

LOWER LIMB TENDINOPATHY

REHABILITATION PROTOCOL

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LOWER LIMB Tendinopathy

Tendinopathy is a condition where a tendon (structure connecting muscle to bone) becomes painful and weakened due to excessive forces being placed on it.

Causes

- Overtraining
- Sudden or rapid increase in activity
- Poor movement technique
- Strength/mobility imbalances



Stages

- 1. Reactive early stage acute injury
- 2. Dysrepair mid-stage changes to tendon
- 3. Degenerative chronic tendon damage

EXPECTED PROGNOSIS

Due to poor blood supply, tendinopathy can take a long time to resolve. Secondary to this, they are quite irritable (can be easily aggravated). Recovery times are usually dictated by severity and length of time the injury has been present for, often taking up to 3 months to resolve.

PRINCIPLES OF "Loading"

Tendons are designed to take "load" or force. Increases in the amount of load a tendon can take should be incremental and slow to ensure the tendon is not overloaded. If increases in load occur too quickly, the tendon will again become aggravated. It is important to avoid progressing through the below rehab program too quickly as this is likely to result in relapse. E.g. If your pain has resolved after just 2 weeks, you should avoid trying to return to your pre-injury training intensity immediately – you must slowly build back up.

PHASE 1 – EARLY REHAB (TAKES 2-4 WEEKS DEPENDING ON SEVERITY)

GOALS	PRECAUTIONS	RECOMMENDED Program	CRITERIA TO Progress to
Stabilise painIdentify	Avoid any activities that	 Static holds off step (no movement): 5 sets of 60sec hold (with 	(TICK WHEN COMPLETE)
 Inderlying causes Patient understands principles of "load" Improve biomechanics (movement technique) Maintain fitness whilst offloading tendon 	 cause pain levels greater than 2/10 (on a scale of 0=no-pain to 10=max- pain). Avoid stretching the area. Avoid poor footwear (high- heels, non- supportive shoes). 	 5 sets of 60sec hold (with 60sec rest between each set), 3 x per day. Commence with bodyweight and add weight as able. Important: pain must not increase above 2/10 during/after the exercise or with the first few steps the next morning. 2. Ice therapy for pain relief (GameReady in clinic or icebath at home) 3. Comprehensive assessment from physiotherapist to identify areas of weakness, technique error and poor mobility that caused injury 4. Pilates reformer program (individualised program to address weakness and movement errors) 5. Temporary orthotic or taping may be required to off-load tendon (heel 	 Level 1-5 of the static hold exercises No pain above 2/10 with daily activities, during/after the above exercise or with the first few steps in the morning. Full range of motion (knee to wall test)



wedges, arch lift)

PHASE 2 - STRENGTH PHASE (TYPICALLY TAKES BETWEEN 2-4 WEEKS)

GOALS	PRECAUTIONS	R E C O M M E N D E D P R O G R A M	CRITERIA TO PROGRESS TO NEXT PHASE
 Maintain pain control Increase tendon capacity Improve whole-body strength Maintain fitness whilst offloading tendon 	 Avoid any activities that cause pain levels greater than 2/10 (on a scale of 0=no-pain to 10=max-pain). Avoid stretching the area. Avoid poor footwear (high-heels, non-supportive shoes). 	 Continue Static ankle holds off step (with weight) from Phase 1 once per day. Ankle raises: choose which version based on injured tendon (see videos) 3 sets of 10 repetitions (60sec rest between sets), 2 x per day. Important: pain must not increase above 2/10 during/ after the exercise or with the first few steps the next morning. Continue individualised exercise program (e.g. reformer Pilates) that target areas of weakness, technique error and poor mobility that caused injury. Fitness maintenance: swimming, boxing, upper- body weight training, cross- trainer Use of temporary orthotic or taping should start to be gradually reduced as 	 NEXT PHASE (TICK WHEN COMPLETE) Single leg ankle raises with load No pain above 2/10 with daily activities, during/after the above exercise or with the first few steps in the morning. Full range of motion (knee to wall test) Target areas of weakness, technique error and poor mobility improving as determined by your physiotherapist
		strength improves.	



PHASE 2 - POWER PHASE (TYPICALLY TAKES BETWEEN 2-4 WEEKS)

60ALSPRECAUTIONSRECOMMENDED PROGRAMCRITERIA T PROGRESS• Return to sport/activity• Avoid any activities that cause pain levels greater than 2/10 (on a scale of 0=no-pain to 10=max- pain).• Avoid and 10=max- pain).1. Continue Static ankle holds off step (with weight) from Phase 1 once per day.• NEXT PHAS (TICK WHE COMPLETE• Resolve all pain• Avoid power• Avoid plyometric exercises1. Continue Canter ankle holds off step (with weight) from prover whole-body strength• Avoid plyometric exercises• Continue Ankle raises: (from phase 2) 3 days per week: - 3 sets of 10 repetitions (60sec rest) with heavy weight.• No pain with daily activiti sports, durit after rehab exercises or first few step sthrough levels: • L1: double leg (jumping) • L2: single leg (hopping) • L2: single leg (hopping) • L2: single leg (hopping) • L2: single leg (hopping) • Pain must not increase above 2/10 during/after the exercise or with first few steps the next morning.• Pre-injury fitness maintenance: swimming, boxing, upper- body weight training, cross-• NB: It is recommended to continue you phase 3 program for 6 weeks after				
 Return to sport/activity Restore full tendon strength/ power Avoid any activities that cause pain levels greater than 2/10 (on a scale of 0=no-pain to 10=max-pain). Improve whole-body strength Avoid plyometric exercises: (See videos) Avoid plyometric exercises: (Gen yith heavy weight. Plyometric exercises (e.g. jumping, hopping) on tendon Prevent recurrence Prevent recurrence Prevent recurrence Prevent recurrence Filterss mintenance: service. Progress individualised exercises to sports/activity specific. Filterss maintenance: swimming, boxing, upperbody weight training, cross- 	GOALS	PRECAUTIONS	RECOMMENDED Program	CRITERIA TO Progress to
 Instruction full tendon strength/ power Resolve all pain Improve whole-body strength Maintain fitness whilst offloading tendon Prevent recurrence Prevent recurrence Prevent recurrence Prevent recurrence 2. Continue Ankle raises: (from phase 2) 3 days per week: - 3 sets of 10 repetitions (60sec rest) with heavy weight. Plyometric exercises: (See videos) Avoid plyometric exercises: (See videos) Start with 5 sets of 5 reps, 2-3 days per week. Progress through levels: L1: double leg (jumping) L2: single leg (hopping) L3: increase speed L4: increase duration Important: Have a "rest day" every 3rd day (continue static holds) Pain must not increase above 2/10 during/after the exercise to sports/activity specific. Fitness maintenance: swimming, boxing, upperbody weight training, cross- 	Return to sport/activ	 Avoid any activities that cause pain 	1. Continue Static ankle holds off step (with weight) from Phase 1 once per day.	(TICK WHEN COMPLETE)
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 Improve whole-body strength Maintain fitness whilst offloading tendon Prevent recurrence Prevent recurrence Start with 5 sets of 5 reps, 2-3 days per week. L1: double leg (jumping) L2: single leg (hopping) L3: increase speed L4: increase duration Important: Have a "rest day" every 3rd day (continue static holds) Pain must not increase above 2/10 during/after the exercise or with first few steps the next morning. Progress individualised exercises to sports/activity specific. Fitness maintenance: swimming, boxing, upperbody weight training, cross- 	 Resolve all pain 	to 10=max- pain).	heavy weight. 3. Plyometric exercises: (See videos)	No pain with daily activities sports, during
 Maintain fitness whilst offloading tendon Prevent recurrence Prevent recurrence L1: double leg (jumping) L2: single leg (hopping) L3: increase speed L4: increase duration Have a "rest day" every 3rd day (continue static holds) Pain must not increase above 2/10 during/after the exercise or with first few steps the next morning. Progress individualised exercises to sports/activity specific. Filness maintenance: swimming, boxing, upper-body weight training, cross- 	 Improve whole-bod strength 	 Avoid plyometric exercises 	 Start with 5 sets of 5 reps, 2-3 days per week. Progress through levels: 	after rehab exercises or w first few steps
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 Pain must not increase above 2/10 during/after the exercise or with first few steps the next morning. Progress individualised exercises to sports/activity specific. Fitness maintenance: to continue you swimming, boxing, upper-body weight training, cross- 	 Prevent recurrence 	days.	 L4: Increase duration Important: Have a "rest day" every 3rd day (continue static holds) 	wall test) Pre-injury fitness/load restored (or
4. Progress individualised exercises to sports/activity specific. NB: It is recommended 5. Fitness maintenance: to continue you swimming, boxing, upper- body weight training, cross- for 6 weeks after			- Pain must not increase above 2/10 during/after the exercise or with first few steps the next morning	enhanced) Biomechanica errors resolve
5. Fitness maintenance: swimming, boxing, upper- body weight training, cross-to continue you phase 3 program for 6 weeks after			 Progress individualised exercises to sports/activity specific. 	NB: It is recommended
trainar full resolution o			5. Fitness maintenance: swimming, boxing, upper- body weight training, cross- trainer	to continue your phase 3 program for 6 weeks after full recolution of

6. Use of temporary orthotic or taping should start to be gradually reduced as strength improves.

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pain/symptoms and returning to your normal activities/ sport.

PHASE 1 - (ISOMETRIC)

REFORMER

- Achilles
- Hamstring

HEP

- Clams, theraband arms
- 4-pt kneeling series (foundation plank, supermans, deep neck flexor series)
- Supine core work (toe taps, bent knee fall outs, knee rotations)
- Mobility on roller/ball

PHASE 2 - (CONC/ECC)

REFORMER

- Double leg supine
- Skater
- Scooter
- Squats
- Seated arm work (or kneeling)
- Core: arms in straps, planking

HEP

- Squats
- Bridges
- Crab walks
- Balance
- Foot intrinsics
- Lunges
- Step ups
- Clams, theraband arms
- 4-pt kneeling
- Spine core work
- Mobility on roller/ball



PHASE 3- (PLYO):

REFORMER

- Jump board
- TRX jumps
- Bosu jumps
- Squats
- Kneeling arm work (or kneeling)
- Core: arms in straps, planking

HEP

- Running rehab
- Hops
- Bosu
- Strength/resistance work



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