Combined Exercise/Weight Bearing Program Influences of Foot Function in People with Asymptomatic Flat Feet

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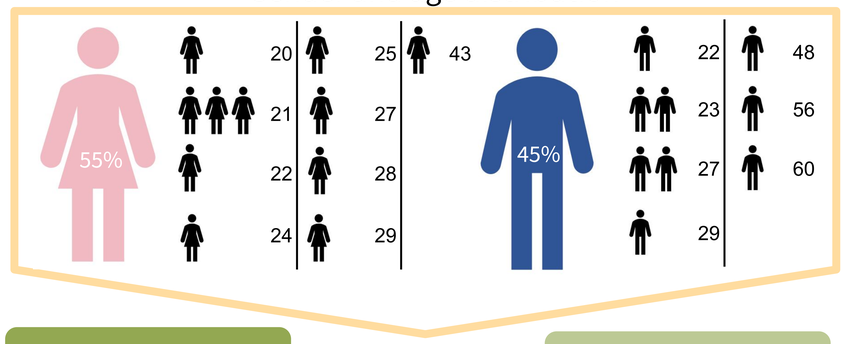
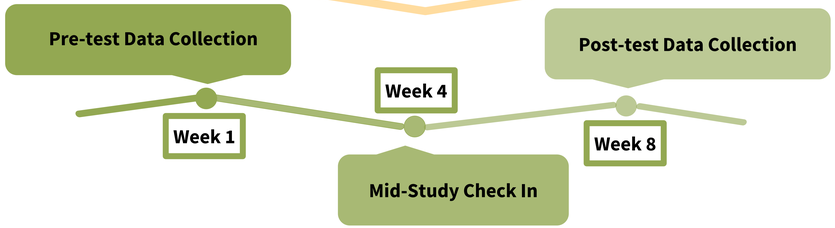
1 Introduction

Gender and age distribution





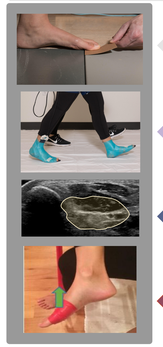
2 Methods

FPI: talar head palpation, malleolar curvatures, calcaneal position, prominence at talonavicular joint, congruence of the medial longitudinal arch, abduction/adduction of the forefoot on the rearfoot. Score: 2- to 2+

ARCH HEIGHT INDEX: Sitting & standing trials using modified Brannock device, aligned approximately half the length of the 1st metatarsal.

HEEL RAISE: Max height & Max repetitions.

NAVICULAR DROP: **Excluded** from the study due to collection errors.



PAPER PULL TEST: 3 trials, maximum great toe flexion measure with force plate while seated.

PEDAR: Plantar pressure measured in double limb standing, single limb standing, walking trials. Velocity controlled by having participants keep pace with a researcher using a metronome.

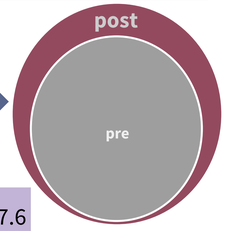
ULTRASOUND: Imaging of Abductor Hallucis in longitudinal view & transverse view. Circumferential measurement of the muscle belly taken 1 cm distal to base of 1st metatarsal.

EXERCISE AND BAREFOOT TIME: Exercises for Posterior Tibialis, short-foot/doming, toe spreading. 2 hours/day barefoot. Exercise compliance log.

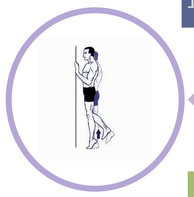
3 Results

Heel Raise

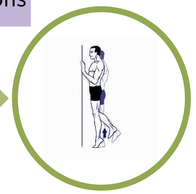
The X-sectional area of the right and left Abductor Hallucis muscle increased by 16.7% (L) and 12.7% (R).

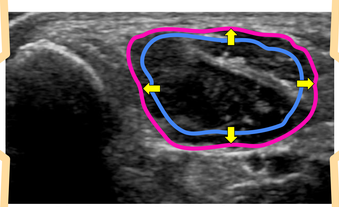


Right heel raise number increased by 7.6 repetitions

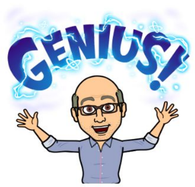


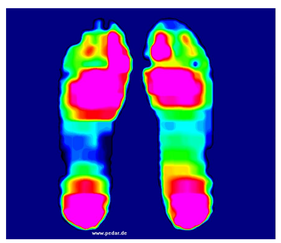
Left heel raise height increased by 7.1 repetitions

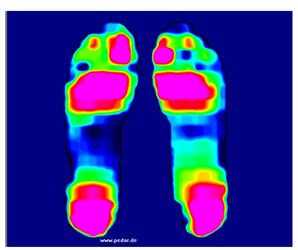




Abductor Hallucis area







No change in forefoot pressure across the gait cycle (30% & 70% stance).

References

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