PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Efficacy of acupuncture vs sham acupuncture or waitlist control for patients with chronic plantar fasciitis: study protocol for a 2-center randomized controlled trial
AUTHORS	Wang, Weiming; Liu, Sixing; Liu, Yan; Zang, Zhiwei; Zhang, Weina; Li, Liang; Liu, zhishun

VERSION 1 – REVIEW

REVIEWER	Zhao Ling Chengdu University of Traditional Chinese Medicine
REVIEW RETURNED	25-Jan-2020

GENERAL COMMENTS	Abstract: - Page 2, Line 30-38: Please confirm the duration of the treatment period. - Page 3, Line 12: In this part, it may be possible to explore the strengths and limitations of setting different proportions for each group. - Page 9: Please explain why “All needles except the Ashi points will be manually stimulated”. - Page 9: We noticed that no similar blunt-tipped needles was found on Hwato-brand website (http://www.hwato-med.com/). Please provide the Registration Number and Production License Number of this device. - Page 12, Line 52: We can see that the description of plantar fascia thickness measurement time is not consistent with the Figure 2. - Page 17, Line 6: it was unclear what “alternative treatment” and “conservative treatment” concept? What is the difference between the two? - Page 19: Whether to consider reflecting the contributions of the three experts who developed the acupuncture protocol to this article.

REVIEWER	Dr. Ali Alshami Department of Physical Therapy College of Applied Medical Sciences Imam Abdulrahman Bin Faisal University Dammam city Saudi Arabia
REVIEW RETURNED	15-Feb-2020

GENERAL COMMENTS	This study protocol aimed at investigating the efficacy of combined acupuncture and sham acupuncture versus waitlist in patients with chronic plantar fasciitis. The study design is two-center, parallel-group, sham and no-treatment controlled, assessor-blinded randomized trial. Overall, the manuscript is well written. It covers almost all the items

	in the SPIRIT 2013 checklist. However, there are few comments as shown below. Page 3, lines 22-27: - "Sham control and waitlist control design,…". Change the former 'control' to 'acupuncture'. - The whole statement needs rephrasing. Page 3, line 40: - The authors reported that 12-week follow-up will not allow the detection of the long-term effects. The question then arises: why did they choose 12 weeks? Page 4, line 24: - The reference number 7 is not appropriately cited here. Please remove. Page 4, line 36: - Add shockwave therapy as there is a growing evidence on its effectiveness in patients with chronic PF. Page 6, line 29: - "… baseline assessment …" What does this assessment include? Please clarify. Page 7, line 8: - There are other clinical findings that are not mentioned here (e.g., limited ankle range of motion, abnormal Foot Posture Index, High BMI). Please add. Page 7, line 36: - There are other conservative treatments which have been shown to be effective but not included here (e.g., shockwave therapy, dry needling). Please add. Page 8, line 4: - I suggest adding 'Lumbosacral' before 'Radiculopathy'. Page 9, line 59: - Bilateral acupuncture may have different effects from a unilateral acupuncture. Therefore, I recommend that acupuncture is performed on only the more severe side. Page 10, lines 6-8: - Please clarify how long for using the soft heel foot wear, not standing, and not walking barefoot. Page 10, line 59: - The authors will use more than 6 secondary outcomes. Using multiple outcomes may increase the risk of type I error (false significance) and may require p-value adjustments. The authors should be aware of this issue and may take an action if necessary, by for example decreasing the number of the outcomes. - Windlass test and Foot Posture Index were not included although they are criteria for the diagnosis of PF. Page 11, line 50: - Delete 'plantar' before 'dorsiflexion'. - In addition to testing the ankle ROM in sitting, I suggest doing

	the test with the knee in extension in order to address the influence of calf muscle on ankle ROM. Page 12, line 8: - Add 'plantar' before 'flexion'. Page 12, lines 43-52: - There are inconsistencies about the weeks when to measure plantar fascia thickness. Is it after 4 weeks only or after 4 and 16 weeks? Why not after 8 weeks? Page 12, line 54: - Participant global assessment of improvement. Is this scale valid and reliable? Please add references. Page 14, Statistical Analysis: - I recommend adding 95% confidence interval. - As there are multiple follow-up times, RM-ANOVA or mixed model may be appropriate. But the authors should take into consideration that baseline values are included as outcomes or a co-variate. Figure 1: - Weeks 4, 8, and 16 are mentioned in the manuscript text. In Figure 1, weeks -1, 0, 4, and 12 are shown. Please address this inconsistency. Figure 2: - Some data in Figure 2 are inconsistent with the same data in Figure 1. For example, follow-up sessions are on week 8 and week 16. Also, safety assessment I son weeks 4, 8, and 16. Please revise both figures.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Abstract:
- Page 2, Line 30-38: Please confirm the duration of the treatment period.
Response: Thanks for your suggestion. We confirmed that the duration of the treatment period will be 4 weeks in the acupuncture group and sham acupuncture group.

- Page 3, Line 12: In this part, it may be possible to explore the strengths and limitations of setting different proportions for each group.
Response: We agree with the reviewer and have revised accordingly (page 3, lines 61-62).
"The 2:1:1 allocation ratio used in this trial could facilitate recruitment and enhance patient adherence by allowing more patients to receive acupuncture."

- Page 9: Please explain why "All needles except the Ashi points will be manually stimulated".
Response: It's generally accepted that acupuncture is an invasive technique, and there are publications showing that injuries caused by dry needling [1]. To avoid possible injury of plantar fascia layer and unbearable pain during treatment, the needles inserted into the Ashi points will not be manually stimulated.
[1]Domingo A, Mayoral O, Monterde S, Santafé MM. Neuromuscular damage and repair after dry needling in mice. Evid Based Complement Alternat Med. 2013;2013:260806

- Page 9: We noticed that no similar blunt-tipped needles was found on Hwato-brand website (http://www.hwato-med.com/). Please provide the Registration Number and Production License Number of this device.
Response: Actually, the blunt- tipped needle will be customized for clinical research by Hwato brand, Suzhou Medical Appliance Factory. It has not yet been for sale in the market, or widely used in clinical practice. The customized needle will apply the same material used in the common needle.

- Page 12, Line 52: We can see that the description of plantar fascia thickness measurement time is not consistent with the Figure 2.
Response: Thanks for the reminding, we have addressed this inconsistency in the revised manuscript (page 13, lines 292- 294).
“The ultrasound scan will be performed using an 8-12 MHz linear probe with the patient in the prone position at the baseline and at 4 weeks after randomization.”

- Page 17, Line 6: it was unclear what “alternative treatment” and “conservative treatment” concept? What is the difference between the two?
Response: Thanks, we have revised the sentence (page 17, lines 402-405).
“Patients often choose other treatment options when they cannot obtain a satisfactory outcome from conservative treatment (e.g., muscle stretching, heel cups, arch supports, night splints, shockwave therapy, NSAIDs).”

- Page 19: Whether to consider reflecting the contributions of the three experts who developed the acupuncture protocol to this article.
Response: We have added the contributions of the three experts in the section (page 19, lines 444-445).
“Weiming Wang, Zhiwei Zang and Zhishun Liu developed the acupuncture protocol to this article.”

Reviewer comments:
This study protocol aimed at investigating the efficacy of combined acupuncture and sham acupuncture versus waitlist in patients with chronic plantar fasciitis. The study design is two center, parallel-group, sham and no-treatment controlled, assessor-blinded randomized trial. Overall, the manuscript is well written. It covers almost all the items in the SPIRIT 2013 checklist. However, there are few comments as shown below.
Page 3, lines 22-27:
- “Sham control and waitlist control design,…”. Change the former ‘control’ to ‘acupuncture’.
- The whole statement needs rephrasing.
Response: Thanks for your suggestion. We have revised the sentence accordingly (page 3, lines 58-60).
“The advantages to this study include sham acupuncture and waitlist control design, objective measurements (i.e. PPT, PFT), strict quality control and evaluation of participants’ expectation regarding acupuncture.”

Page 3, line 40:
- The authors reported that 12-week follow-up will not allow the detection of the long-term effects. The question then arises: why did they choose 12 weeks?
Response: Admittedly, a 12-week follow-up may not be enough to detect the long-term effects of acupuncture for chronic PF. As far as we are aware, there is no generally accepted standardized time point for efficacy assessment for PF in clinical trials. 12-week follow-up was chosen empirically based on our historical practices. In addition, the trial is designed with a sham acupuncture and waitlist control group. Considering patient adherence and ethical reasons, we did not choose a longer follow-up period.

Page 4, line 24:
- The reference number 7 is not appropriately cited here. Please remove.
Response: Thanks for the suggestion, we have removed it accordingly.

Page 4, line 36:
- Add shockwave therapy as there is a growing evidence on its effectiveness in patients with chronic PF.
Response: We have added this part in the revised manuscript (page 4, line 82).
"… night splints, shockwave therapy, nonsteroidal antiinflammatory drugs…"

Page 6, line 29:
- "… baseline assessment …" What does this assessment include? Please clarify.
Response: We have added this part accordingly (page 6, line 130).
"…complete a 1-week baseline assessment (see Fig. 2) before randomization…"

Page 7, line 8:
- There are other clinical findings that are not mentioned here (e.g., limited ankle range of motion, abnormal Foot Posture Index, High BMI). Please add.
Response: We have added this part accordingly (page 7, lines 150-152).
"…abnormal foot posture index, high body mass index, as well as a positive windlass test and negative tarsal tunnel tests."

Page 7, line 36:
- There are other conservative treatments which have been shown to be effective but not included here (e.g., shockwave therapy, dry needling). Please add.
Response: We have added this word accordingly (page 7, line 161)
"…shockwave therapy, dry needling and orthotics"

Page 8, line 4:
- I suggest adding 'Lumbosacral' before 'Radiculopathy'.
Response: We have added this word accordingly (page 8, line 170)
"Lumbosacral radiculopathy or peripheral neuropathy around the ankle joint…"

Page 9, line 59:
- Bilateral acupuncture may have different effects from a unilateral acupuncture. Therefore, I recommend that acupuncture is performed on only the more severe side.
Response: Thanks for your suggestion. Although most of the acupuncture meridians are bilateral and it is a common belief that bilateral acupuncture is more effective than unilateral, there is no strong evidence that bilateral acupuncture are superior to unilateral in the treatment of chronic PF. In our clinical practice, we have noticed that more patients are willing to accept bilateral acupuncture when they suffer heel pain bilaterally. Therefore, we prefer to use bilateral acupuncture with a view to better facilitate patient adherence.

Page 10, lines 6-8:
- Please clarify how long for using the soft heel foot wear, not standing, and not walking barefoot.
Response: We have revised this sentence accordingly (page 10, lines 221-223).
"Participants in all groups will be advised to use soft heel foot wear, not to stand for a long time, and not to walk barefoot during the 17-week study period."

Page 10, line 59:

- The authors will use more than 6 secondary outcomes. Using multiple outcomes may increase the risk of type I error (false significance) and may require p-value adjustments. The authors should be aware of this issue and may take an action if necessary, by for example decreasing the number of the outcomes.
Response: Thanks for your suggestion. We have added the information in the Statistics analysis section (page 15, line 360).
"No adjustment will be made for multiple outcomes."

- Windlass test and Foot Posture Index were not included although they are criteria for the diagnosis of PF.
Response: Thanks for your suggestion. We agree that windlass test is one of the criteria for the diagnosis of PF, and Foot Posture Index is one of the measures for quantifying foot posture and function. However, there exists at present no universally accepted outcome measurement for assessing heel pain or foot function after acupuncture treatment. In this trial, we have chosen pain intensity measured with VAS during the first steps as the primary outcome, and included PPT, AROM, FAAM, PFT as the secondary outcomes. All the above outcome measurement could be enough for the overall effectiveness evaluation to test the hypothesis of this trial. For the purpose of this study, this may not to represent a significant issue.

Page 11, line 50:
- Delete ‘plantar’ before ‘dorsiflexion’.
Response: The‘plantar’ has been deleted according to your suggestion (page 11, lines 265-266)
“The examiner will measure the AROM including dorsiflexion and plantar flexion…”

- In addition to testing the ankle ROM in sitting, I suggest doing the test with the knee in extension in order to address the influence of calf muscle on ankle ROM.
Response: We agree with the reviewer and have revised this part accordingly (pages 11-12, lines 265-272).
“The examiner will measure the AROM including dorsiflexion and plantar flexion in 2 positions (flexed knee and extended knee) using a digital goniometer (Tangxia Electronic Instrument Factory, Dongguan, from 0° to 360°). For the flexed-knee assessment, the participant will sit in a relaxed station with the popliteal space at the edge of the table and their knees with 90° of flexion. For the extended-knee assessment, the participant will be seated on a treatment table with the knees fully extended (0°) and the feet hanging off the end of the table.”

Page 12, line 8:
- Add ‘plantar’ before ‘flexion’.
Response: Revisions have been made accordingly (page 12, lines 274-276).
“The ankle will be passively moved from a neutral starting position into dorsiflexion and plantar flexion until a firm end feel is elicited…”

Page 12, lines 43-52:
- There are inconsistencies about the weeks when to measure plantar fascia thickness. Is it after 4 weeks only or after 4 and 16 weeks? Why not after 8 weeks?
Response: Thanks for the correction. We have revised the sentence (page 13, lines 292-294). Plantar fascia thickness will be measured only after 4 weeks as exploratory. We are not going to measure plantar fascia thickness during follow-up because we do not expect our treatment to have a structural effect during the follow-up period. In addition, a limit trial budget is another reason.
“The ultrasound scan will be performed using an 8-12 MHz linear probe with the patient in the prone position at the baseline and at 4 weeks after randomization”

Page 12, line 54:

- Participant global assessment of improvement. Is this scale valid and reliable? Please add references.
Response: We have added the reference and revised this part accordingly (page 13, lines 301-302).
“Scales of participant global assessment of improvement with 7 response categories have been rated as relatively easy to use and show good reliability and validity.28”

Page 14, Statistical Analysis:
- I recommend adding 95% confidence interval.
Response: We have added this part accordingly (page 15, lines 354-355).
“Confidence intervals for the difference between treatments will be calculated at the 95% level.”

- As there are multiple follow-up times, RM-ANOVA or mixed model may be appropriate.
But the authors should take into consideration that baseline values are included as outcomes or a co-variate.
Response: Thanks for your suggestion. Revisions have been made accordingly (page 15, lines 348-351).
“For normally distributed quantitative variables, a repeated-measures analysis of variance (ANOVA) with multiple comparisons post-hoc test will be performed using baseline as a co-variate when comparing more than two groups and an unpaired T test when comparing two groups.”

Figure 1:
- Weeks 4, 8, and 16 are mentioned in the manuscript text. In Figure 1, weeks -1, 0, 4, and 12 are shown. Please address this inconsistency.
Response: Thanks for your suggestion. We have deleted relevant part in Figure 1 to avoid confusion.

Figure 2:
- Some data in Figure 2 are inconsistent with the same data in Figure 1. For example, follow up sessions are on week 8 and week 16. Also, safety assessment I son weeks 4, 8, and 16. Please revise both figures.
Response: Thanks for the correction. We have revised Figure 1 and Figure 2 to avoid confusion.

VERSION 2 – REVIEW

REVIEWER	Zhao Ling Chengdu University of Traditional Chinese Medicine
REVIEW RETURNED	16-Mar-2020

GENERAL COMMENTS	Please clarified more details about the reasons for choosing sham acupoints which is closed to real acupoint. Sham Ashi point may still exist sensitized phenomenon in the selected scope under pain condition.

VERSION 2 – AUTHOR RESPONSE

Reviewer(s)' Comments to Author:
Reviewer: 1
Please leave your comments for the authors below
Please clarified more details about the reasons for choosing sham acupoints which is closed to real acupoint. Sham Ashi point may still exist sensitized phenomenon in the selected scope under pain condition.
Response: Thanks for your suggestion. Admittedly, the sham acupoints we select in this trial are closed to real acupoints. The main reason for our choice is that participants could be better blinded when sham acupoints similarly located at the bottom of the foot as the real acupoints, because most

participants in China will undergo acupuncture/sham acupuncture in the same room. We agree with the reviewer on that sham Ashi point may still exist sensitized phenomenon in the selected scope under pain condition. However, to minimize the possible non-specific physiological effects of needling at sham points, non-insertion at non-acupoints will be used in the sham acupuncture group. As far as we are aware, how to choose sham acupoints in acupuncture trials have not yet been standardized. In this trial, The primary objective is to compare combined acupuncture and sham acupuncture with waitlist control for improving the level of pain experienced by patients suffering from chronic PF. We think it may also be appropriate to choose sham acupoints closed to real acupoints.
In addition, we have corrected some mistakes in Figure 2: we have changed “Participant’ expectations towards acupuncture” to “Participants’ expectation towards acupuncture” ; we have deleted participant global improvement assessment at the baseline.