↑
	ER	Combined limbs ^{a*}	↑	-	↑
	IR	Surgical*	↑	-	↑
		Non-surgical*	-	-	↑
	Flex (sit)	Combined limbs ^{a*}	-	↑	↑
	Flex (supine)	Surgical*	-	↑	↑
		Non-surgical	No change over time		
ROM	Ext	Surgical*	↑	-	↑
		Non-surgical	-	-	↑
	Squeeze		-	-	↑
	Flexion	Surgical*	↑	-	↑
		Non-surgical	No change over time		
	Extension	Combined limbs ^a	No change over time		
	ER	Combined limbs ^a	↑	-	↑
	IR	Combined limbs ^a	↑	-	-
*Significant repeated measures one-way ANOVA across the three time-points (p<0.05) - Indicates no significant difference between time-points ↑ indicates significantly greater strength at the follow-up time-point (p<0.05) ^aData combined across both limbs, as no interaction effect					

Appendix Table A6: Post hoc between limb comparisons at each time-point (n=67)			
ROM measure	Baseline	3 months	6 months
Flexion	✕	✕	✕
Extension	NA	NA	NA
IR	NA	NA	NA
ER	NA	NA	NA
✓ indicates no significant difference between limbs ✕ indicates significantly lower ROM in symptomatic limb ($p < 0.05$) NA indicates no interaction effect, so no post-hoc comparisons performed			