VITAL.PT

Case Study of
FLEXIBLE FLAT FEET
with VITAL.PT

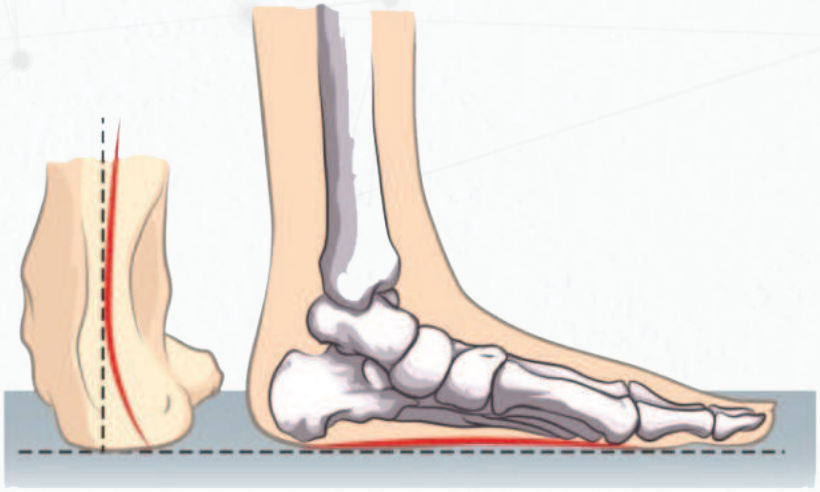
Without Arch Support

With Arch Support

DR. SHREYA MENDON
Physiotherapist
(Community MPT)

INTRODUCTION:

Flat foot, also known as pes planus, is a condition characterized by the collapse of the arch of the foot, causing the sole to come into full or near-full contact with the ground. This condition can be congenital or acquired and may present as either flexible or rigid. Common causes include foot and ankle injuries, obesity, diabetes, hypermobility, ligament laxity, reduced flexibility of the calf muscles and inappropriate footwear. Flat feet can result in pain, especially in the heel and arch areas, and can impair mobility and daily activities. Rehabilitation aims to strengthen the arch supporting muscles, enhance flexibility, and provide suitable orthotic support to alleviate pain and improve function.



Flat feet

SUMMARY:

- A young adult with flat feet experienced bilateral plantar heel pain.
- Through a comprehensive assessment that included **VITAL. PT** plantar pressure analysis and posture analysis, tailored interventions were implemented which focused on strengthening exercises, stretching, and orthotic support.
- Significant improvements in pain and foot function were observed, demonstrating the effectiveness of integrated rehabilitation strategies.

HEALTH STATUS:

A 28-year-old male accountant presented with bilateral heel pain that has persisted for 3 years and worsened with increased activity.

HISTORY OF PRESENT CONDITION:

- The patient has been experiencing plantar heel pain on both sides intermittently over the past 3 years.
- The pain aggravates with extended periods of activity and has progressively worsened, impacting daily activities.
- He also reported frequent rolling of the ankle and no changes in physical activity levels.

[SESSION 1]
SUBJECTIVE EXAMINATION:

- Pain in plantar aspect of bilateral heels, rated 7/10 at worst, reducing to 3/10 with rest. Aggravated with prolonged standing and walking.

OBJECTIVE EXAMINATION:

- Obese (BMI: 31.63 kg/m2)
- Dropped medial arch (R>L)

- Tenderness over tibialis posterior insertion and medial aspect of heels.
- Bilaterally reduced ankle, subtalar and tarsal motions with functional hallux limitus.
- Reduced flexibility of bilateral gastrocnemius, soleus and plantar fascia.

- Tiptoe stand test was negative indicative of flexible flat foot.

- Positive windlass test.
- Abductory twist during toe off phase of gait.
- Shoe inspection showed more wear on the inside of the sole, especially in the heel area and upper leaning inwards.

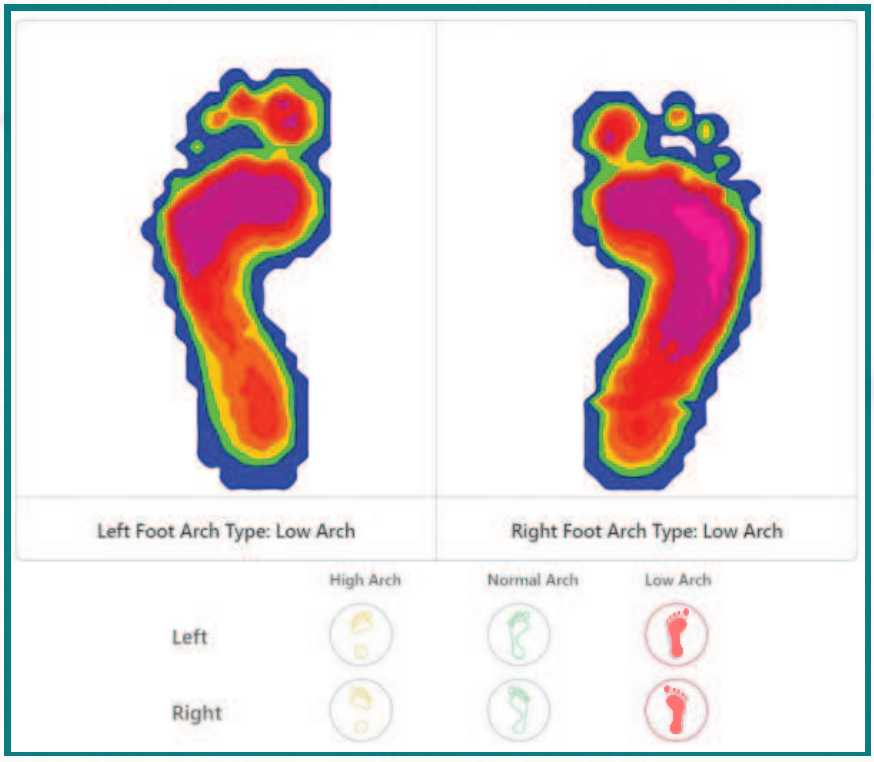
VITAL.PT PLANTAR PRESSURE ANALYSIS FINDINGS:

1. STANCE TEST:

- Indicated normal bilateral weight distribution across both feet but higher weight bearing on bilateral forefoot as compared to the hindfoot.

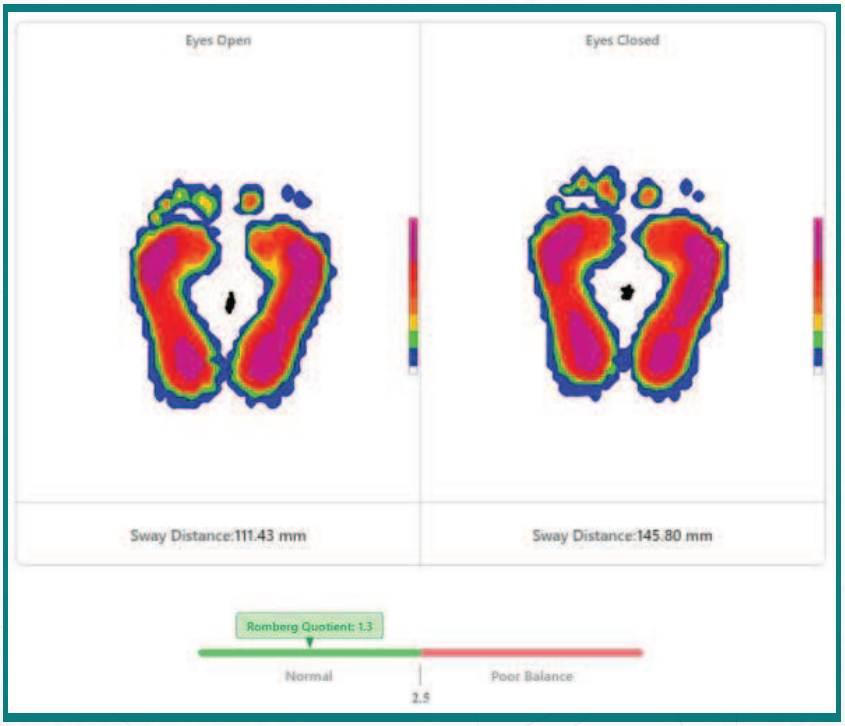
2. ARCH TYPE TEST:

- Assessment indicated flat foot (pes planus) with reduced arch height.



3. BALANCE TEST:

- Showed normal Sway Distance (SD) and Romberg quotient (RQ) suggestive of good balance.



4. POSTURE ANALYSIS:

ANTERIOR VIEW:

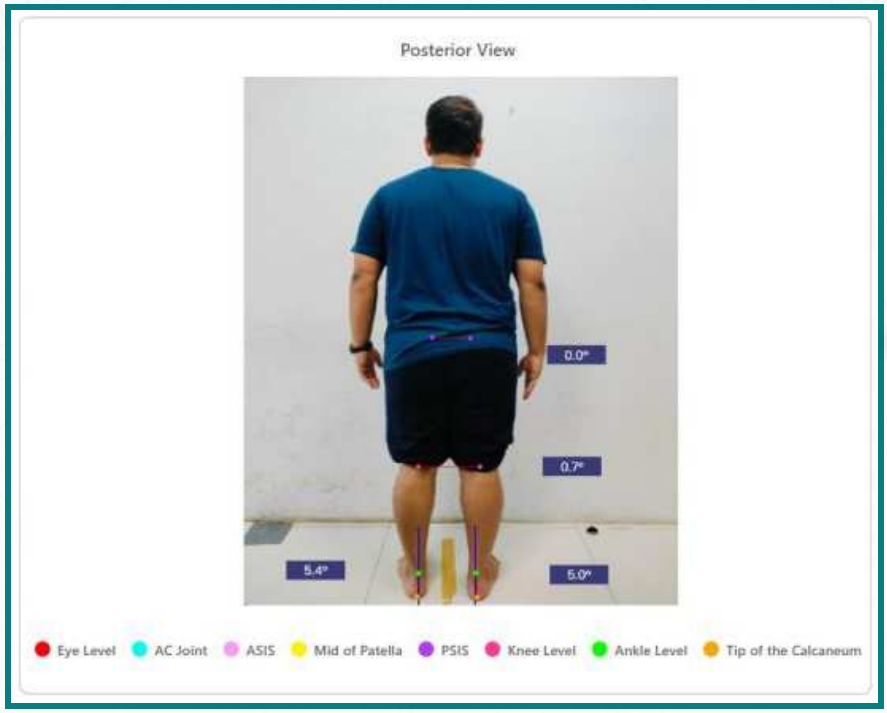
- Normal head and spinal alignment.
- Increased Q angles bilaterally due to genu valgum.

LATERAL VIEW:

- Normal head, spine and lower limb alignment.

POSTERIOR VIEW:

- Normal alignment of head and spine.
- Medially deviated subtalar joints, calcaneal valgus and foot eversion.



GOALS AND INTERVENTIONS:

1. Patient Education:

- He was advised to temporarily refrain from extended activities and any that exacerbate heel pain.
- Recommended to avoid exercising barefoot, to wear well-fitted supportive shoes and work on reducing excess weight.
- Emphasis was also placed on the importance of exercises to strengthen and restore the arches in the feet.

2. Pain Relief:

- Suggested icing and tennis ball rolling (2-3 times/day for 5-10 mins)

3. Footwear Modification:

- **Dynamo Insole** for arch support, with high supination forces that reduced stress on soft tissues, reduce pain and improves foot alignment and function.
  - Its deep heel cup helps to stabilize and prevents rolling of the ankle.
  - The dynamic arch support provides firm support and enhanced stability.
  - It has a superior shock absorption pad at the heel and forefoot which significantly reduces impact to protect the knees.
  - The silicone mid layer optimizes loading during walking, running and playing sports.
  - The metatarsal pad helps distribute the pressure at the forefoot.
  - Additionally, the antimicrobial coating helps minimize odor away and helps sustain a hygienic environment inside the shoe.
- Recommended properly fitting lace shoes to ensure adequate support and stability for the feet.

4. Train Adequate Weight Distribution:

- Performed squats on a ramp such that weight is shifted backwards and helps foot supinate and restores arch (1-3 sets of 15-20 reps)

5. Enhancing Mobility:

- Stretching for gastrocnemius, soleus and plantar fascia (3-5 reps with 30 secs hold)
- Prescribed active range of motion exercises for ankle and foot joints using wedges (2 sets of 10-15 reps)

6. Increasing Muscle Strength:

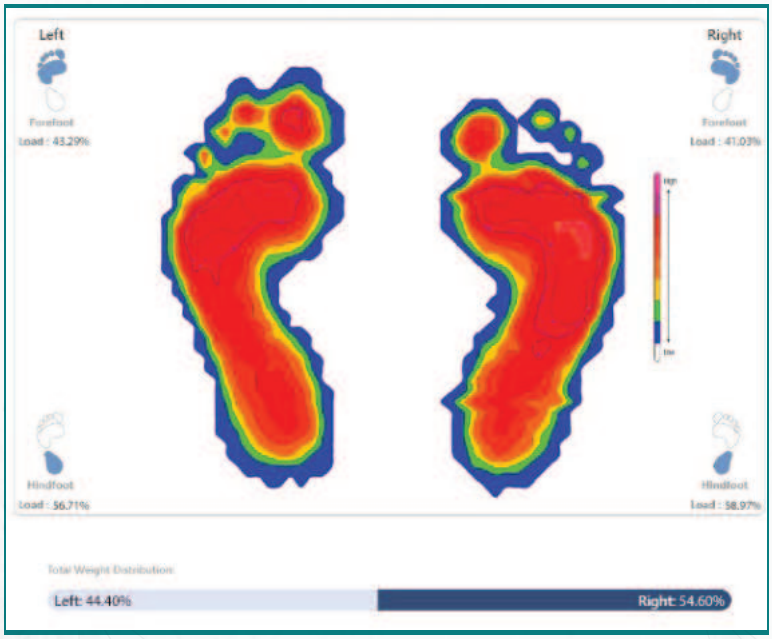
- Theraband exercises for ankle dorsiflexors, plantar flexors, invertors, evertors (3-4 sets of 12-20 reps)
- Exercises for toe flexion, extension and abduction to improve function of intrinsic muscles (3-4 sets of 12-20 reps)

7. Improving Proprioception:

- Heel walking, toe walking and descending an inclined surface (5-10 rounds)
- Single leg balance on each side (20-30 secs hold for 5-8 reps)

[SESSION 14]: OUTCOME

- Heel pain reduced to 2/10 after 4 sessions and completely resolved after 14 sessions.
- Improved weight distribution on forefoot and hindfoot regions.
- Neutral foot alignment with insoles as indicated by better leg heel angle in posterior view.
- Enhanced foot mobility and strength, enabling the patient to perform extended activities with greater ease and less discomfort.



CONCLUSION:

VITAL. PT Advanced Technology plays a crucial role in enhancing the assessment and treatment of flat foot conditions. The case study of a 28-year-old male with flexible flat feet demonstrates the effectiveness of this approach. By utilizing precise measurements and detailed analysis, practitioners were able to develop a personalized rehabilitation program tailored to the patient's specific needs, resulting in significant improvements in pain reduction, foot alignment, and overall function. The patient experienced a complete resolution of heel pain and enhanced mobility, enabling him to perform extended activities without discomfort. This case underscores the importance of integrated rehabilitation strategies in managing flat foot conditions, improving patient outcomes, and restoring quality of life.