

## 1 CLINICAL RESULTS AFTER EPI® AND ECCENTRIC EXERCISE IN PATELLAR TENDINOPATHY AT 10 YEARS FOLLOW-UP

<sup>1</sup>Ferran Abat, <sup>2,3</sup>Pablo-Eduardo Gelber, <sup>1</sup>Fernando Polidori, <sup>3,4</sup>Joan-Carles Monllau, <sup>1</sup>Jose-Manuel Sánchez. <sup>1</sup>Cerede Sports Medicine, Barcelona, Spain; <sup>2</sup>Hospital de La Santa Creu i Sant Pau, Universitat Autònoma de Barcelona, Barcelona, Spain; <sup>3</sup>CATME – Institut Universitari Dexeus, Universitat Autònoma de Barcelona, Barcelona, Spain; <sup>4</sup>Department of Orthopedics and Traumatology, Parc de Salut Mar, University Autònoma de Barcelona, Barcelona, Spain

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**Aims** To investigate the outcome of ultrasound-guided Intratissu percutaneous electrolysis (EPI®) [Abat, 2014] and eccentric exercise [Romero-Rodriguez, 2011; Malliaras, 2013; Larsson, 2012] in the treatment of patellar tendinopathy during a long-term follow-up.

**Methods** Forty patients with patellar tendinopathy [Maffulli, 1998] were prospectively evaluated over a 10-year follow-up period. Pain and function were evaluated before treatment and at 3 months and 2, 5 and 10 years with the Victorian Institute of Sport Assessment–Patella (VISA-P) score [Visentini, 1998], the Tegner score and Blazina's classification. According to VISA-P score at baseline, patients were also dichotomized into Group 1 (<50 points) and Group 2 (≥50 points). There were 21 patients in Group 1 and 19 in Group 2. Patient satisfaction was measured according to the Roles and Maudsley score.

**Results** The VISA-P score improved globally by 41.2 points ( $p < 0.01$ ) after a mean 4.1 procedures. In Group 1, VISA-P score improved from  $33.1 \pm 13$  to  $78.9 \pm 14.4$  at 3 months and to  $88.8 \pm 10.1$  at 10 years follow-up ( $p < 0.001$ ). In Group 2, VISA-P score improved from  $69.3 \pm 10.5$  to  $84.9 \pm 9$  at 3 months and to  $96.0 \pm 4.3$  at 10 years follow-up ( $p < 0.001$ ). After 10 years, 91.2% of the patients had a VISA-P score > 80 points. The same level (80% of patients) or a Tegner score at no more than one level lower (20% of patients) was restored and 97.5% of the patients were satisfied with the procedure.

**Conclusion** Treatment with the US-guided EPI® technique and eccentric exercises in patellar tendinopathy resulted in a great improvement in knee function and a rapid return to the previous

level of activity after few sessions. The procedure has proven to be safe with no recurrences on a long-term basis.

**Abstract 1 Table 2** Victorian Institute of Sport Assessment-Patella (VISA-P) values during follow-up

Time	VISA-P score			Tegner score		
	Group 1	Group 2	Global	Group 1	Group 2	Global
Baseline (n = 40)	33.1 (±13)	69.3 (±10.5)	51.2 (±21.7)	6.1 (4–10)	7.8 (4–9)	7.9 (4–10)
3 months (n = 40)	78.9* (±14.4)	84.9* (±9)	81.9* (±12.2)	7.7 (4–10)	7.6 (3–9)	7.7 (3–10)
2 years (n = 40)	83.2 (±13.6)	88.6 (±7.4)	85.9 (±11.1)	8.1 (5–10)	7.7 (4–9)	7.8 (4–10)
5 years (n = 37)	85.2 (±12.2)	91.9 (±5.6)	88.6 (±10)	7.9 (5–10)	7.6 (4–9)	7.8 (4–10)
10 years (n = 34)	88.8 (±10.1)	96.0 (±4.3)	92.4 (±8.5)	7.7 (5–10)	7.3 (4–9)	7.5 (4–10)

Victorian Institute of Sport Assessment-Patella (VISA-P) values expressed as mean (±SD). Tegner values are expressed as median (range). \*  $p < 0.001$ . No statistically significant differences were observed in the results between any intermediate outcome measurements other than from baseline.

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## 2 THE EFFECT OF EARLY AND STANDARD WEIGHTBEARING ON FUNCTION 8 WEEKS AFTER ACHILLES TENDON RUPTURE

<sup>1</sup>Alison N Agres, <sup>2</sup>Sebastian Manegold, <sup>2</sup>Tobias J Gehlen, <sup>3</sup>William R Taylor, <sup>4</sup>Adamantios Aramapatzis, <sup>1</sup>Georg N Duda. <sup>1</sup>Julius Wolff Institute, Charité – Universitätsmedizin Berlin, Berlin, Germany; <sup>2</sup>Center for Musculoskeletal Surgery, Charité – Universitätsmedizin Berlin, Berlin, Germany; <sup>3</sup>Institute for Biomechanics, ETH Zurich, Zurich, Switzerland; <sup>4</sup>Department of Training and Movement Science, Humboldt University of Berlin, Berlin, Germany

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**Introduction** The incidence of Achilles tendon rupture (ATR) is steadily increasing, yet the exact treatment and rehabilitation of this traumatic injury is still debated [Chiodo, 2010]. Early weight bearing (WB) after ATR repair potentially yields better functional outcomes compared to immobilised patients, although re-rupture can occur at a higher rate [Costa, 2006]. Though WB has been often compared to immobilisation, it is currently unclear if early WB yields benefits in early ankle function compared to standard WB. We hypothesised that compared to standard WB, patients undergoing early WB would have higher plantarflexion moments in the injured side during gait, which would yield a longer tendon length 8 weeks after surgery. Furthermore, we hypothesised that early WB patients will show less inpatient asymmetry than standard WB.

**Methods** A total of fourteen patients were randomised to either early (full WB in 2nd week,  $n = 6$ ) or standard WB ( $n = 8$ ) after percutaneous ATR repair by the same surgeon (SM). Kinematic ( $f = 120$  Hz) and kinetic ( $f = 960$  Hz) data of the lower limbs were collected using 22 reflective markers, 10 infrared cameras (VICON, Oxford, UK) and two force plates (AMTI, Watertown, USA) for a minimum of five barefoot walking trials at a self-selected speed. ISB-recommended conventions determined ankle angles and inverse dynamics calculated ankle moments. B-mode ultrasonography ( $f = 25$  Hz, Esoate, Genoa, Italy) noninvasively assessed the resting Achilles tendon length *in vivo*, with the knee outstretched and the ankle in 20° of plantarflexion. Plantarflexion moments and tendon lengths were compared both within patients and between early and standard WB. Statistical differences were calculated in SPSS (IBM, Armonk, USA) using paired *t*-tests (within patients) or one-way ANOVAs (WB comparison).

**Abstract 1 Table 1** Patients' characteristics at baseline

	Group 1 n = 21 (52.5 %)	Group 2 n = 19 (47.5 %)	p value
Age (years)			
Mean ± SD	26.0 ± 8.49	25.7 ± 8.12	n.s.
Gender % (n)			
Male	81.0 (17)	94.7 (18)	n.s.
Female	19.0 (4)	5.3 (1)	
Dominant extremity % (n)			
Right	81.0 (17)	89.5 (17)	n.s.
Left	19.0 (4)	10.5 (2)	
Injured knee % (n)			
Right	38.1 (8)	15.8 (3)	n.s.
Left	47.6 (10)	68.4 (13)	
Bilateral	14.3 (3)	15.8 (3)	
Baseline VISA-P			
Mean ± SD	32.5 ± 12	69.5 ± 10.05	<0.001
Values expressed as mean ± SD or frequencies and percentages			