

ACHILLES TENDINOPATHY (mid-substance): Summary of the Evidence for Physical Therapy Interventions

PURPOSE, SCOPE & DISCLAIMER: The purpose of this document is to provide physical therapists with a summary of the evidence for interventions commonly used to manage mid-substance Achilles tendinopathy. This decision-making tool is evidence-informed and where there is insufficient evidence, expert-informed. It is not intended to replace the clinician's clinical reasoning skills and inter-professional collaboration. 'Acute' refers primarily to the stage with the cardinal signs of heat, redness, pain, swelling and loss of function and a very recent onset of symptoms.

INTERVENTION	STAGE OF PATHOLOGY	CLINICAL RESEARCH EVIDENCE	PUBLISHED EXPERT OPINION	TAKE HOME MESSAGE	CLINICAL IMPLICATION <i>*See final page for description of categories</i>
Manual Therapy - Joint mobs - Soft tissue techniques	Acute	No	Yes	There is no clinical evidence but there is expert level consensus to <u>support</u> the use of joint mobilizations in the acute stage if assessment reveals joint restriction.	May consider using manual therapy in the acute stage after undertaking a comprehensive biomechanical evaluation of the hip, knee, foot and ankle.
		No	No	The clinical evidence neither supports nor refutes the use of frictions in the acute stage.	
- Joint mobs - Soft tissue techniques	Chronic	Yes 1 CS	Yes	There is a small amount of clinical evidence and more substantial expert level consensus to <u>support</u> the use of joint mobilizations in the chronic stage if assessment reveals joint restriction.	May consider using manual therapy in the chronic stage after undertaking a comprehensive biomechanical evaluation of the hip, knee, foot and ankle.
		Yes 1 SR 2 CS	Yes	There is a small amount of clinical evidence to <u>support</u> the use of soft tissue techniques, such as frictions, in the chronic stage.	May consider a trial of soft tissue techniques, such as frictions, in the chronic stage. Combining with an eccentric exercise regime may produce superior results.
Exercise	Acute	No	Yes	There is a small amount of expert opinion to <u>support</u> the use of stretches in the acute stage.	May consider using stretching exercises in acute stage. No prescription parameters are provided. ACSM recommends 10-30 sec hold, 2-4 repetitions.
	Chronic	Yes 14 OS 7 SR 8 RCT	Yes	There is a large amount of clinical evidence to <u>support</u> the use of exercise in the chronic stage but the precise parameters to ensure effectiveness are not clear. Eccentric exercise in particular is supported although some protocols use both concentric and eccentric exercise. One RCT showed heavy slow resistance training is equally as effective as eccentric training.	Strongly consider using exercise in the chronic stage. <i>*See Appendix A for further details on exercise prescription.</i>

INTERVENTION	STAGE OF HEALING	CLINICAL RESEARCH EVIDENCE	PUBLISHED EXPERT OPINION	TAKE HOME MESSAGE	CLINICAL IMPLICATION <i>*See final page for description of categories</i>
Low level laser therapy (LLLT)	Acute	Yes 2 SR	Yes	There is no clinical evidence, but there is a physiological rationale, to <u>support</u> the use of LLLT in the acute stage.	<u>May consider</u> a trial of LLLT in the acute stage at the doses recommended by the World Association for Laser Therapy (www.walt.nu) i.e., 2-4 J/point (not per cm ²)*; minimum 2-3 points. <i>*See Appendix B for further details on calculation of dosage.</i>
	Chronic	Yes 1 MA 6 RCT	Yes	There is <u>conflicting</u> clinical evidence and conflicting expert opinion to support the use of LLLT in the chronic stage.	<u>Consider</u> a trial of LLLT in the chronic stage at the following parameters: 0.9 J/point (not per cm ²)*; 6 points on tendon. <i>*See Appendix B for further details on calculation of dosage.</i>
Ultrasound (US)	Acute	No	No	There is no clinical evidence, but there is physiological rationale, to <u>support</u> the use of US in the acute stage.	<u>May consider</u> a trial of US in the acute stage at a low to moderate dose (0.5 - 1.0 W/cm ² , pulsed 1:4-1:1, 3 MHz, 5 mins for each treatment area equivalent in size to transducer head).
	Chronic	No	No	There is no clinical evidence and no physiological rationale to support the use of US in the chronic stage.	<u>Consider NOT</u> using US in the chronic stage.
Extracorporeal shock wave therapy (ESWT) <i>Focused or radial SWT (low energy)</i>	Acute	No	Yes	There is expert opinion which suggests that ESWT be reserved for chronic stage.	<u>Consider NOT</u> using Extracorporeal Shock Wave for the acute stage.
	Chronic	Yes 4 RCT 1 Cohort 1 SR	Yes	There is <u>conflicting</u> evidence to support the use of ESWT in the chronic stage. There is evidence suggesting that the outcomes are dependent upon the <u>dosage</u> of the shock wave energy (EFD - energy flux density = mJ/mm ²), rather than the <u>type</u> of shock wave generation (focused vs. radial ESWT). There is also evidence that the use of anesthetic required in high energy protocols decreases the effectiveness of ESWT. Therefore, using low energy ESWT protocols without the need for anesthetic are recommended as more practical, more tolerable, and less expensive with equivalent results. Low energy ESWT protocols can apply to both focused and radial ESWT.	<u>Consider</u> a trial of ESWT in the chronic stage, especially if other interventions have failed, at the following parameters: Low energy ESWT: EFD = 0.18 – 0.3 mJ/mm ² (2-4 Bars) 2000-3000 shocks 15-30 Hz 3-5 sessions, weekly intervals. ESWT may enhance outcomes compared to exercise alone, therefore patients should be instructed to continue with a well-designed exercise program.

INTERVENTION	STAGE OF HEALING	CLINICAL RESEARCH EVIDENCE	PUBLISHED EXPERT OPINION	TAKE HOME MESSAGE	CLINICAL IMPLICATION <i>*See final page for description of categories</i>
Iontophoresis using dexamethasone	Acute	Yes 1 RCT 1 review	No	There is a small amount of evidence to support the application of iontophoresis using dexamethasone in the acute stage. The role of iontophoresis is still <u>investigational</u> .	<u>May consider</u> , in the acute stage, a trial of iontophoresis, 0.4% dexamethasone (aqueous), 80 mA-min; 6 sessions over 3 weeks. A program of concentric-eccentric exercises should be continued in combination with iontophoresis, if exercise loading is tolerated.
	Chronic	No	No	There is no evidence that anti-inflammatory intervention with iontophoresis using dexamethasone has a useful role in the chronic stage.	<u>Consider NOT</u> using iontophoresis using dexamethasone in the chronic stage.
Taping	Acute	No	Yes	There is expert opinion to <u>support</u> the use of antipronation taping in the acute stage.	<u>May consider</u> using antipronation taping in the acute stage.
	Chronic	Yes 3 CS 1 SR	Yes	There is expert opinion and a small amount of clinical evidence to <u>support</u> the use of controlled pronation taping in the chronic stage.	<u>May consider</u> using antipronation taping in the chronic stage.
Orthotics	Acute	Yes 2 CS	Yes	There is a small amount of clinical evidence to <u>support</u> the use of orthotics in the acute stage.	<u>Consider</u> using orthotics – perhaps using taping first, in the acute stage.
	Chronic	Yes 3 CS 2 RCT 1 SR	Yes	There is a moderate amount of clinical evidence to <u>support</u> the use of orthotics in the chronic stage.	<u>Consider</u> using orthotics in the chronic stage.
Night splints and braces	Acute	No	Yes	There is expert opinion to <u>support</u> the use of night splints and braces in the acute stage.	<u>Consider</u> a trial of night splints and braces in the acute stage.
	Chronic	Yes 3 RCT 1 SR	Yes	There is a moderate amount of evidence <u>against</u> the use of night splints and braces in the chronic stage in conjunction with eccentric exercise.	<u>Consider NOT</u> using night splints and braces in the chronic stage in conjunction with exercise.

INTERVENTION	STAGE OF HEALING	CLINICAL RESEARCH EVIDENCE	PUBLISHED EXPERT OPINION	TAKE HOME MESSAGE	CLINICAL IMPLICATION <i>*See final page for description of categories</i>
Heel raise inserts	Acute	No	Yes	There is some expert opinion to <u>support</u> the use of heel raise inserts in the acute stage.	<u>May consider</u> a trial of inserts in the acute stage.
	Chronic	Yes 2 RCT	Yes	There is <u>conflicting</u> evidence for and against the use of heel inserts in the chronic stage.	<u>Consider</u> a trial of inserts in the chronic stage.
Needling techniques Acupuncture (Traditional Chinese medicine, anatomical, electrical) and Intramuscular stimulation	Acute	Yes 1 CS	No	There is a small amount of evidence to <u>support</u> the use of Traditional Chinese Medicine electro-acupuncture in the acute stage. There is expert opinion to <u>support</u> the use of other needling techniques in the acute stage.	<u>Consider</u> a trial of electro-acupuncture in the acute stage. <u>May consider</u> a trial of other acupuncture-related needling techniques in the acute stage.
	Chronic	Yes 1 CS	No	There is a small amount of evidence to <u>support</u> use of Traditional Chinese Acupuncture in the chronic stage. There is expert opinion on the use of other needling techniques in the chronic stage.	<u>Consider</u> a trial of Traditional Chinese Acupuncture in the chronic stage. <u>May consider</u> a trial of other acupuncture-related needling techniques in the chronic stage.

CS - Case studies; MA - Meta-analyses; OS - Observational studies; RCT - Randomized controlled trials; SR - Systematic reviews

<p>For any intervention selected by the clinician, it is strongly recommended that the clinician use one or more of the following outcome measures:</p> <p>A. Patient reported outcome measure such as:</p> <ul style="list-style-type: none"> A global measure of lower extremity function: e.g., The Lower Extremity Functional Scale (LEFS) - not specific to Achilles tendinopathy <ul style="list-style-type: none"> http://www.phyther.net/content/79/4/371/F1.large.jpg Detailed questionnaire, specific to Achilles tendinopathy e.g. the VISA-A questionnaire <ul style="list-style-type: none"> http://bjsm.bmj.com/content/suppl/2001/11/09/35.5.335.DC1/01055_Fig_1_data_supplement.pdf (click on 'view questionnaire') <p>B. Patient specific functional outcome measure such as:</p> <ul style="list-style-type: none"> How much weight can be applied to the plantar flexed foot on a weighing scale before the onset of pain The number of heel raises before the onset of pain The number of heel drops before the onset of pain The number of heel drops with a specific weight in a backpack before the onset of pain How far can the client walk or run before the onset of pain 	<p>Explanation of Clinical Implications</p> <ul style="list-style-type: none"> Strongly consider: High level/high quality evidence that this should be included in treatment. Consider: Consistent lower level/lower quality or inconsistent evidence that this should be included in treatment. May consider: No clinical evidence but expert opinion and/or plausible physiological rationale that this should be included in treatment. Consider NOT: High level/high quality evidence that this should not be included in treatment.
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Please see *Appendix C Achilles Tendinopathy: Details of Individual Articles* for the specific details on each of the articles referenced in this document.

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