# Evaluating the effect of the JING method™ on runners with chronic leg pain by


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A dissertation submitted in partial fulfilment of the requirements of Jing Advanced Massage Training for the Professional Diploma in Advanced Clinical Massage and Sports Massage

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*"I certify that this work has not been accepted in substance for any degree and is not concurrently being submitted for any degree other than that of the Diploma in Advanced Clinical Massage and Sports Massage being studied at Jing Advanced Massage Training. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others".*

***Mr Neil Annis-Tate:*** 

**Date:** March 2026

# ACKNOWLEDGEMENTS

My journey with JING began in March 2022, an opportunity to learn a new skill and perhaps make some changes. My ‘JING life’ and my ‘work life’ are worlds apart. As I write this, I still have much work to do and some of those changes to make.

I would like to thank Rachel and Meg for their support, positivity and all they have created within JING.

Alongside them, I thank the many teachers and course supporters who both guided and inspired me along the way.

Thank you to the friends I have made over the last few years. With a special thank you to Jacqui, my parallel study companion. We have all supported each other and enjoyed so much fun and laughter.

During the ACMT I was lucky enough to study alongside my wife, Stephanie. Her BTEC journey is just beginning. We had an amazing time learning and laughing together, memories I shall cherish. All this often done in the company of Steph and Gwen in particular, thank you both!

Stephanie deserves all my love and appreciation as always! She has supported me throughout. Dealt with my tantrums and losses of confidence, remaining positive, always. The last year has been incredibly tough for her personally, making all she has done for me even more amazing.

Thank you, Steph! Thank you for sending me to Brighton and thank you for all that you are x

# ABSTRACT

Running is a sport that is growing in popularity. There is an innate simplicity to it. The health benefits are many, both mental and physical. However, as the miles increase so can the aches and pains.

The aim of this study was to evaluate the effects of the JING method™ on runners with chronic leg pain.

**Method**

A group of 5 people were recruited to take part in this study. The research was performed over a 16-week period, using a within-subjects design. The first 6 weeks consisted of the control phase, during which time no treatment was administered. Participants completed the exercise induced leg pain questionnaire (EILP) each week. This validated questionnaire was quantified using a 0-4 Likert scale. A further 4 questions were added to assess running frequency and volume along with mood and stress levels.

The control phase was followed by 6 weeks of intervention, during which time the participants completed the same weekly questionnaire. Intervention consisted of 6 weekly treatments based on the JING™ leg, knee and foot protocol. Each participant received the same treatment at each stage. In addition to the hands-on techniques applied, self-care was provided. This was the same for all and progressed throughout this phase.

At week 16, a final questionnaire was administered to assess any lasting benefits 4 weeks after the process.

**Conclusion**

The results of the study showed that the JING method™ is effective in the treatment of runners with chronic leg pain. Noticeable improvements were seen in many of the running specific metrics. Alongside this there were positive biopsychosocial outcomes.

This research was performed in conjunction with a parallel study by Bark (2026). Here, 11 participants underwent an identical process, receiving the same treatment and self-care. Very similar results were achieved adding to the validity of the findings. Furthermore, this parallel study emphasises the need for more widespread research, while also demonstrating its reproducibility.

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# ABBREVIATIONS

**RCT** – Randomly controlled trials

**MTrPs** – Myofascial trigger points

**ROM** – Range of movement

**PNF** – Proprioceptive neuromuscular facilitation

**AIS** – Active isolated stretching

**DOMS** – Delayed onset muscle soreness

**ITBS** – Iliotibial band syndrome

**PFPS** – Patellofemoral pain syndrome

**IASTM** – Instrument assisted soft tissue mobilisation

**MFR** – Myofascial release

**LKF** – Leg, knee and foot protocol

**LBP** – Low back pain

**PWA** – Positive working alliance

**EILP** – Exercise induced leg pain questionnaire (British version)

**PF** – Plantar fasciitis

# LITERATURE REVIEW

As a keen runner, I have firsthand experience of how injuries can affect your ability to train, perform and progress. For many, running, or any form of exercise is more than just the activity, it forms an integral part of their self-care and wellbeing (Szabo et al., 2013).

Using Google scholar and PubMed to find supporting evidence, table 1 provides an indication of the popularity of running, running styles and an overview of common injuries.

**Table 1:** Showing the increasing popularity of running, some reasons for this and the musculoskeletal issues that can follow.

| Theme | Key Points | Supporting Evidence |
|---|---|---|
| Running popularity | Running, on an amateur level, is more popular than ever. London Marathon 2025 received over 840,000 applications – a record high, with 56,000 expected to finish. Social trends, health focus, Parkrun, Strava, and TikTok have all contributed. | (Chan et al., 2022) (gis.sport, 2025) |
| Shift during and after the pandemic | Restrictions during the COVID-19 pandemic (March 2020–December 2021) led to increased outdoor running. Many have now integrated running into daily life. | (Chan et al., 2022) |
| Increased running options | Trail races, ultramarathons, virtual races, and destination marathons are expanding in popularity, alongside local social running groups and clubs. | (gis.sport, 2025) |
| Injury prevalence | Up to 70% of amateur runners experience chronic or persistent leg pain. Overuse and microtrauma are the most common issues, especially around the ankle and knee. | (Ferber, Hreljac and Kendall, 2009) |
| Injury recurrence and prevention deficiencies | Running injuries have a high recurrence rate. Many runners focus on a single cause, but most injuries are multifactorial. Runners often continue to run when injured and do not adjust load sufficiently. Society prefers quick fixes, often focusing on footwear over comprehensive approaches. | (Anon., 2021) (Napier and Willy, 2021) Wiegand et al. (2019) Linton and Valentin (2018) |
| Common injuries | Medial tibial stress syndrome, Achilles tendinopathy, and plantar fasciitis are the most common injuries. Data was partly self-reported and from 2011, which limits its relevance to current practice. | (Dias Lopes et al., 2012) |

With this increase in running popularity, greater focus on complementary therapies and self-care is needed. Runners often run with some form of pain. The all-encompassing JING method™ may provide some solutions.

**The JING method™**

The JING method™ combines advanced techniques from eastern and western traditions. This can be described as the HFMAST approach, consisting of **Heat, Fascial techniques, Muscles, Acupressure, Stretching and Teaching.** Centred around an outcome-based approach with results expected within a six-session treatment plan. Therapeutic alliance and consideration of biopsychosocial factors provide the foundations. This multimodal approach is detailed fully by Fairweather and Mari (2015)

Peer reviewed literature into the effects of the JING method™ on runners with chronic leg pain is limited. However, there is research surrounding techniques within the JING™ philosophy.

**Table 2:** Summary of JING Method™ Related Studies

| Author / Year | Study Title | Population | Intervention | Variations if applicable | Conclusions | Relevance to this Study |
|---|---|---|---|---|---|---|
| Softly (2017) | A comparison of clinical massage therapy and clinical massage therapy combined with trigger point therapy in the treatment of iliotibial band syndrome in long distance runners | Long-distance runners with ITB syndrome | JING™ treatment including trigger point therapy | JING™ treatment without trigger point therapy | Both groups had reduced pain; difference negligible | Shows limited additional benefit from adding trigger point therapy alone |
| Dominguez (2019) | A randomised control trial, comparing the JING™ hip and pelvis clinical massage protocol versus the same protocol plus strengthening exercises in the treatment of patellofemoral pain in runners | Runners with patellofemoral pain | JING™ hip & pelvis protocol | Same protocol and strengthening exercises | Both groups improved; combined modalities group had better outcomes | Relevant for combined approaches; different anatomical focus but supports multimodal benefit |

| | | | | | | |
|---|---|---|---|---|---|---|
| Wigmore (2023) | Assessing the effectiveness of the JING method™ of advanced clinical massage for treating lumbopelvic pain in postpartum runners | Postpartum runners with lumbopelvic pain | JING™ advanced clinical massage | N/A (single group) | Average pain reduction of 50% | Relevant as runner focused, though different pain location |

**Heat therapy**

Heat provides therapeutic benefits superior to cold therapy as shown in a study by Malanga, Yan and Stark (2015). Here, the mechanisms and efficacy of hot and cold therapies for musculoskeletal injuries were analysed. Heat promoted healing in certain cases and aided analgesia. Benefits of ice are short term. More education is required to increase awareness.

Petrofsky (2013) supports this. This randomly controlled trial (RCT) consisted of five groups, as follows; (1) Control. (2) Moist heat immediately after exercise. (3) Moist heat 24 hours after. (4) Dry heat immediately after. (5) Dry heat 24 hours after. This design is questionable, each group only experiences one intervention making true comparison difficult. The participants performed squats for five minutes to induce delayed onset muscle soreness (DOMS). The most effective treatment was immediate moist heat, followed by immediate dry heat. This suggests moist heat is optimal, but its immediacy is important.

The study states that somebody with thick subcutaneous fat would see a smaller difference in tissue temperature. A within-subjects design would account for this.

**Myofascial techniques**

Ajimsha, Al-Mudahka and Al-Madzhar (2015) studied the effectiveness of myofascial release (MFR) and reviewed RCTs, revealing that MFR is emerging as an integral part of manual therapy. This was produced in 2014 and provides an indication of how it has grown in prevalence.

The two running injuries most associated with specific fascial issues are plantar fasciitis (PF) and iliotibial band syndrome ITBS (Kondrup, Gaudreault and Venne, 2022).

Research is scarce, particularly in terms of RCTs of MFR and running injuries. Kumar et al. (2024) produced positive results for MFR, revealing that gluteal muscle strengthening, combined with static stretching alleviated the symptoms of PF. The effects of MFR were superior. More RCTs are required around MFR and running injuries. This review demonstrates the benefits of MFR. The design used was not within-subjects, but the results were significantly different for the two groups (38 subjects in each group). There was no control.

MFR is known to restore function, reduce adhesions and relieve pain (Fairweather and Mari, 2015). The benefits for runners with chronic leg pain are clear. More specific research is needed.

**Trigger point therapy**

Nguyen et al. (2024) assessed the presence of latent trigger points in the gastrocnemii of runners. A group of healthy runners and a group of non-runners were assembled. Their myofascial trigger points (MTrPs) were counted and the mean and maximum pain recorded with an algometer. Runners were shown to have more MTrPs and more pain than non-runners. This was despite their 'healthy' state. Showing the importance of this technique for the target group.

Grieve et al. (2013) measured the effect of MTrP therapy on ankle dorsiflexion. Twenty-two participants had their range of movement (ROM) recorded in knee flexion (soleus) and extension (gastrocnemius). These were retested following an intervention of MTrP therapy and stretching. ROM increased significantly. Limitations are the small sample size and the inclusion of stretching. The within-subjects design gives this study validity and clinically meaningful results although it is difficult to distinguish which method had the most impact.

There are insufficient RCTs analysing MTrP in runners with chronic leg pain. Studies that do exist are often not runner specific (Denneny et al., 2019), or employ questionable strategies (Cotchett et al., 2011). Many also involve dry needling, or the use of instrument assisted soft tissue mobilisation (IASTM) (Aggarwal et al., 2024) and (Jayaseelan, Moats and Ricardo, 2014).

Dawson et al. (2011) assessed the effect of massage during a 10-week training period. Those who received massage treatments all completed their 10km race. Only 58.3% of the control

group obliged. This corresponds with a study by Cherkin et al. (2011) where low back (LBP) patients reported reductions in pain while receiving massage alone. The treatments involved a variety of massage types and were non-specific, yielding positive results, nonetheless.

PF is the most common foot pain condition (Reischl, 2001). Renan-Ordine et al. (2011) investigates how combining trigger point therapy with stretching compares to stretching alone for PF. The MTrP therapy and stretching group had the more positive results. Pain was decreased and ROM increased for both groups, however, improvements were significantly greater for the combination group. The JING method™ incorporates both techniques and more, providing evidence of the benefits of a multimodal approach. The RCT used a between-subjects design so no one participant experienced both scenarios, there was no control group.

**Acupressure**

Acupressure is a technique used in traditional Chinese medicine. Pressure is applied to specific acupuncture points, this aids the flow of qi (energy) throughout the body, restoring balance and easing pain.

Godley and Smith (2020) shows acupressure is an excellent alternative treatment for chronic pain. The low cost, non-invasive nature of this modality are key benefits. This article related to (LBP), but the key treatment outcomes were reductions in pain, disability and sleep improvements. These findings were supported by Hsieh et al. (2006). This eastern philosophy positively impacts chronic pain.

The JING method™ is outcome based; therefore, all its elements need to contribute. Massage fusion (Fairweather and Mari, 2015) explains how this eastern method combines with western techniques to treat conditions such as fibromyalgia, LBP, nausea and fatigue. Importantly it relieves pain.

Mącznik et al. (2017) suggests acupressure has a place in the treatment of acute injuries. Seventy-nine athletes suffering musculoskeletal injuries that day received acupressure, sham acupressure or no acupressure. The acupressure group experienced decreased pain after treatment. This RCT, did not use a within-subjects design, this would have been impossible due to the nature of the injuries. The study was based on acute injuries.

Chen and Wang (2014) demonstrates the effectiveness of treating acupressure points in a variety of conditions. Ranging from LBP, headaches and labour pain. The benefits of acupressure on chronic pain were shown.

**Stretching**

Runners need to stretch, or do they? Baxter et al. (2017) concludes that static stretching provides no significant benefits for endurance runners. Suggesting it can have a short-term negative effect on performance and running economy. The report also states that stretching cannot reduce the likelihood of suffering overuse injuries, such as ITBS, stress fractures or PF. This report is based around acute stretching, where stretching is used during a warmup.

Behm et al. (2015) appears to confirm the ineffectiveness of acute stretching, suggesting it has little to no effect on DOMS. The study indicates that chronic stretching can positively affect DOMS when part of a long-term training plan. The review is not specific to the needs of runners but does suggest long term benefits, particularly when incorporated with the multimodal JING method™. The trials reviewed were quite small, with no runner specific studies. Konrad et al. (2025) supports this, six weeks of daily hamstring stretching resulted in a 37% reduction in pain and 19% in surrounding areas.

Caplan et al. (2009) analyses the effect of proprioceptive neuromuscular facilitation PNF and static stretching on running mechanics in rugby players. Indications are that both techniques have positive outcomes when applied consistently. This trial focuses on improving ROM, performance and running mechanics. The influence stretching has on chronic pain is unclear. A between-subjects design was used which has limitations. This format sees each group experiencing different aspects of the process. No one participant had exposure to all elements. This requires a larger sample, incurring greater costs.

The JING method™ uses three main types of stretch: static, PNF and active isolated stretching (AIS). There is limited research regarding these variations in terms of runners and particularly runners with chronic pain. Sohail et al. (2022) concluded that PNF increases ROM and function when compared to static. The difference between PNF and static was small, but stretching in general was beneficial. The design used was between-subjects. However, the participants were runners, and all tests focused on the calf muscles.

AIS is shown to limit the symptoms of DOMS when performed prior to exercise (Qamar et al., 2021). This study had a between-subjects design, was based on wrist flexors and the review is not officially peer reviewed. The results of this study suggest the possibility of reducing soreness and decreasing the propensity to develop chronic issues.

Unfortunately, runner specific research in this area is limited. More studies are needed around the effects of stretching on conditions such as, ITBS or patellofemoral pain syndrome (PFPS).

**Self-care**

Running injuries are often related to an increase in distance, frequency, or intensity. These are the key elements that need to be targeted if improvement is to be gained. However, all three should not be increased at once, a measured approach should be taken. This is the most basic form of self-care as shown in an article on common injuries in runners (Fredericson, 1996).

Foam rolling is a popular choice of self-care amongst runners. Lee (2019) showed this to be effective.

Button et al. (2015) investigates clinical effectiveness of self-care interventions with exercises to manage knee conditions with mixed results. The review highlighted that the most important aspects are teaching self-management skills, communicating information and goal setting. These are key to the JING method™.

Masoudi et al. (2025a) takes a specific approach, assessing the effectiveness of self-care in improving pain and function in athletes with PFPS. Improvements in pain and function are achieved. Greater improvements can be seen in groups combining exercise with trigger point therapy and self-care. This combination is further supported by Narenthiran, Granville Smith and Williams (2025). Here, the use of manual therapy alongside exercise rehab was shown to be more beneficial for LBP patients. Those receiving both modalities experienced greater reduction in pain and increased functionality.

**Biopsychosocial**

A central part of the JING method™ is the biopsychosocial model. This is made of three parts – biological, psychological, and social.

This literature review started by highlighting how, for some, running is not simply a form of exercise but an integral part of their self-care and wellbeing.

**Table 3:** This table provides a visual summary of the biopsychosocial model and other related aspects of the JING method™ with peer reviewed support.

| Component | Description | References |
|---|---|---|
| Biological | Pain resulting from tissue damage, disease, or physical trauma. | (Fairweather and Mari, 2015) (Borrell-carrió et al., 2004) |
| Psychological | Includes beliefs, emotions, fear avoidance, catastrophising and pain perception. | (Borrell-carrió et al., 2004) (Booth et al., 2017a) (Koukoulithras et al., 2021) |
| Social | Demographic factors, environment, age, sex and family situation etc. | (Borrell-carrió et al., 2004) |
| Therapeutic alliance | Emphasises trust, communication, setting realistic goals, and patient-centred care. | (Pomarensky, Macedo and Carlesso, 2022) |
| Graded exercise and goal setting | Prioritise manageable goals, progressing slowly to rebuild confidence, reduce fear and minimise catastrophising. | (Booth et al., 2017a) |
| Mindfulness as an adjunct to physiotherapy | The trial referenced is investigating the effects of mindfulness and physiotherapy on long distance runners with PFPS versus physiotherapy alone. | (Vikhe, F1000Research and 2024, n.d.) |

Gaps in the literature exist throughout this review. Much of the research is aimed at specific injuries, distinct treatment interventions or cases not related to running. An insight is provided into how the JING method™ could theoretically benefit runners with chronic leg pain. However, the benefits of multi-modal treatment plans are not evident in any, one study. The holistic approach of the JING method™ is integral to achieving results. This is lacking in running based studies. The JING™ studies referenced produced positive results but are generally aimed at a niche demographic or a particular pathology.

# METHOD

Ethical approval was received for the following study from JING™ Institute of Massage and Complementary Medicine, in May 2025. The study evaluates the effect of the JING method™ on runners with chronic leg pain.

A group of five participants were recruited through Facebook and Bromsgrove and Redditch athletic club. Inclusion and exclusion criteria were met, (see appendix 1). The participants gave consent for all aspects of the process (see appendix 2) and received a participants letter providing the required information (see appendix 3).

The group agreed not to have any other massage or physical therapy throughout the duration of the study and to notify the researcher of any changes in medication.

A within-subjects design was used for this study in preference to the between-subjects approach. This increased efficiency and is more cost effective as shown by Grenier and Thiel (2025). The approved questionnaire was the EILP (exercise induced leg pain questionnaire, British version) (see appendix 4). This assessed the pain and restriction experienced in different phases of running and related activities. Each question was quantified using a Likert scale of 0-4, where 0 meant unable to perform and 4 equalled no difficulty. In addition to the ten established questions, a further four questions were added each week. They were as follows; how many runs were completed this week? What was the total distance run this week? How would you assess your mood this week? How would you assess your stress levels? Mood and stress were measured on a scale of 0-10.

The study was structured as follows; an initial six-week control period including the weekly questionnaire, followed by six weeks of intervention, incorporating the same weekly questionnaire, which was sent out for completion six days after the hands-on intervention. Finally, in week sixteen, a final questionnaire was completed.

Participants received identical treatments and self-care throughout the study, the treatments varied, as the study progressed. Week seven of the hands-on process began with a consultation and relevant orthopaedic assessment. The pre-determined sessions were based on the JING™ Leg, Knee and Foot protocol (LKF). Session one (week 7) was broad, the

subsequent four alternated between lower and upper leg specific. Session six (week 12) incorporated all aspects and reassessment. Each session included a self-care routine to be completed during the week, taking 10-15 minutes to complete, 3-4 times per week. Self-care was demonstrated at the end of the session and communicated through the ‘Rehab my patient’ app. This provided participants with a printed copy and an email. This progressed accordingly (see appendix 6).

# RESULTS

The EILP measures improvements in exercise induced leg pain, with higher numbers indicating improved functionality. During the 6-week control period EILP scores remained stable. Intervention began at week 7 and a progressive increase in group mean scores is apparent. This progression is maintained despite some individual anomalies.

The steepest increases occurred between weeks 7 and 10. The JING method™ aims to see improvement after the first 3-4 treatments of a 6-week treatment plan. These results support this approach. There is a clear contrast between the control and intervention stages, suggesting a positive treatment effect.

Follow up scores were provided at week 16. Scores remained notably higher than those recorded during the control. There was a slight decrease from week 12, however, indications are that the benefits of treatments were retained.

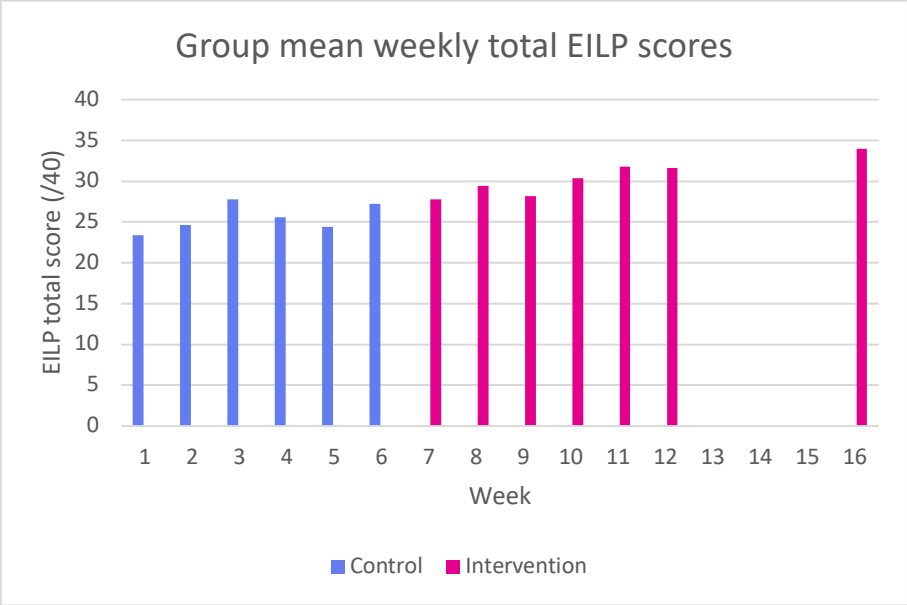


**Fig 1.** Cumulative mean EILP totals, maximum score is 40. Higher scores indicate improved performance.

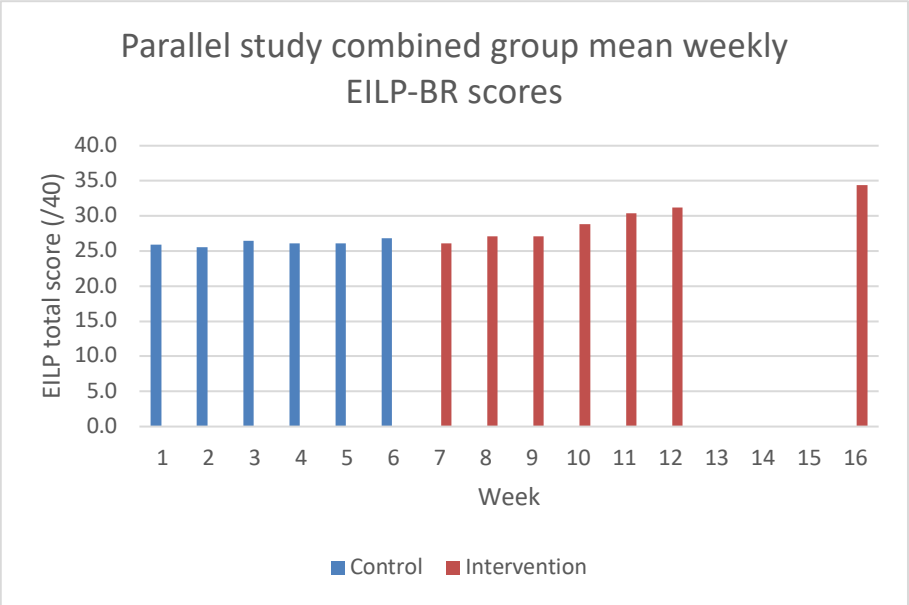


**Fig 2.** Showing the combined weekly group mean EILP scores for this JING™ study and Bark (2026).

**Improvements in running specific elements**

Interestingly, the most significant improvements made were also those most relevant. During the control phase, running after 10 minutes, 15 minutes and 30 minutes remained stable. Following intervention at week 7, these running specific measurements showed consistent improvement.

Ability to participate in desired sport showed steady progress in the intervention phase. These functional gains remained, as shown by results at week 16.

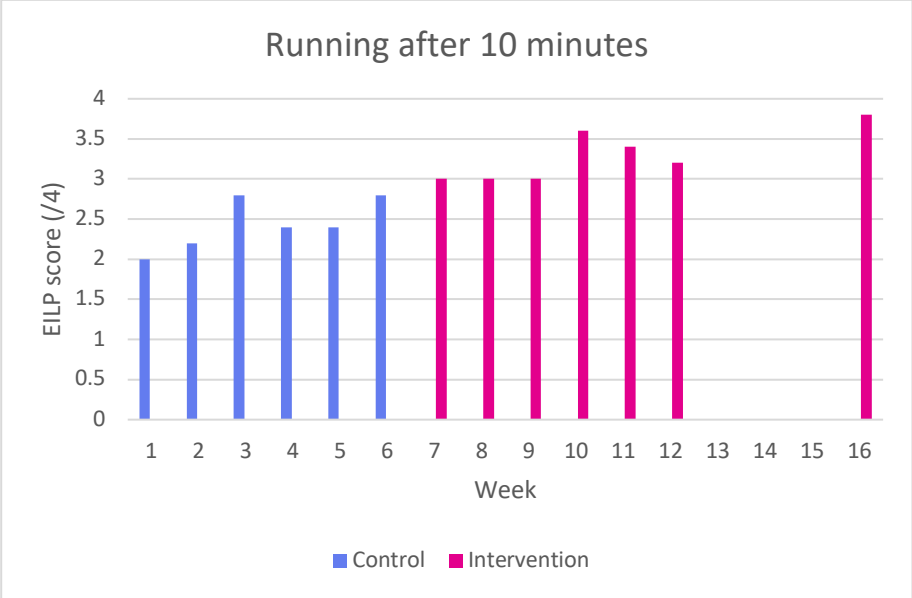


**Fig 3.** Running after 10 minutes, EILP mean maximum is 4

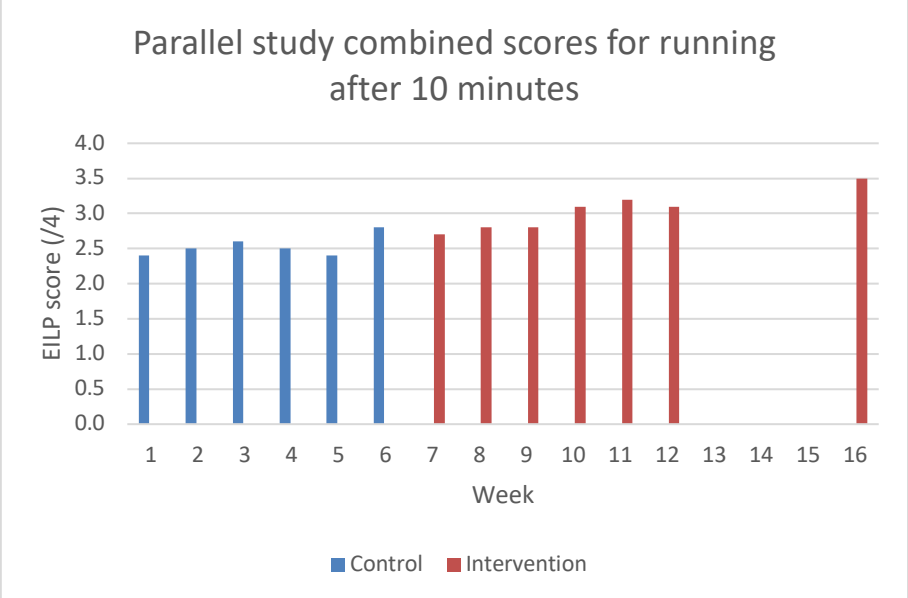


**Fig 4.** Showing the combined weekly EILP scores for this JING™ study and Bark (2026).

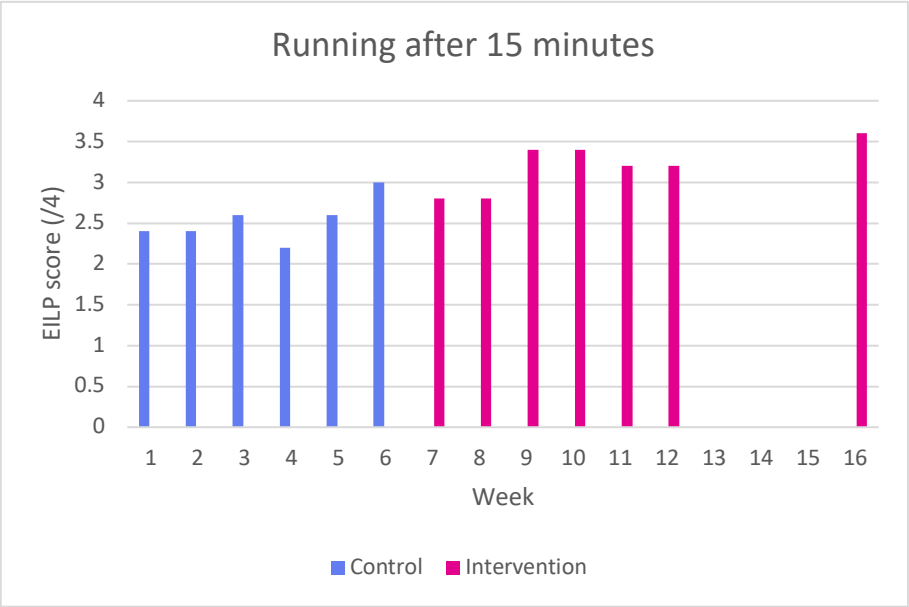


**Fig 5**. Running after 15 minutes, EILP mean maximum is 4

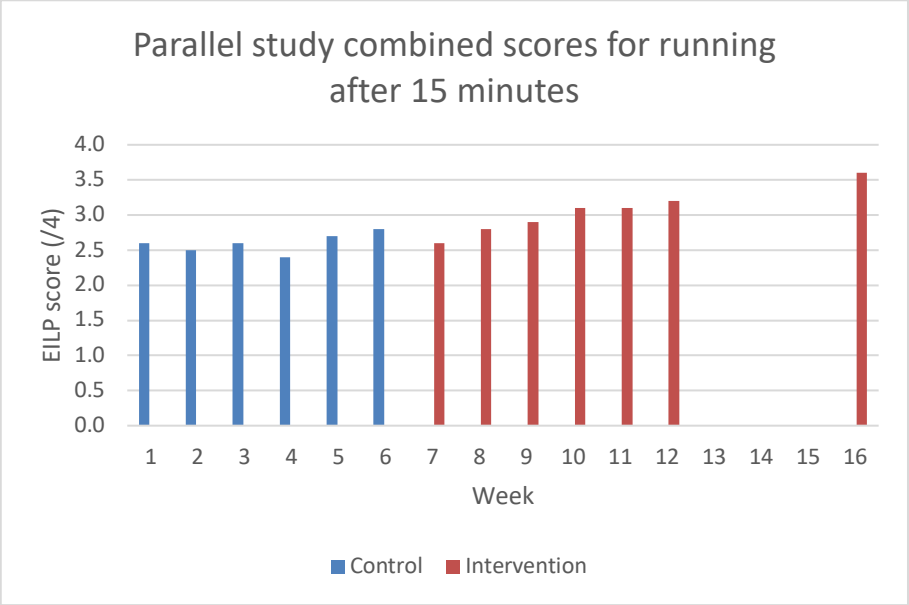


**Fig 6.** Showing the combined weekly EILP scores for this JING™ study and Bark (2026).

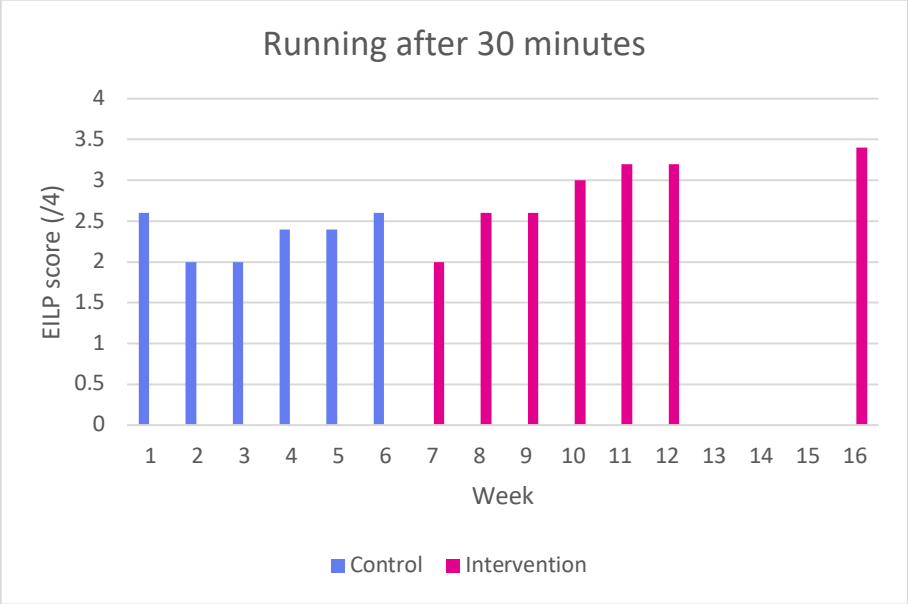


**Fig 7.** Running after 30 minutes, EILP mean maximum is 4

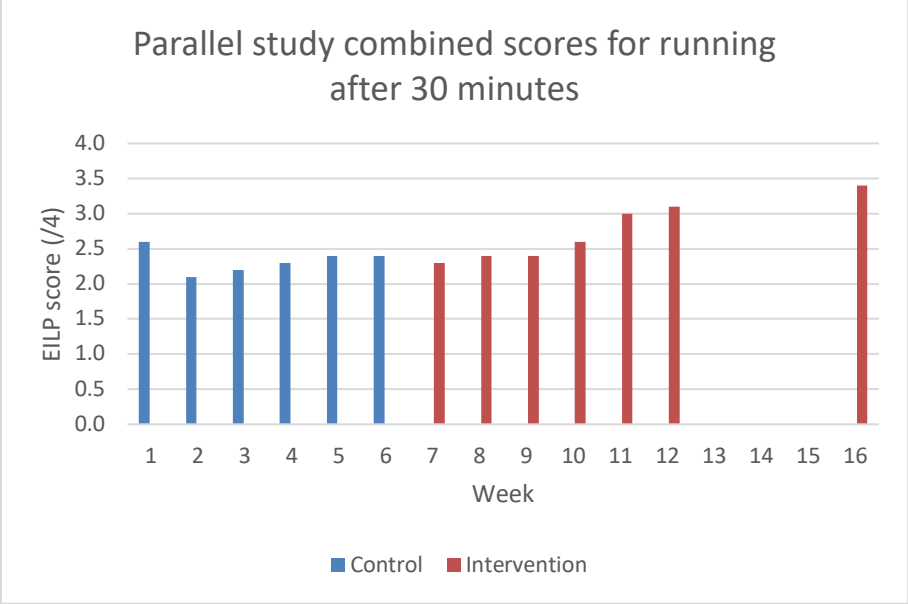


**Fig 8.** Showing the combined weekly EILP scores for this JING™ study and Bark (2026)

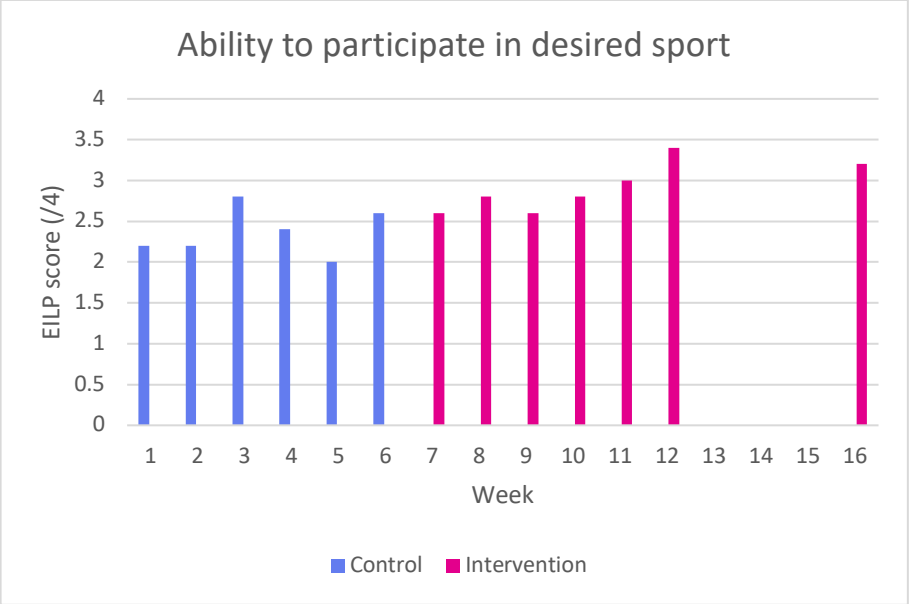


**Fig 9.** Ability to run as desired, EILP mean maximum is 4

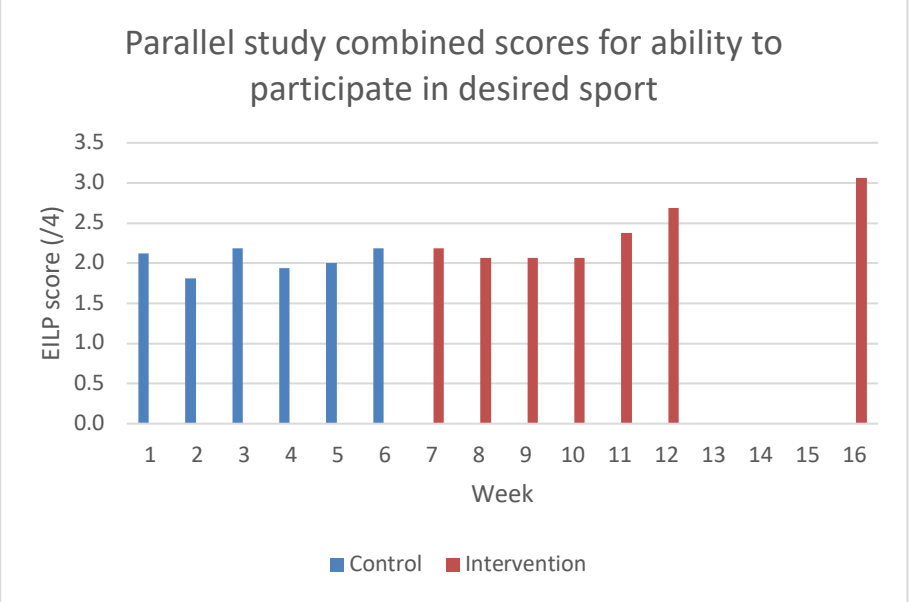


**Fig 10.** Showing the combined weekly EILP scores for this JING™ study and Bark (2026)

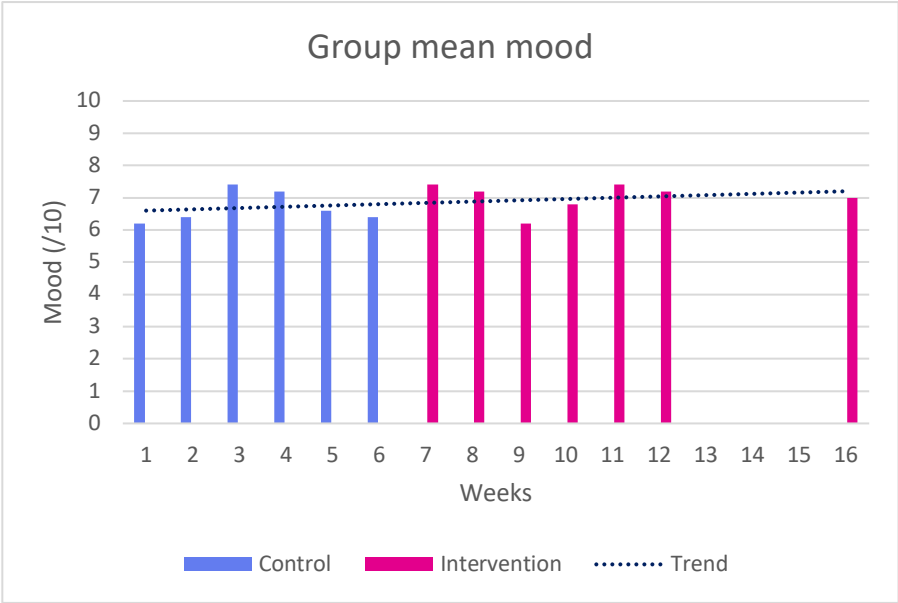


**Fig 11.** Weekly group mean mood scores (/10)

Week 9 was the week that one participant experienced a deterioration of symptoms, their ability to run dropped significantly.

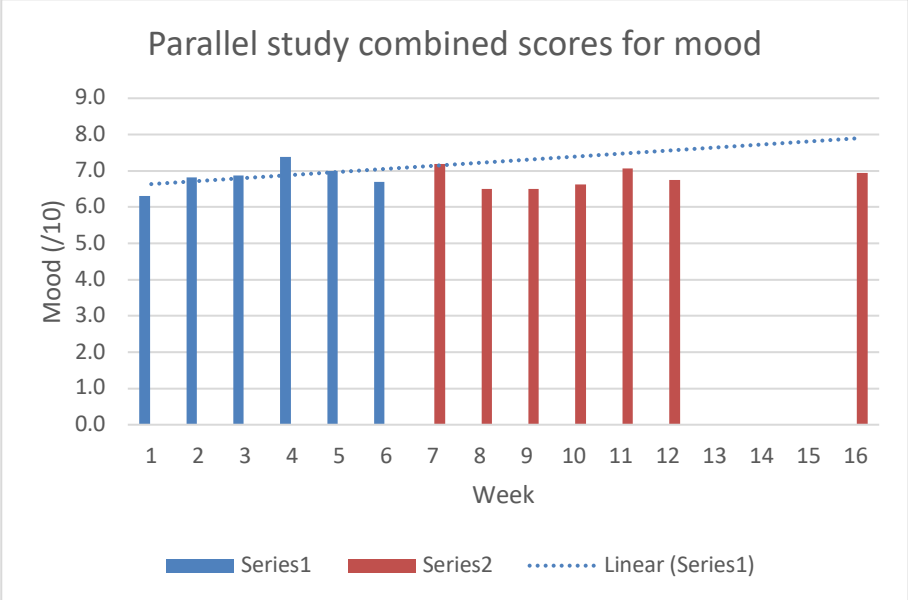


**Fig 12.** Showing the combined weekly EILP scores for this JING™ study and Bark (2026)

# DISCUSSION

This study showed that the JING method™ is effective in the treatment of runners with persistent leg pain.

Parallel to this study Bark (2026) conducted the same research on 11 participants. The same questionnaire and treatment protocol was used. The only differences were the therapist and the participants. A total of 16 participants yielded similar results, particularly in the running-specific metrics, (see results section). This collaboration strengthens the validity of the findings. Despite the matching protocols and symmetry throughout, neither study could influence the other. They were conducted in different demographics, with people experiencing a variety of chronic leg pain issues.

JING method™ studies are wide-ranging; however, research incorporating LKF pathologies is low. JING™ research around runners is particularly underrepresented. This collaboration starts to redress this. From here, future studies can develop, collectively, this will build a stronger body of evidence.

An upturn in results can be seen as the study progresses. Demonstrating the benefits of a global approach.

The most notable improvements were made in the areas of running endurance and ability to participate in running. These were retained at the 4-week follow up stage.

Previous JING™ studies by Softly (2017), Dominguez (2019) and Wigmore (2023) all showed an improvement in pain experienced by runners. These studies used different approaches, different instruments of measurement with unique objectives. However, the constant was the JING method™ and a holistic approach.

**Running duration improvements**

Clear improvements were made in running tolerance. This led to an improved ability to participate. Improvements in flexibility and a reduction in DOMS after sports massage may be the reason. Supported by a systematic review by Davis, Alabed and Chico (2020).

Another systematic review by Guo et al. (2017) has shown that massage can reduce post exercise pain and improve recovery, allowing longer durations of exercise without symptom onset. In a study by Dawson et al. (2011), 16 runners received regular massage while training for a 10km race. A control group of 12 received no massage in the build-up to the same race. Interestingly 100% of the intervention group completed the race, compared to 58% of the control group. Here, a correlation can be seen between treatment plans and sporting participation, as shown in both fig. 9 and 10.

**Sporting participation**

For recreational runners, the primary goal is to be able to run. This JING™ study made notable improvements here. Group mean scores demonstrated minimal change in ability to participate during the control period. The intervention phase produced a steady progression (see fig 9 in results), which remained stable at week 16. This implies decreased symptom severity, improved recovery and increased running confidence. Complete symptom resolution is optimal; however, recovery, confidence and functionality are vital. Highlighting the importance of participation-based outcomes and making them clinically relevant.

**Massage, rehabilitation and self-care**

Massage is more effective when part of a plan incorporating rehabilitation and self-care. Particularly with injury and chronic musculoskeletal conditions. Narenthiran, Granville Smith and Williams (2025) demonstrated this in a study of LBP patients.

The JING method™ combines a variety of manual therapy techniques with stretching and self-care.

Masoudi et al. (2025) demonstrates that improvements in pain and function for athletes with PFPS can be achieved with good self-care. These were shown to be enhanced when combined with trigger point therapy. This JING™ study supports this, self-care and patient engagement were proved central to recovery.

The self-care provided was paced allowing participants to work within their threshold, while encouraging progression. Prioritising manageable goals while making progress is supported by Booth et al. (2017).

During the intervention phase, one participant suffered a deterioration in symptoms. Their condition was long standing. This participant ran significantly more than the others (during the six-week control period this participant alone ran 369.8 km, which was more than the other four participants combined), their drop in volume impacted this metric disproportionately. As previously cited in table 1 (literature review), studies by Wiegand et al. (2019) and Linton and Valentin (2018) show that runners often run while injured and do not adjust training load accordingly. This is possibly a contributing factor here, especially when weekly running data is viewed. Data from this participant was retained to remain transparent and reflect real world results.

The above is consistent with the outcomes and approach of this study. Trigger point therapy is effective, but more effective when combined with self-care. Self-care and rehab promote progress, but more so when paced and within a pain free range.

A detailed plan was in place throughout this study, in terms of both treatment and self-care to allow for reproducibility. Participants were diligent and compliant, building an effective therapeutic alliance.

Massage alone provides benefits for individuals with chronic musculoskeletal pain, a review by Cherkin et al. (2011) reports moderate improvements for LBP patients. While not running related, a reduction in chronic symptoms is relevant. Indications are that massage provides a support system for rehabilitation, self-care and therefore exercise. The suggestion that all elements are important is emphasised by Balthazard et al. (2012) where manual therapy plus exercise incites greater pain relief than sham therapy and exercise. This is further supported by Toprak Celenay et al. (2017). Their focus is fibromyalgia; however, outcomes clearly suggest manual therapy and exercise is superior to just exercise.

This JING™ study reflects the findings of these peer reviews. The improvements in running tolerance during the intervention stage point towards the benefits of massage combined with a paced self-care programme. The self-care element promotes engagement and consistency.

Further support is provided by a variety of JING™ studies around sport related issues. Dominguez (2019) demonstrates superior outcomes when strength training is included in treatment plans. Doñate Gimeno (2023) concludes that rotator cuff pain can benefit from the many facets of the JING method™. Allowing clients to return to strength training sooner.

**Psychological factors**

The JING method™ takes a biopsychosocial approach. This can form part of the approach and the outcome. Results of this study indicated an improvement in mood as the intervention stage progressed (see fig 6 in results). Suggesting a bidirectional relationship, where less pain leads to more running. More running improves mood and reduces stress. Mood can be elevated post run (Morris and Salmon, 1994). A study by Roeh et al. (2020) suggests the impact can be more long term. This larger study saw significant reductions in depressive symptoms and a higher level of functionality over a 6-month period.

Therapeutic alliance is key to the biopsychosocial model used by JING™. Gillingham (2017) assesses the effect of massage on LBP with a positive working alliance (PWA), compared to massage without PWA. This study demonstrated that the JING method™ accompanied with PWA produced more positive results for pain intensity, vitality and fear avoidance.

**Study limitations**

The within-subjects design was optimal for this study, allowing participants to act as their own control. The sample size of 5 is small, however this is supported by the corresponding results of the parallel study.

The pathologies of the group were mixed, some injuries may have benefitted more than others.

The Hawthorne effect states that people can be prone to improving performance or changing behaviour when they know they are being studied. Therapeutic alliance is an important part of any patient – therapist relationship. However, this can also create bias, with the patient wanting to support the therapist. Additionally, participants beliefs around massage efficacy could influence self-reported measures.

No specific training loads, levels of intensity or recovery targets were set. This would not have been possible as all participants were at different levels. These variations could have influenced symptoms and functionality. Nevertheless, this study has provided a valuable insight into the effects of the JING method™ on runners with chronic leg pain. Many of the benefits of this multi modal approach are backed by research. This study provides a platform for further research in the area.

**Future recommendations**

Based on limitations, an immediate enhancement would be to research a larger sample. The results of the parallel study were very similar. This suggests an increased field size would further support the JING method™ and its effectiveness in the treatment of chronic leg pain.

The symptoms reported were mixed, a homogenous collection of pathologies could reduce disparity in response to treatment. Making it easier to see what aspects of treatment are most beneficial for specific issues.

This study featured an anomaly, where one participant experienced a worsening of symptoms and a significant drop in output. A future study could include parameters where all runners run a similar amount from the start of the process. The homogeneity could be governed by type, or level of runner rather than by pathology. For example, participants could all be training for the same 10km race and required to complete the same weekly distance targets and session frequency. External validity could be provided by monitoring this objectively through wearable GPS technology. Additionally, progress could be measured by performance. This could be done throughout the process, by including time trials. Participants could then submit a race finish time after the study period. These adjustments would be added to the inclusion criteria and the EILP.

The study included a 4 week follow up. Any future studies could incorporate a longer period of 3-6 months. This would clarify the level to which improvements remained post treatment phase.

Further research could be done in conjunction with external bodies, such as a running injury clinic or a university sports department. This could lead to collaborations with running injury specialists and the opportunity to recruit a larger sample. A sports science department could

offer statistical support. There could be an opportunity to access technology such as $VO_2$ max testing and biomechanic analysis. Running clubs and running stores could also be interested, both in terms of extracting information from this study and exploring future alliances. For example, running clubs could include massage and self-care alongside their strength and conditioning sessions.

# CONCLUSIONS

The results showed that the JING method™ is effective in the treatment of runners with chronic leg pain. Noticeable improvements were seen in many of the running specific metrics. Alongside this there were positive biopsychosocial outcomes.

This study, in conjunction with the work of Bark (2026) adds to the existing body of research around massage and rehabilitation. More widespread studies are also needed in this area. This study supports the notion that massage therapy and self-care complement each other.

Improvements in running tolerance and participation coincided with the intervention phase. The sample size limits the impact of this study. However, adjustments around types/level of runner and minimum performance requirements could mitigate this in future research.

Despite the mention of homogeneous pathologies, this study indicates that the multi modal JING method™ can have an overall positive effect. The global approach benefitted a variety of issues.

Ultimately, this study provides evidence that the JING method™ can positively affect runners suffering with chronic leg pain.

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# APPENDICES

## Appendix 1

**Ethics** form

| | CHECKLIST OF INSTRUCTIONS FOR STUDENTS | ✓ |
|---|---|---|
| 1 | Complete Section 1 to Section 13 | ✓ |
| 2 | Electronically sign and date | ✓ |
| 3 | Participation information form (see separate form) | ✓ |
| 4 | Participation consent form (see separate form) | ✓ |

**Jing BTEC Research Ethics Form**

**BTEC Level 6: Professional diploma in Advanced Clinical and Sports Massage**

## Section 1: to be completed by student

| | |
|---|---|
| Student's name: | Neil Annis-Tate |
| Student number: | RC84166 |
| BTEC Year-group: | 2024-2026 |
| Date of application: | 1st May 2025 |
| Student e-mail address: | neilannistate367@gmail.com |
| Title of research project: | Evaluating the effect of the JING™ method on runners with chronic leg pain |

## Section 2: Does your project involve any primary research using human subjects?

Please indicate as appropriate.

| | YES | NO |
|---|---|---|
| Does your project involve any primary research using human subjects? | **X** | |
| If yes, does it involve children under 16? | | **X** |
| If yes, does it involve children under 18? | | **X** |
| Other vulnerable populations (i.e. mental illness, aged subjects)? | | **X** |
| Does your project involve NHS patients, NHS staff or Local Authority Service Providers? | | **X** |
| Are you planning to use deception? | | **X** |

| | | |
|---|---|---|
| Are you collecting sensitive personal data such as sexuality, mental health data, etc.? | | **X** |
| Does your study involve paying participants or an alternative incentive to participate | | X |
| Could the study put you or someone else at risk of injury? | | X |
| Does your project make use of a validated questionnaire? | **X** | |
| If yes, please specify the name of the validated questionnaire you are using and attach a copy here.<br><br>Exercise – induced leg pain questionnaire (EILP) | | |

## Section 3: Research premises

| | |
|---|---|
| Where is your research being undertaken?<br><br>Apple Lodge Therapies.<br>367 Birchfield Road,<br>Webheath,<br>Redditch,<br>Worcestershire.<br>B97 4NE | |
| If your research is being undertaken outside of your own premises, do you have written confirmation from the establishment involved? If yes, please provide evidence. | Not applicable |

## Section 4: Recruitment

| |
|---|
| How will you recruit subjects for this research study?<br>• Use local Facebook groups<br>• Local running clubs – including Bromsgrove & Redditch AC, Redditch Couch 2 5K & Stars RC<br>• Local Yoga class (the Motorcycle Yogi) |

- Local Parkrun
- Posters at local PureGym
- Promote on my website
- Posts on Apple Lodge Therapies Facebook page

## Section 5 Outline your project procedure

This study aims to investigate the effect of the JING™ method of clinical massage on runners experiencing persistent leg pain.

A group of runners experiencing persistent leg pain will be recruited to take part in a 16-week study.

Participants will be recruited for this within group study design using

- Soft copy adverts and posters on Facebook, through Apple Lodge Therapies page.
- Soft copy adverts on Apple Lodge Therapies business website.
- Local running clubs – Bromsgrove & Redditch AC, Redditch C 2 5K and Stars RC.
- The Motorcycle Yogi (local yoga class).
- Soft copy posters/leaflets in local gym.
- Face to face networking at Redditch Parkrun.
- Soft copy adverts on local Facebook pages.

There will be a face-to-face / Zoom consultation with participants to ensure they meet the inclusion criteria, understand the research study and provide consent to take part. This will provide participants the opportunity to ask any questions they have regarding the study. At this stage I will also outline that this is a study to evaluate the effectiveness of the JING™ method on leg pain. Treatments will not be tailored to their specific needs and any guarantees of resolving all issues can not be made. Adaptations to the type of language used will emphasise this.

**Weeks 1 – 6** will be the control period, during which no treatment will be administered. Each participant will complete the EILP at the end of each week and a baseline of their pain or restrictions will be established. The EILP will have an additional 2 questions – How many times were you able to run this week? How many miles/KM did you run this week?

**Weeks 7 – 12** will be the intervention period. This will be as follows:

- **Week 7 –** (Hands on treatment 1) 90-minute JING™ treatment, consisting of consultation, range of movement testing, 50 minutes hands on comprised of a standardised blend of the Leg, Knee & foot protocol. Followed by predetermined self-care.
- Each week, all participants will receive the same treatment. However, the treatments will change and progress through the plan. They will follow a HFMAST approach, including, Amma, heat, direct & indirect myofascial release, effleurage, trigger point work, acupressure, stretching & teaching. Treatments will be designed using the JING™ Leg, Knee & Foot protocol, details of this and all self care will be provided in the appendix for this study.

- **Weeks 8-11 -** 60-minute clinical massage (50 minutes hands on), using the JING™ Leg, Knee & Foot protocol. Each session will include pre planned self care and advice.

- **Week 12 –** At this stage each participant will receive a 75-minute clinical session, allowing for 50 minutes hands on, reassessment, self care and advice.

- Each hands-on session will be accompanied by self care recommendations. These will be the same for each participant and they will require completion 3 times per week. The self-care will be sent after each treatment via 'Rehab My Patient', this will provide them with a video link, on screen pictures (phone) and a printed copy. The self care provided will consist of, stretching, self massage and rehab exercises. The app also has a tracking option, I will monitor their self care completion with this function.
- Following each session, participants will be asked to complete the EILP with the additional 2 questions regarding how many times they run each week and distance run. This will be sent the day before their next treatment. They will also have to inform me how many times they performed their self care that week.
- Full details of self care given will be included in the study, along with a detailed breakdown of treatment given.
- Music of a relaxing nature will be played during treatments. They will be the same for each participant.

**Week 16.** At this stage, each participant will be provided with their final EILP and questions on frequency of runs and distance. This will help me assess any long-term benefits or changes following the intervention period. Participants will also have the opportunity to provide some feedback regarding the study; this will be optional and not used to measure results.

## Section 6: Describe what your participants need to do

Participants are required to initially attend a face-to-face online meeting to:

- Check they meet the inclusion criteria
- Have the study explained to them so they can give consent to take part in the study
- Ask any questions they may have
- Collect information required for the consultation process.
- Participants are required to inform the researcher of any manual therapy, medication or any other relevant treatment they are receiving for leg pain throughout the duration of the study.
- **Weeks 1-6,** Participants are required to fill in the EILP once a week for 6 weeks with no intervention. They will also inform the researcher how many times they ran and how far they ran each week.
- **Weeks 7-12,** participants will receive a standardised JING™ clinical massage treatment once per week for the duration of 6 weeks. This will consist of techniques from the Leg, Knee & Foot protocol.
- The treatment will include amma, heat, Myofascial techniques, Acupressure and a standardised plan taken from the Leg, Knee & Foot protocol.
- Participants will have to perform a self-care routine 3 times per week. The self-care will be sent each week via 'Rehab My Patient', with progress tracked through this app.
- Following each session, participants will be asked to complete the EILP with the addition of how many times they ran and how far they ran each week. This will be sent the day before their next treatment. They will also be required to inform me how many times they performed their self-care that week.
- **Week 16.** At this stage, each participant will be provided with their final EILP plus distance and frequency of runs. This will help me assess any long-term benefits or changes following the intervention period. Participants will also be given the opportunity to provide some feedback regarding the study, this will be optional and not used to measure results.

## Section 7: Respecting confidentiality and ethical issues for participants

How will you manage participant confidentiality? Ensure that the information refers to GDPR and is compliant with this legislation. What ethical considerations are there?

- Data held will be in accordance with the General Data Protection Regulation (GDPR)
- Information on initial signup form informing participants that their information will not be available to third parties.
- Assurance that details will not be seen by anyone else.
- Their names will be replaced by numbers so they will be anonymous.
- As soon as the study is over, all details will be deleted.
- There is minimal risk of injury, some soreness may be present following treatments, this will be explained to participants.
- This study will be evaluating persistent leg pain in runners. Should the researcher be concerned about a participant, resources will be available of local specialist help where participants can be signposted to.
- Participants will have the right to withdraw from the study at any point without consequence.
- This study is evaluating the effectiveness of a standardised JING™ Leg, Knee & Foot protocol on leg pain. The plan is not personalised to the specific needs of each individual. This will be explained to each participant. Neutral language will be used, such as 'may help' and 'assessing the effectiveness of.' It is important that each participant is aware that this study will not guarantee the alleviation of all issues.

  I am a fully qualified, insured massage therapist with a First Aid qualification.

## Section 8: Inclusion and exclusion criteria

What sort of people will the subjects be?
The study will **include**:

- Adults over 18 years of age
- An active runner for at least 6 months, completing a minimum of 2 runs per week
- Experiencing pain worsened by running for at least 8 weeks
- A score of 35 or below on the EILP, preferably closer to 27
- Need to be committed to the 16-week study period
- Pain must be chronic and not due to an acute injury occurring within the last 3 months

The study will exclude:

- Under 18 years old
- Leg surgery within the last 6 months
- Currently receiving treatment from another specialist regarding existing injury
- Pain experienced for less than 8 weeks
- New runner – less than 6 months of consistent participation

- Run less than twice per week
- A score between 36-40, as this would indicate normal function
- Pregnancy
- Neurological disorders that could affect gait or leg function
- Unable to attend the required weekly sessions within the 6-week intervention period or complete the EILP at any stage of the study.
- Participants already involved in another such study or treatment plan

## Section 9: Student declaration:

| | | |
|---|---|---|
| I understand that I can only start my project, once this ethical application has been approved. This applies to ALL projects, whether using human participants or not. | YES | NO |

**Student's handwritten signature:**

**(To be completed, once ethical approval has been provided)**

**Print Name: Neil Annis-Tate** **Date: 1st May 2025**

**ONCE YOU HAVE COMPLETED THE ABOVE ETHICS DETAILS, THEN YOU CAN PROCEED TO**
**PARTICIPANT INFORMATION AND CONSENT FORMS, SO READ BELOW AS IT IS IMPORTANT TO BE CLEAR ABOUT WHAT YOUR PARTICIPANTS NEED TO DO.**

**Informed consent** must be obtained for **all** participants before they take part in your project. The Consent Form should clearly state the parameters and content of the research. It should explain what is expected of the participants and what they will be doing. It should draw specific attention to any elements that could conceivably cause subsequent objections, and the measures you are taking to ensure the confidentiality of their data. It should also state that the participants are free to withdraw from the study at any time.

Studies should not involve participants under 18 without express permission from your supervisor.

Studies carried out in schools require the permission of the head-teacher, and of any responsible adults as per the head teachers' recommendation. Minors aged over 14 years should also sign an individual consent form themselves. If you are planning to carry out a project whereby you will be in contact with minors, you must establish from the head-teacher or other responsible adult whether the work proposed will require you to have the relevant DBS disclosure. Please seek advice from your Local Authority.

**You must complete a consent form for every participant involved in your study.**

## Jing's assessment (to be signed by Jing after ethics and participant information details completed)

**EITHER:**
This project is not designed to include fieldwork with human participants. Insofar as secondary data are to be used, I am confident that appropriate procedures are in place for data protection and non-disclosure of any personal or confidential data.

**Signature: .....date: .....**

**OR:**
This project is designed to include fieldwork with human participants.
(please circle yes or no)

| | |
|---|---|
| *YES* | All necessary statutory, legislative or other formal external approvals have been obtained (e.g., permissions, police checks, external research ethics and governance approvals in the case of research involving NHS staff or patients or Local Authority service providers or users). |
| *YES* | The design of this study ensures that the dignity, welfare and safety of the participants will be ensured and that if children or other vulnerable individuals are involved they will be afforded the necessary protection. |
| *YES* | I am confident that participants will be given all necessary information before the study, in the consent form, and after the study if necessary. |
| *YES* | I am confident the participants' confidentiality will be preserved. |
| *YES* | I consider that any risks involved to the student, the participants, and any third party are minimal. |
| *YES* | I consider that Departmental approval should be given, since ethical risks have been appropriately addressed in the proposal and I am confident that steps will be taken to minimise any risks. |

**Signature: .....Susan Harrison..... date: ....14/5/25.....**

If a second opinion was sought from a research ethics expert, the advisor should also sign this form below:
**Advisor's name (please print):**

**Advisor's signature: ..... date: .....**
**Once the Jing's signature has been obtained, the student must return the completed form to the Jing Office.**

## Appendix 2

Consent form

# PARTICIPANT CONSENT FORM

**Title of study:** Evaluating the effect of the JING method™ on runners with chronic leg pain

**Name of student:**

| | Yes | No |
|---|---|---|
| I have read the information letter about this study | | |
| I have had an opportunity to ask questions and discuss this study | | |
| I have received satisfactory answers to all my questions | | |
| I have received sufficient information about this study | | |
| I understand that I am / the participant is free to withdraw from this study:<br>• At any time (until such date as this will no longer be possible)<br>• Without giving a reason for withdrawing<br>• That I am free to refuse to answer any question without saying why<br>• That the services I am receiving will not be affected whether I participate or not. | | |
| I understand that my research data may be used for a further project in anonymous form, but I am able to opt out of this if I so wish, by ticking 'No' here. | | |
| I agree to take part in this study | | |
| **Signature (participant)** **Date:** | | |
| **Name: (BLOCK LETTERS)** | | |
| **Signature (parent/guardian/other, if under 18)** **Date:** | | |
| **Name: (BLOCK LETTERS)** | | |
| BTEC students contact details (including telephone number and e-mail address):<br><br>**Neil Annis-Tate**<br>**Tel no: 07916173096 Email: neilannistate367@gmail.com** | | |

# Appendix 3

**Participants letter**

Dear….,

Thank you for showing interest in my study. I appreciate you responding to my call for participants. Let me tell you a little more about what it entails.

I have been studying as a massage therapist since 2022. I specialise in the treatment of chronic pain. In my clinic, I work with athletes and people from all walks of life, suffering with a range of chronic pain such as headaches, frozen shoulder and fibromyalgia.

In 2022, I embarked on an advanced degree level qualification in my field: the BTEC Level 6 in Advanced Clinical and Sports Massage offered by Jing Advanced Massage, the highest level of education a manual therapist can achieve in the UK. It is overseen by experts in Musculoskeletal Pain, Sports Science and Psychology.

As part of our course work, we have the opportunity to design and carry out a study into the effects of clinical massage in an area of our choice. I have chosen to investigate the effect of the JING method™ on runners with chronic leg pain.

I am looking for people over the age of 18 that meet the following criteria:

An active runner for at least 6 months, completing a minimum of 2 runs per week.

Experience pain worsened by running for at least 8 weeks.

Can be committed to the 16 weeks study period (6 weeks of which involve attending weekly treatments)

Pain must be chronic and not due to an acute injury occurring within the last 3 months.

If you decide to participate in the study, it will begin around the 1st of August.

The first 6 weeks is about understanding your pain. We will have an initial 10-minute 1to1 telephone conversation during which we will secure treatment dates. We will also talk through the study, and I shall introduce you to the Exercise Induced Leg Pain Questionnaire (EILP).

Then for 6 weeks, every Friday, you will fill in the questionnaire and send it to me via email. It should take you approximately 5 minutes. I will send you an email prompt to remind you. Once all that data is gathered and we know what we are dealing with, your treatments will begin.

For the next 6 weeks (starting from 11th September), you will receive weekly hands-on treatments. Your appointment time will be planned in advance, these will mainly be Thursdays and Fridays or where necessary – Sunday. Your first treatment will be approximately 90 minutes to allow for a full consultation. Sessions will last about an hour thereafter.

During this process you will experience a blend of techniques from our Leg, Knee & Foot protocol. This includes heat, Myofascial release, trigger point therapy, acupressure, stretching and self-care.

Throughout these 6 weeks, you will continue to fill out the questionnaire, the day before the next session. I will continue to send you an email prompt.

Finally, at week 16 a follow up EILP form will be sent to you for completion.

Once the study has finished, you will be given the opportunity to provide feedback regarding the process. If the sessions are working for you there will be an opportunity to continue and book a clinical treatment with a 15% discount.

Once my research is published, I will share with you my findings and invite you to the conference, where my colleagues and I will be presenting our results.

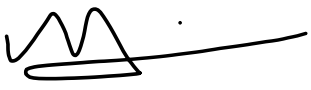
I must ask, that you agree to the confidentiality of all involved. It is also important that you do not engage in any other pain-relieving activity including the use of pain medication, unless this is something you have been doing throughout.

All of your information will be kept confidential. There is a small charge for the sessions of £150, this works out at £25 per treatment. A 50% deposit is required by the 1st of August, with the rest payable by 1st of September as spaces on this study are limited.

Please call me with any questions. Please note that you may at any time withdraw from the project without notice or explanation.

Thank you again for considering this project, your participation will make a difference to your pain and the pain of many.

Sincerely,



# Appendix 4

**Exercise – Induced Leg Pain Questionnaire – British version (EILP)**

*Including 2 additional questions

Dear participant, please answer the questions below with one answer by marking one per line with a tick (✓) that most closely describes your condition within the past week. If you have bilateral symptoms, please answer for the worst side. Each item is scored on a Likert scale ranging from 0 (unable to perform) to 4 (no difficulty).

How are the following activities affected by your exercise induced leg pain?

*All questions relate to last week

| Exercise performed | No Difficulty (4) | Slight Difficulty (3) | Moderate Difficulty (2) | Extreme Difficulty (1) | Unable to Perform (0) | NA |
|---|---|---|---|---|---|---|
| When beginning to run | | | | | | |
| Running after about 10 minutes | | | | | | |
| Running after about 15 minutes | | | | | | |
| Running after 30 minutes or longer | | | | | | |
| Jumping | | | | | | |
| Landing | | | | | | |
| Starting and stopping quickly | | | | | | |
| Sideward cutting movements | | | | | | |
| Low-impact activities | | | | | | |
| Ability to participate in your desired sport as long as you like | | | | | | |

*4 additional questions:

- How many times were you able to run this week?

- How many miles/KM did you run this week?

- How would you assess your mood this week? Mark out of 10, with 10 meaning felt great!

- How would you assess your stress levels this week? Mark out of 10, 10 = highly stressed

# Appendix 5

**Weekly treatment plans**

**Treatment protocol week 1 - Broad**

**Prone**

**Single leg routine (repeat on both legs)**

- Full body amma
- Apply heat (hot towels)
- Cross hand stretch – across the knee
- Power effleurage to full leg
- Deep forearm hamstrings
- Forearm gastrocnemius
- Forearm work to plantar surface of foot
- Power effleurage full leg
- Wringing hamstrings and gastrocnemius
- Muscle strip hamstrings
- STR hamstrings
- Muscle strip gastrocnemius
- 'Windscreen wipe' gastrocnemius
- Muscle strip Soleus
- Power effleurage full leg
- Kidney 1 acupressure

**Supine**

- Single fascial leg pull
- Knee sandwich
- Work quadriceps – effleurage with palms, fists, forearms and hand over hand
- Forearm work to adductors
- Work adductors using supported fingers
- Mobilise hip joint
- Transition into glute stretch, hamstring stretch and spinal twist
- Soft fist to tibialis anterior
- Lock and stretch tibialis anterior
- Fascial work to ankle retinaculum
- Rotate/twist foot
- Mobilise ankle joint
- Spleen 6 acupressure

**Treatment Protocol weeks 2 and 4 – Lower Leg/Ankle/Foot Focus**

**Prone**

**Single leg routine (repeat on both legs)**

- Full body amma
- Apply heat (hot towels)
- Cross Hand Stretch to calf
- Power effleurage to full leg
- Deep forearm to hamstrings
- Forearm work to gastrocnemius
- Wringing to gastrocnemius
- Muscle strip gastrocnemius
- Muscle strip soleus
- Achilles tendon work
- Work tibialis posterior & flexor digitorum
- Work flexor hallucis longus
- Deep stripping to soleus bilaterally
- STR achilles into gastrocnemius
- Forearm work to plantar surface of foot
- Strip foot with thumbs
- STR to foot
- Work heel with knuckles and fingers

**Side Lying**

- Work peroneals with soft fists
- Work tibialis anterior with soft fist
- Work tibialis anterior 'into the groove'
- Work extensor digitorum and hallucis longus '2$^{nd}$ groove'

**Supine**

- Hip mobilisation
- Work quadriceps – effleurage with palms, fists, forearms and hand over hand
- Forearm work to adductors into supported fingers work to adductors
- Indirect fascial work to knee (knee sandwich)
- Broad soft fist to tibialis anterior
- Tibialis anterior lock and stretch
- Fascial release of ankle retinaculum
- Gastrocnemius PNF stretch

- Tibialis anterior PNF Stretch
- Bilateral fascial leg pulls
- Bilateral kidney 1 acupressure

**Treatment Protocol weeks 3 and 5 – Hip, Quadriceps, Hamstrings & Knee Focus**

**Prone**

**Single leg routine (repeat on both legs)**

- Full body amma
- Apply heat (hot towels)
- Cross Hand Stretch (Glute/Hamstring)
- Power effleurage to full leg
- Deep forearm to hamstrings
- Forearm work to gastrocnemius
- Forearm work to plantar surface of foot
- Release proximal hamstring attachment/Bladder 36
- Release distal hamstring attachment
- Strip hamstring belly with fist along IT band
- Strip and stretch hamstrings
- Release proximal popliteus attachment
- Release proximal plantaris attachment
- Release distal popliteus attachment
- Broad work to glute with forearm
- Treat piriformis hand over hand and listening elbow
- STR to piriformis (pulling a pint)

**Side Lying**

- TFL compression hand over hand
- TFL compression listening elbow
- Glute medius work with forearm and listening elbow
- Butterfly press IT band
- Forearm work to IT band and vastus lateralis
- Obers stretch
- Psoas/Quadriceps stretch

**Supine**

- Cross fibre friction to patella tendon and ligament

- Cross fibre friction to deep surface of patella
- Indirect fascial work to knee (knee sandwich)
- Work quadriceps – effleurage with palms, fists, forearms and hand over hand
- Release proximal rectus femoris attachment
- Work adductors – forearm and hand over hand
- Release adductor attachment
- Mobilise hip joint
- Transitional stretch - (Glute stretch into hamstring into spinal twist)
- Bilateral leg pulls
- Bilateral kidney 3 acupressure

**Treatment protocol week 6 - Broad**

**Prone**

**Single Leg Routine (Repeat on both legs)**

- Full body amma
- Apply heat (hot towels)
- Cross hand stretch – across the knee
- Power effleurage to full leg
- Deep forearm to hamstrings
- Deep forearm gastrocnemius
- Wringing of hamstrings & gastrocnemius
- Forearm work to plantar surface of the foot
- Strip hamstrings with fist on IT band
- Strip and stretch STR to hamstrings
- Broad work to glutes
- Muscle strip gastrocnemius
- Muscle strip Soleus
- Achilles tendon work
- Strip foot with thumbs
- Power effleurage full leg
- Kidney 1 acupressure

**Side lying**

- TFL compression (hand over hand)
- TFL compression elbow/hand over thumb
- Glute medius work with forearm and listening elbow

- Obers stretch

**Supine**

- Single fascial leg pull
- Work quadriceps – effleurage with palms, fists, forearms and hand over hand
- Forearm work to adductors
- Transition into glute stretch, hamstring stretch and spinal twist
- Soft fist to tibialis anterior
- Lock and stretch tibialis anterior
- Fascial work to ankle retinaculum
- PNF to gastrocnemius
- PNF to tibialis anterior
- Bilateral fascial leg pulls
- Bilateral spleen 6 acupressure

# Appendix 6

## Weekly self-care plans

**Apple Lodge Therapies**
367 Birchfield Rd, Webheath
Redditch
B97 4NE

Mobile: 07919 913 444
Email: stephanieannistate367@gmail.com

| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 1** | **Participant One** | **11th Mar 2026** |


### Spiky Ball Massage

Sit on the floor and place a spiky ball under your calf muscle at the back of your lower leg. Use your hands to support your body, and lift your foot from the floor. Roll the ball up and down the back of your leg to create a localised massage to the calf muscles. Repeat for the Quads, hamstrings and tibialis anterior as discussed.

**Sets 1 | Repetitions 1 | Time 1-2 mins | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/5N3LSQlAhmE


### One Leg Stand Balance

Stand on one leg, and try to keep your balance. Be careful and hold on to a wall for support when you first start this exercise. A single leg balance exercise such as this is an enormously valuable exercise, and its benefits including strengthening the muscles and ligaments around the ankles and knees, and improving balance.

**Sets 1 | Repetitions 1 | Time 30 secs | Rest 30 secs | Days per week Daily | Both sides**

Video: http://youtu.be/ZLxyh_PEstI

Dear Participant, please stop any exercise that causes pain. Work through the muscle groups discussed for the self massage. If you find any tender points, wait and hold for 8-12 seconds. If you have any questions with an exercise, just email us on stephanieannistate367@gmail.com. Good luck and keep with it!

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| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 2** | **Participant One** | **11th Mar 2026** |


## Spiky Ball Massage

Sit on the floor and place a spiky ball under your calf muscle at the back of your lower leg. Use your hands to support your body, and lift your foot from the floor. Roll the ball up and down the back of your leg to create a localised massage to the calf muscles. Repeat for the Quads, hamstrings and tibialis anterior as discussed.

**Sets 1 | Repetitions 1 | Time 1-2 mins | Rest 30 secs | Days per week 3**

Video: http://youtu.be/5N3LSQIAhmE

## Wobble Cushion Dyna Disc Balance Stand One Leg

Place cushion on a stable surface. Stand on the cushion on one leg for the required length of time. Use support from a wall, table or chair if required. This exercise helps improve balance.

**Sets 1 | Repetitions 2 | Time 30 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: https://youtu.be/YDn4ODy8EkU


## Calf Heel Raises Standing

Place a small rolled up towel near the edge of a step (this is optional). Stand on the step, placing your toes on the towel. Drop your heels, then lift your heels as high as possible for a count of 2. At the top of the movement hold for 2 seconds. When lowering your heels go slower - for a count of 5. Drop below the edge of the step for a deeper stretch. This exercise has been recommended for strengthening the calf muscles, and also as a treatment for plantar fasciitis.

**Sets 2-3 | Repetitions 8 | Time 2 seconds | Rest 60 seconds | Days per week 3 | Both sides**

Video: https://youtu.be/vxeRxCFVjBE

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| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 3** | **Participant One** | **11th Mar 2026** |


### Hamstring Stretch 5

Lying down on your back, and bend your hip until you can feel a stretch behind your thigh (in the hamstring muscles). Use a towel to apply some overpressure and create a stronger stretch.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

Video: http://youtu.be/LHuMv3EyTKQ


### Single Leg glute Stretch

Lie flat on your back, and bend your knee towards your chest. Hold this position and feel a gentle stretch in your glute. If you get any groin pain while doing this exercise, stop and inform your therapist. Relax, and then repeat as necessary.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

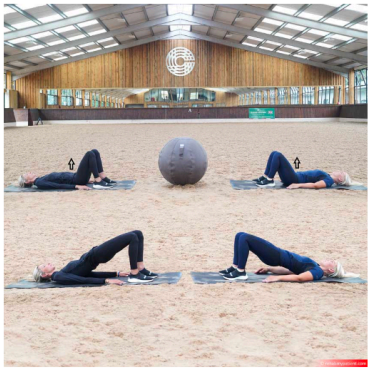
Video: http://youtu.be/lka-1VKjrew


### Hip Flexor Psoas Stretch 1

In a kneeling lunge position, move your body forwards to create a stretch to the front of your thigh and groin. If you want to make the stretch stronger, tilt your pelvis backwards as shown. Use a pillow under your knee if you find you need the padding.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

Video: http://youtu.be/sDn-UtqdX58



## Glute Bridge

Lie on your back with your knees at a 45-degree angle and feet planted on the floor, push the knees outward to create tension in the glutes. Raise your hips until fully extended, while squeezing your hamstrings and glutes. Slowly lower back down to the starting position and repeat.

**Sets 2-3 | Repetitions Up to 8 | Time 15-60 secs | Rest 30 secs | Days per week 3-4**

Video: https://youtu.be/ZnzT6m6kDGY


## Spiky Ball Massage

Sit on the floor and place a spiky ball under your calf muscle at the back of your lower leg. Use your hands to support your body, and lift your foot from the floor. Roll the ball up and down the back of your leg to create a localised massage to the calf muscles. Repeat for the Quads, hamstrings and tibialis anterior as discussed.

**Sets 1 | Repetitions 1 | Time 1-2 mins | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/5N3LSQIAhmE

Dear Participant, please stop any exercise that causes pain. If you have any questions with an exercise, just email us on stephanieannistate367@gmail.com. Good luck and keep with it!

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| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 4** | **Participant One** | **11th Mar 2026** |


## Spiky Ball Massage

Sit on the floor and place a spiky ball under your calf muscle at the back of your lower leg. Use your hands to support your body, and lift your foot from the floor. Roll the ball up and down the back of your leg to create a localised massage to the calf muscles. Repeat for the Quads, hamstrings and tibialis anterior as discussed.

**Sets 1 | Repetitions 1 | Time 1-2 mins | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/5N3LSQIAhmE

## Wobble Cushion Dyna Disc Balance Stand One Leg

Place a wobble cushion or dyna disc on a stable surface. Stand on the wobble cushion on one leg for the required length of time. Use support from a wall, table or chair if required. This exercise helps improve balance.

**Sets 1 | Repetitions 1 | Time 30 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: https://youtu.be/YDn4ODy8EkU

## Calf Heel Raise Two Legs Step

Stand on a step, hold onto a hand rail for balance if required. Slowly raise up onto your toes for a count of 2, hold for 2 seconds and control the movement back down for a count of 5 just below the level of the step. This exercise will strengthen the calf muscles and ankle joints, but at the bottom of the movement put a stretch through the calves as well.

**Sets 2-3 | Repetitions 8 | Time 2 secs | Rest 60 secs | Days per week 3**

Video: http://youtu.be/jfKTT_hr8bk


### Calf Heel Raise One Leg Step

Stand on a step, hold onto a hand rail for balance if required. Slowly raise up onto your toes for a count of 2, hold for 2 and control the movement back down for a count of 5 just below the level of the step. This exercise will strengthen the calf muscle and ankle joint, but at the bottom of the movement put a stretch through the calf as well.

**Sets 2-3 | Repetitions 8 | Time 2 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/Ovzq9hlKOSk

### Calf Heel Raise with Knee Bent Step One Leg

Stand with your toes on the edge of a step with your knee bent. Rise up onto your toes for a count of 2 and hold for 2. Slowly control the movement back down for a count of 5. This is a strengthening and stretching exercise for the soleus (lower calf) muscle.

**Sets 2-3 | Repetitions 8 | Time 2 | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/muijOYVNgsA

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| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 5** | **Participant One** | **11th Mar 2026** |


### Hamstring Stretch 5

Lying down on your back, and bend your hip until you can feel a stretch behind your thigh (in the hamstring muscles). Use a towel to apply some overpressure and create a stronger stretch.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

Video: http://youtu.be/LHuMv3EyTKQ


### Single Leg glute Stretch

Lie flat on your back, and bend your knee towards your chest. Hold this position and feel a gentle stretch in your glute. If you get any groin pain while doing this exercise, stop and inform your therapist. Relax, and then repeat as necessary.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

Video: http://youtu.be/lka-1VKjrew

### Hip Flexor Psoas Stretch 1

In a kneeling lunge position, move your body forwards to create a stretch to the front of your thigh and groin. If you want to make the stretch stronger, tilt your pelvis backwards as shown. Use a pillow under your knee if you find you need the padding.

**Sets 1 | Repetitions 3 | Time 30-60 secs | Rest 30 secs | Days per week 3-4 | Both sides**

Video: http://youtu.be/sDn-UtqdX58


### Supine Bridge

Lie flat on your back with your arms by your side, and with your knees bent. Squeeze your bottom muscles and lift your back upwards and straighten one leg. Make sure you maintain good posture (do not over-arch your lower back) and contract the deep abdominal muscles by squeezing your tummy towards your spine. This exercise helps to strengthen the abdominal, lower back, gluteal and hamstring muscles.

**Sets 2-3 | Repetitions 10 | Time 1-2 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/x-b9yvFzLqk


### Box Step Side

Step onto a box or step to your side, placing both feet on the step, and then step down. You can step off the same side, or step off the other side of the box. Alternatively have only the working leg on the step, stepping up with one leg and slowly lowering the other. Control is key!

**Sets 2-3 | Repetitions 10 | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/7QR_Iew1f7Y

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| Exercise plan : | Patient: | Date: |
|---|---|---|
| **Research study week 6** | **Participant One** | **11th Mar 2026** |

## Calf Heel Raise with Knee Bent Step One Leg

Stand with your toes on the edge of a step with your knee bent. Rise up onto your toes for a count of 2 and hold for 2. Slowly control the movement back down for a count of 5. This is a strengthening and stretching exercise for the soleus (lower calf) muscle.

**Sets 3 | Repetitions 10-12 | Time 2 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/muijOYVNgsA

## Calf Heel Raise One Leg Step

Stand on a step, hold onto a hand rail for balance if required. Slowly raise up onto your toes, and control the movement back down just below the level of the step. This exercise will strengthen the calf muscle and ankle joint, but at the bottom of the movement put a stretch through the calf as well.

**Sets 3 | Repetitions 10-12 | Time 2 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/Ovzq9hlKOSk

## Supine Bridge Advanced

Lie flat on your back with your arms across your chest, and with your knees bent. Squeeze your bottom muscles and lift your back upwards and straighten one leg. Make sure you maintain good posture (do not over-arch your lower back) and contract the deep abdominal muscles by squeezing your tummy towards your spine. This exercise helps to strengthen the abdominal, lower back, gluteal and hamstring muscles.

**Sets 2-3 | Repetitions 10 | Time 2 secs | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/lDLlyM9nzj8


### Full Wall Squat

Open your legs slightly wider than shoulder width, stand with your back resting against a wall, and bend your knees to the full squat position (90-degrees). Make sure you keep the middle of your knee-cap in line with the middle toes of your foot. Always keep your feet flat on the ground, do not let your heels raise from the floor. This exercise will help to strengthen your quadricep muscles, knee joints and legs.

**Sets 1 | Repetitions 1 | Time 30 secs | Rest N/A | Days per week 3**

Video: https://youtu.be/dXkL0muKCLo


### Glute Bridge Iso

Begin by lying on your back with your feet flat on the floor, knees bent and arms by your side. Push your hips vertically and contract your glutes once fully extended without overextending the lower back, hold the position for 30 seconds and return to the starting position.

**Sets 3-5 | Repetitions 3 | Time 30 secs | Rest 30-60 secs | Days per week 3**

Video: https://youtu.be/vtnpY_fYJ4M


### Spiky Ball Massage

Sit on the floor and place a spiky ball under your calf muscle at the back of your lower leg. Use your hands to support your body, and lift your foot from the floor. Roll the ball up and down the back of your leg to create a localised massage to the calf muscles. Repeat for the Quads, hamstrings and tibialis anterior as discussed.

**Sets 1 | Repetitions 1 | Time 1-2 mins | Rest 30 secs | Days per week 3 | Both sides**

Video: http://youtu.be/5N3LSQIAhmE

Dear Participant, please stop any exercise that causes pain. If you have any questions with an exercise, just email us on stephanieannistate367@gmail.com. Good luck and keep with it!