

# Minimally invasive, ultrasound-guided therapy in patients with plantar fasciitis / fasciosis: a randomised study.

<b>Submission date</b> 20/12/2023	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 23/01/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 22/01/2024	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Corticosteroid infiltration is commonly used for the treatment of plantar fasciitis. In recent years, ultrasound-guided multipunction treatment in the fascia has been described in the literature. This study aims to compare the effectiveness of the above techniques in the treatment of plantar fasciitis.

### Who can participate?

Patients aged 18 years old and over diagnosed with plantar fasciitis

### What does the study involve?

Patients in this study will be randomly assigned to receive either ultrasound-guided multipunction or ultrasound-guided corticosteroid infiltration for the treatment of plantar fasciitis. The intervention involves a single treatment session performed by an experienced podiatrist specializing in ultrasound-guided foot and ankle treatment. Clinical assessments, including a Visual Analog Scale for pain and The Foot Function Index for function evaluation, will be conducted before treatment and at 30, 60, and 120 days. Ultrasound will be used to measure the thickness of the plantar fascia at these intervals.

### What are the possible benefits and risks of participating?

The possible benefits for the participants are to obtain healing of their plantar fasciopathy and improve their function and pain.

The possible disadvantages are the uncertainty about a new treatment whether it will have the ability to improve its pain and function and in what time frames this will happen.

### Where is the study run from?

University of Seville

### When is the study starting and how long is it expected to run for?

January 2022 to May 2024

Who is funding the study?  
University of Seville

Who is the main contact?  
Rubén Montes Salas, rubmonsal@alum.us.es

## Contact information

**Type(s)**  
Scientific

**Contact name**  
Dr Jose Maria Castillo López

**Contact details**  
Facultad de Enfermería, Fisioterapia y Podología. Avenzoar 6  
Seville  
Spain  
41009  
+34954 55 79 06  
jmcastillo@us.es

**Type(s)**  
Public, Principal Investigator

**Contact name**  
Mr Ruben Montes Salas

**Contact details**  
Góngora 13 2º 2  
Córdoba  
Spain  
14001  
+34652862125  
rubmonsal@alum.us.es

## Additional identifiers

**EudraCT/CTIS number**  
Nil known

**IRAS number**

**ClinicalTrials.gov number**  
Nil known

**Secondary identifying numbers**  
MP

# Study information

## Scientific Title

Investigating the efficacy of ultrasound-guided multipunction (MP) treatment versus ultrasound-guided corticosteroid infiltration (CI) in patients with plantar fasciitis / fasciosis.

## Study objectives

Corticosteroid infiltration is commonly used for the treatment of plantar fasciitis. In recent years, ultrasound-guided multipuncture treatment in the fascia has been described in the literature. This study aimed to compare the effectiveness of the above techniques in the treatment of plantar fasciitis.

## Ethics approval required

Ethics approval required

## Ethics approval(s)

Approved 22/02/2022, CEIC Valme University Hospital (CEIC Hospital Universitario de Valme) (Ctra. de Cádiz, km. 548,9, Seville, 41014, Spain; +34955015090; vicente.viruel.exts@juntadeandalucia.es), ref: 2093-N-21

## Study design

Randomized controlled study

## Primary study design

Interventional

## Secondary study design

Randomised controlled trial

## Study setting(s)

Other therapist office

## Study type(s)

Treatment

## Participant information sheet

Not available in web format, please use the contact details to request a participant information sheet

## Health condition(s) or problem(s) studied

Plantar fasciitis / fasciosis

## Interventions

Patients will be randomly selected to be treated with either ultrasound-guided multipunction or ultrasound-guided corticosteroid infiltration. The assignment to one group or another was carried out according to their telephone number, being from one group if the number was even and to another if the number was odd.

The intervention is to perform one single treatment session of ultrasound-guide multipunction in patients diagnosed with plantar fasciitis. Control treatment is performing one ultrasound-

guided corticosteroid infiltration. The procedures will be performed by a podiatrist who specialises in ultrasound-guided treatment of the foot and ankle with more than 10 years of experience.

Ultrasound-guide multipuncture technique: before performing the technique, all subjects had the posterior tibial nerve anesthetized using truncal anesthesia with 2% mepivacaine as follows: after covering the ultrasound probe with the 3M TEGADERM transparent sterile dressing, aqueous chlorhexidine 2% was sprayed to maintain skin asepsis. Aqueous chlorhexidine is also sprayed on the patient's foot and ankle. With the patient in a prone position, after waiting for the antiseptic to take effect, the posterior tibial nerve is located with the ultrasound in the area proximal to the internal malleolus, introducing the syringe loaded with local anesthetic and a 27G needle through the skin until reaching the perineurium under ultrasound vision in the long ultrasound axis, subsequently introducing 5 ml. of 2% mepivacaine.

Continuing with the patient in a prone position, in the case of the multipuncture technique, the depth of the puncture is measured with the ultrasound, and in an approach from the medial aspect of the foot, the 21G needle is introduced through the skin, under ultrasound visualization of the entire needle, we make punctures on the plantar fascia multiple times until the entire area of most abnormality of the fascia is covered with several punctures.

Ultrasound-guided corticosteroid infiltration. technique: Before performing the technique, all subjects had the posterior tibial nerve anesthetized using truncal anesthesia with 2% mepivacaine as follows: after covering the ultrasound probe with the 3M TEGADERM transparent sterile dressing, aqueous chlorhexidine 2% was sprayed to maintain skin asepsis. Aqueous chlorhexidine is also sprayed on the patient's foot and ankle. With the patient in a prone position, after waiting for the antiseptic to take effect, the posterior tibial nerve is located with the ultrasound in the area proximal to the internal malleolus, introducing the syringe loaded with local anesthetic and a 27G needle through the skin until reaching the perineurium under ultrasound vision in the long ultrasound axis, subsequently introducing 5 ml. of 2% mepivacaine.

Also with the patient in a prone position, the depth of the drug infiltration is measured with the ultrasound, and in a medial approach, 1 ml of a drug solution composed of 5.7 mg of betamethasone is infiltrated. , 3 mg of betamethasone (as sodium phosphate) and 2.7 mg of betamethasone (as 3 mg of betamethasone acetate) plus 1 ml of 2% mepivacaine, two-thirds of the volume being injected deep into the fascia and one-third of the volume superficial to it, under ultrasound visualization of the entire needle.

A clinical examination was performed and an ultrasound was taken before treatment and at 30, 60 and 120 days. Clinical assessments were made using a visual analog scale to record pain and The Foot Function Index to evaluate function. Ultrasound was used to determine the thickness of the plantar fascia.

## **Intervention Type**

Procedure/Surgery

## **Primary outcome measure**

Change in patient-reported pain measured using the Visual Analog Scale (VAS) to record pain at baseline and 30, 60 and 120 days following the end of treatment

## **Secondary outcome measures**

1. Change in foot function measured using the Foot Function Index (FFI) at baseline and 30, 60 and 120 days following the end of treatment
2. Plantar fascia thickness measured using ultrasound at baseline and 30, 60 and 120 days following the end of treatment

**Overall study start date**

02/01/2022

**Completion date**

31/05/2024

## Eligibility

**Key inclusion criteria**

1. Aged 18 years old and over
2. Symptoms compatible with plantar fasciitis
3. Thickening of the plantar fascia greater than 0.4 cm
4. Consenting to participate in the study

**Participant type(s)**

Patient

**Age group**

Mixed

**Lower age limit**

18 Years

**Upper age limit**

120 Years

**Sex**

Both

**Target number of participants**

76

**Key exclusion criteria**

1. Systemic disease
2. Non-podological morpho-functional alterations that could have an impact on the ankle and foot and that could give rise to important clinical discrepancies in the lower limbs, dissymmetries or obvious clinical scoliosis
3. Having received any treatment (medical, orthopedic and /or invasive) in the foot in the last three months
4. Plantar fasciitis associated with another condition such as nerve entrapment
5. Difficulty in understanding the instructions to follow during treatment

**Date of first enrolment**

01/02/2024

**Date of final enrolment**

29/02/2024

## Locations

**Countries of recruitment**

Spain

**Study participating centre**

Universidad de Sevilla. Facultad de Enfermería, Fisioterapia y Podología

Avenzoar 6

Seville

Spain

41009

## Sponsor information

**Organisation**

Universidad de Sevilla

**Sponsor details**

Escuela Universitaria de Enfermería, Fisioterapia y Podología. Avenzoar 6.

Seville

Spain

41009

+34954486526

rociocano@us.es

**Sponsor type**

University/education

**Website**

<https://www.us.es/>

**ROR**

<https://ror.org/03yxnp24>

## Funder(s)

**Funder type**

University/education

**Funder Name**

Universidad de Sevilla

**Alternative Name(s)**

University of Seville

**Funding Body Type**

Private sector organisation

**Funding Body Subtype**

Universities (academic only)

**Location**

Spain

## **Results and Publications**

**Publication and dissemination plan**

Planned publication in a high-impact peer-reviewed journal

**Intention to publish date**

30/06/2024

**Individual participant data (IPD) sharing plan**

The datasets generated and/or analysed during the current study will be published as a supplement to the results publication

**IPD sharing plan summary**

Published as a supplement to the results publication