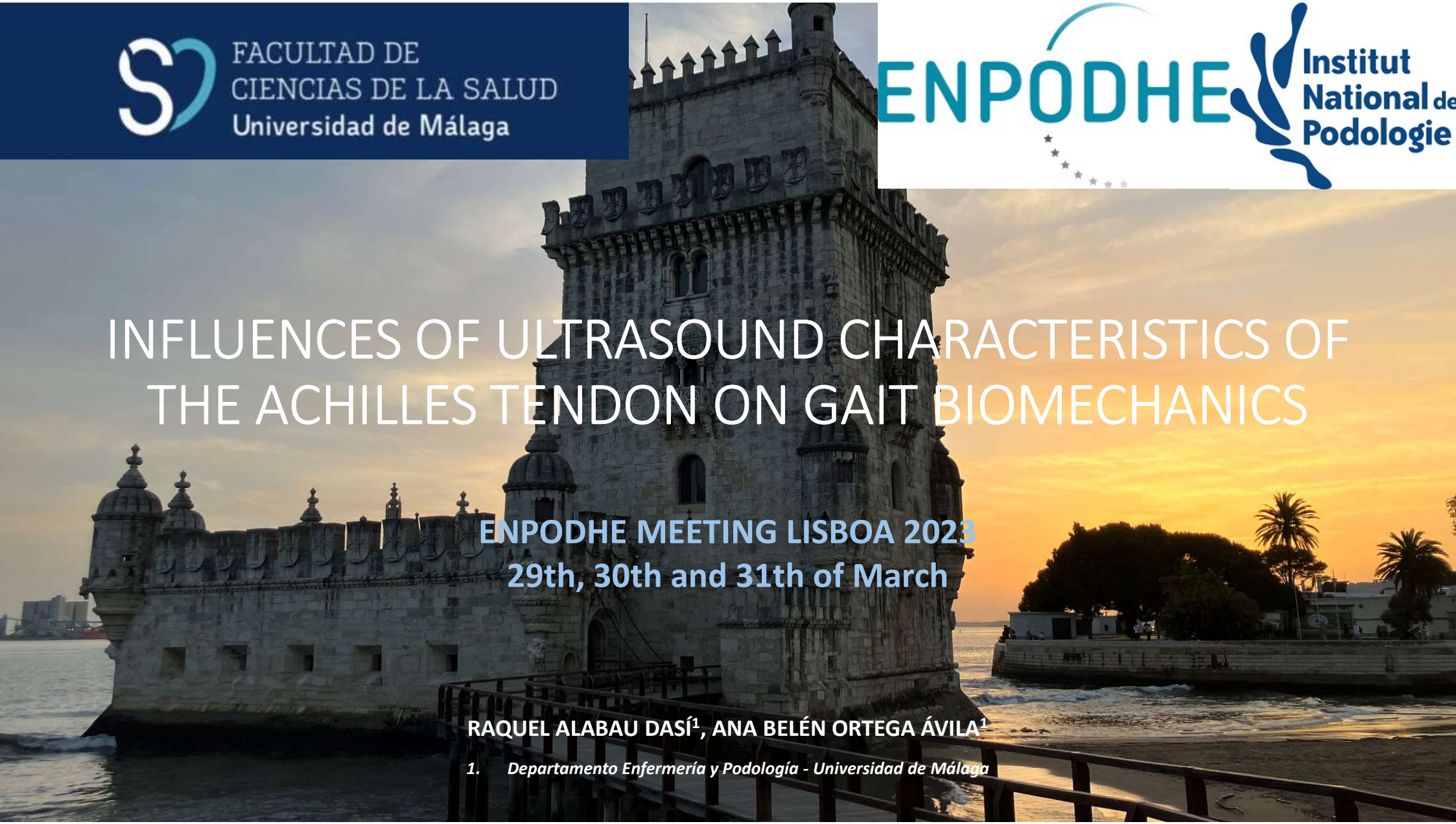

FACULTAD DE CIENCIAS DE LA SALUD
Universidad de Málaga

ENPODHE Institut National de Podologie

INFLUENCES OF ULTRASOUND CHARACTERISTICS OF THE ACHILLES TENDON ON GAIT BIOMECHANICS

ENPODHE MEETING LISBOA 2023
29th, 30th and 31th of March

RAQUEL ALABAU DASÍ[1], ANA BELÉN ORTEGA ÁVILA[1]

1. *Departamento Enfermería y Podología - Universidad de Málaga*

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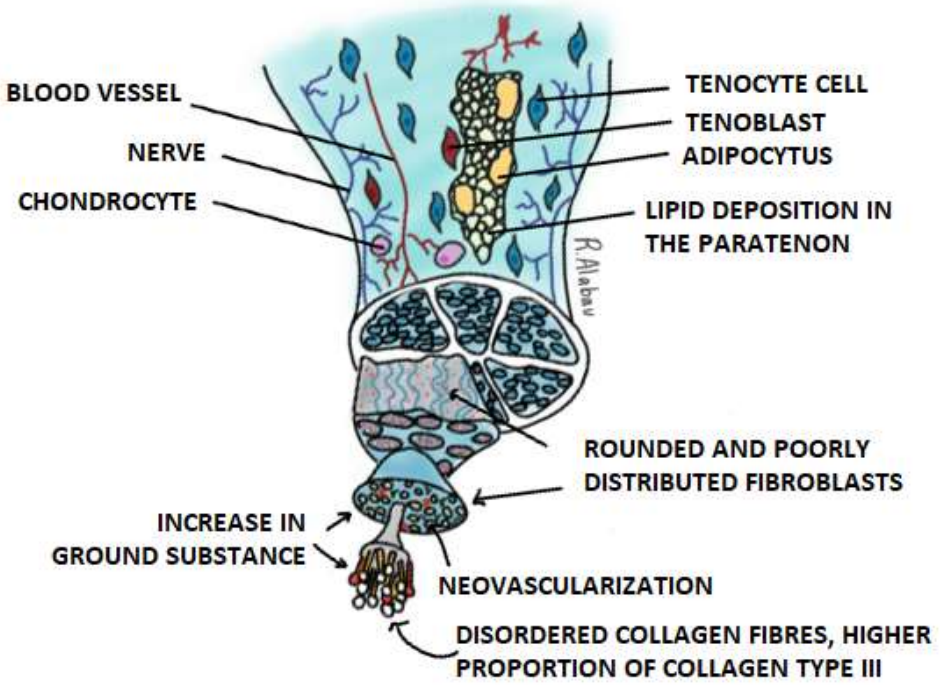

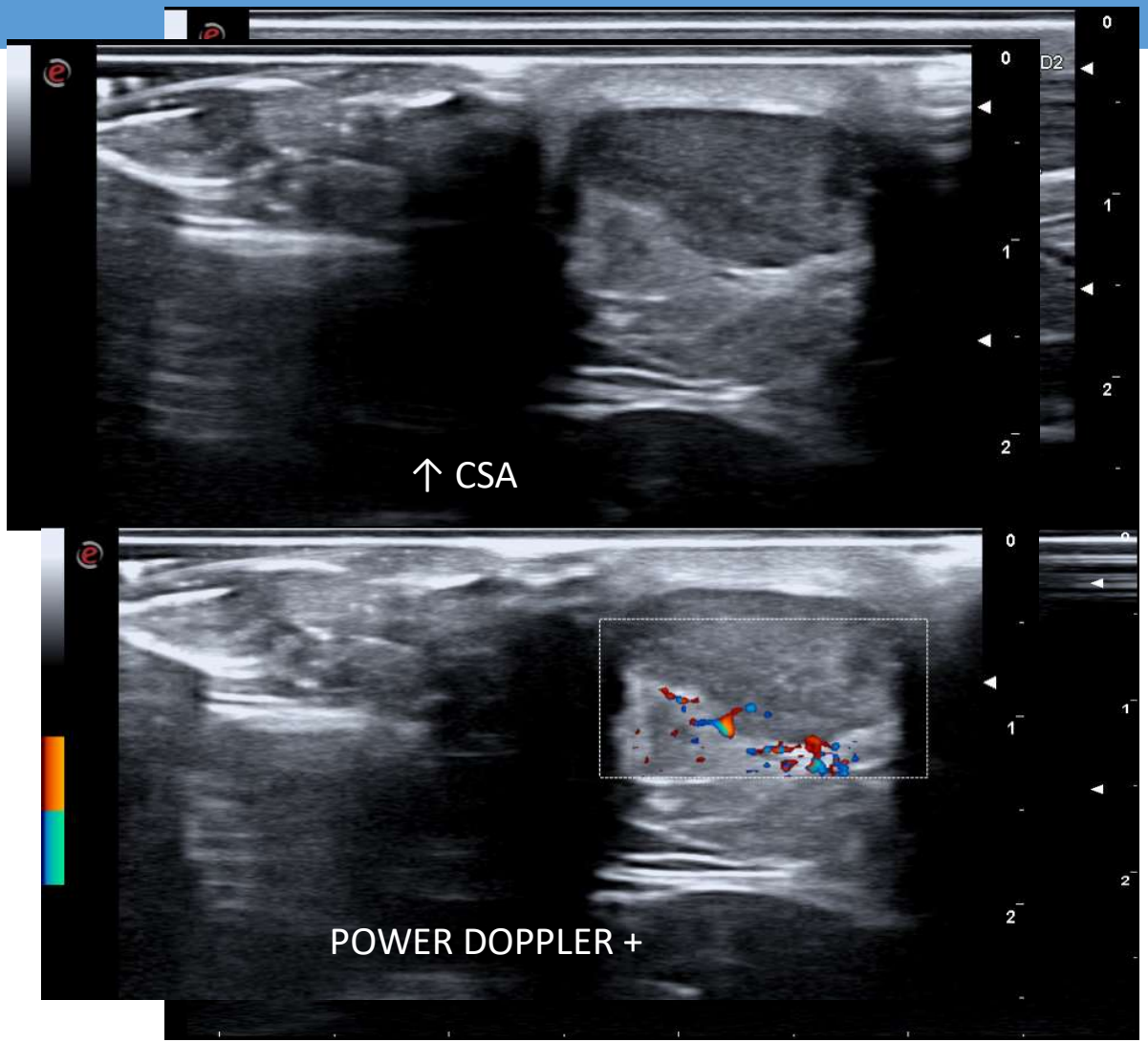

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INFLUENCES OF ULTRASOUND CHARACTERISTICS OF THE ACHILLES TENDON ON GAIT BIOMECHANICS

WHETHER THERE ARE SONOANATOMICAL CHANGES IN THE ACHILLES TENDON BETWEEN MEN AND WOMEN AT REST, AT MAXIMUM PASSIVE STRENGTH AND DURING WALKING.

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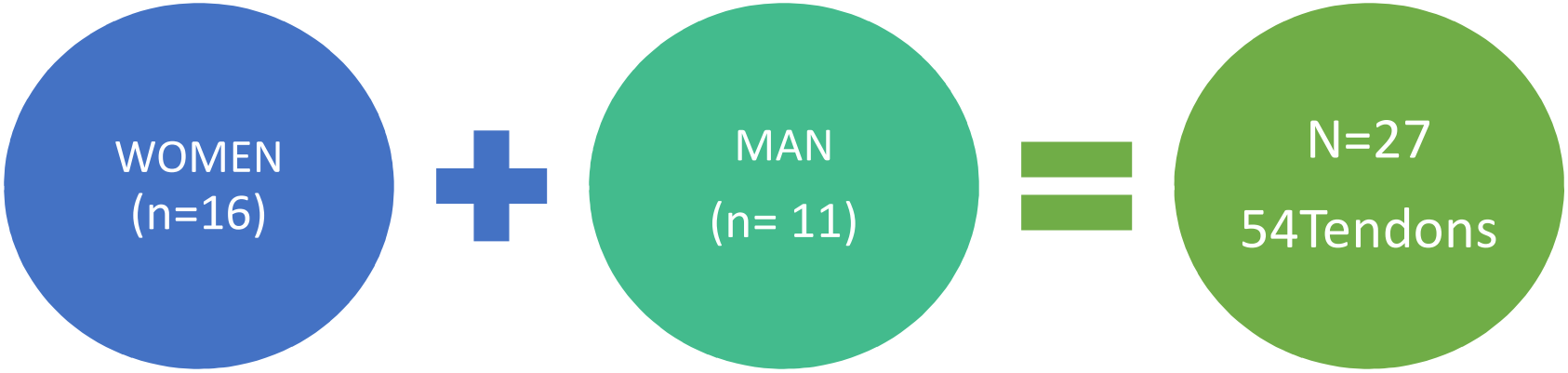
INFLUENCES OF ULTRASOUND CHARACTERISTICS OF THE ACHILLES TENDON ON GAIT BIOMECHANICS

- A CROSS-SECTIONAL STUDY.
  - ETHICS COMMITTEE: CEUMA: 144-2021-H

➢**STUDY POPULATION:** Healthy, adult patients with regular exercise habits**.**

➢**SAMPLE SIZE**: 8 participants in each group. Power analysis (G*power, version 3.1.9.6, Kiel University, Kiel, Germany) effect size: 1.34, significance level: 0.05, statistical power: 80%



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CRITERIOS DE INCLUSIÓN

Men and Women

18 - 30 y.

Regular exercise habits

No standing pathology/last symptomatology at least 3 months before

NO Qx interventions, NO metabolic problems, NO pregnant women, NO use of corticosteroids and/or oral antibiotics.

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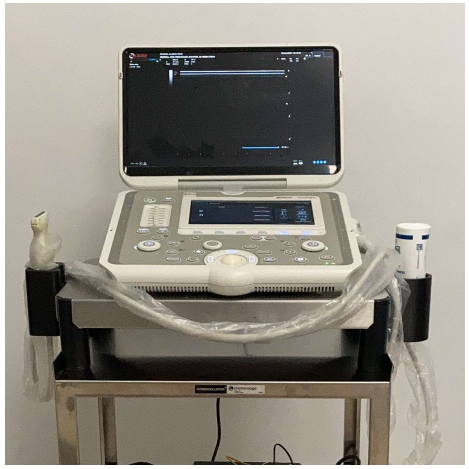
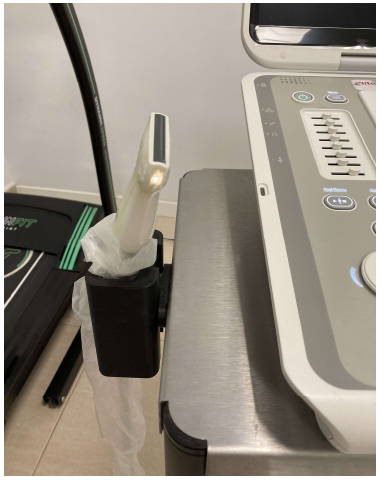
MATERIAL AND EQUIPMENT



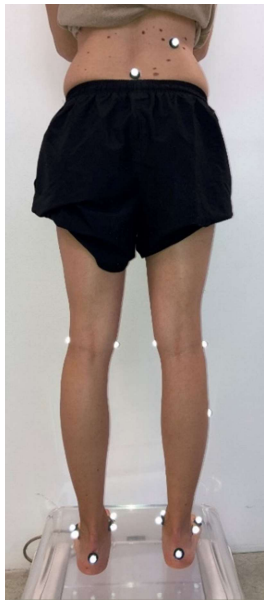
Ultrasound MyLab Sigma Elite



Probe Lineal 4-15Mhz

Imágenes: MyLab Sigma Elite (Esaote, Italia). Imagen propia/ Sonda Lineal 4-15 Mhz. Imagen propia / Sensores sistema

FPI
Lunge Test
Gait Analysis 3D



Davis, R. B., Õunpuu, S., Tyburski, D., & Gage, J. R. (1991). A gait analysis data collection and reduction technique. *Human Movement Science*, *10*(5), 575–587. https://doi.org/10.1016/0167-9457(91)90046-Z

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PROCEDURE

QUESTIONNAIRE

- Demographic data
- Criteria for inclusion and exclusion

BIOMECHANICAL EXAM

- Lunge test
- FPI
- Gait Analysis 3D

ULTRASOUND MESUREMENTS

- CSA
- Legth
- Thickness
- Â pen

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ULTRASOUND MESUREMENTS

Linear probe parameters

Frecuency: 14Mhz.

Focal zone (depth of 0.5 cm) at the TA level	High gain without background noise 85dB	Image depth 3.5 cm

NADEAU M. J. Quantitative ultrasound imaging of Achilles tendon integrity in symptomatic and asymptomatic individuals: reliability and minimal detectable change. Journal of Foot and Ankle Research 2016; 9 (1), 1-17.

Imagen: Parámetros sonda Lineal. Imagen propia.

ULTRASOUND MESUREMENTS

Reference points

Patient in prone position, knee extended and feet outside the stretcher.

Patient in prone position, knee flexed at 90º.

CSA 4 cm

CSA 6 cm

Â pen

Thickness

NADEAU M. J. Quantitative ultrasound imaging of Achilles tendon integrity in symptomatic and asymptomatic individuals: reliability and minimal detectable change. Journal of Foot and Ankle Research 2016; 9 (1), 1-17.

Imagen: Parámetros sonda Lineal. Imagen propia.

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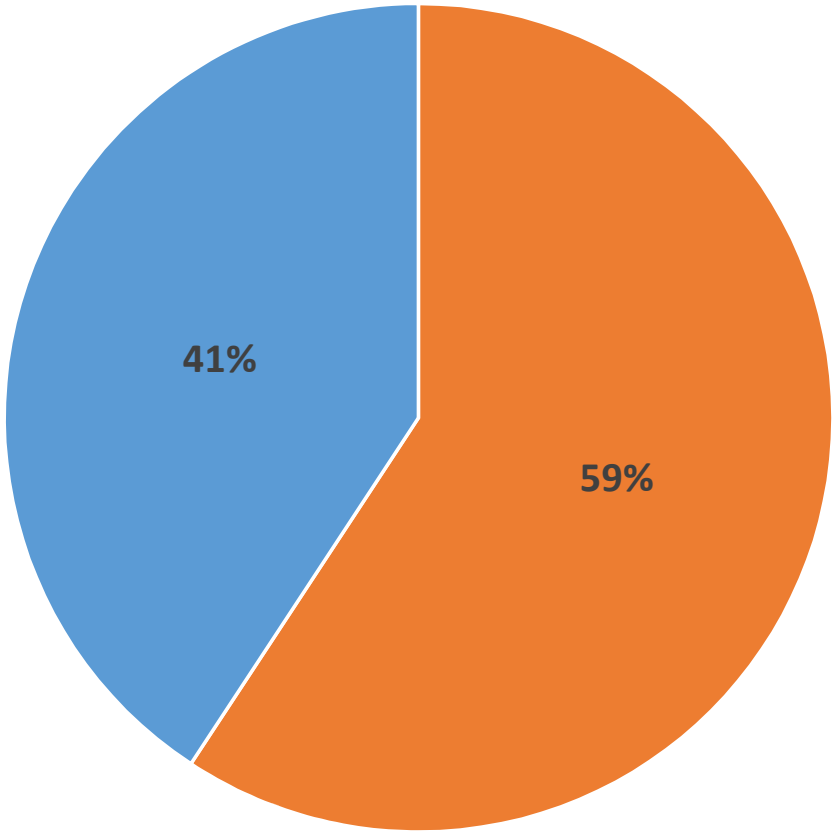
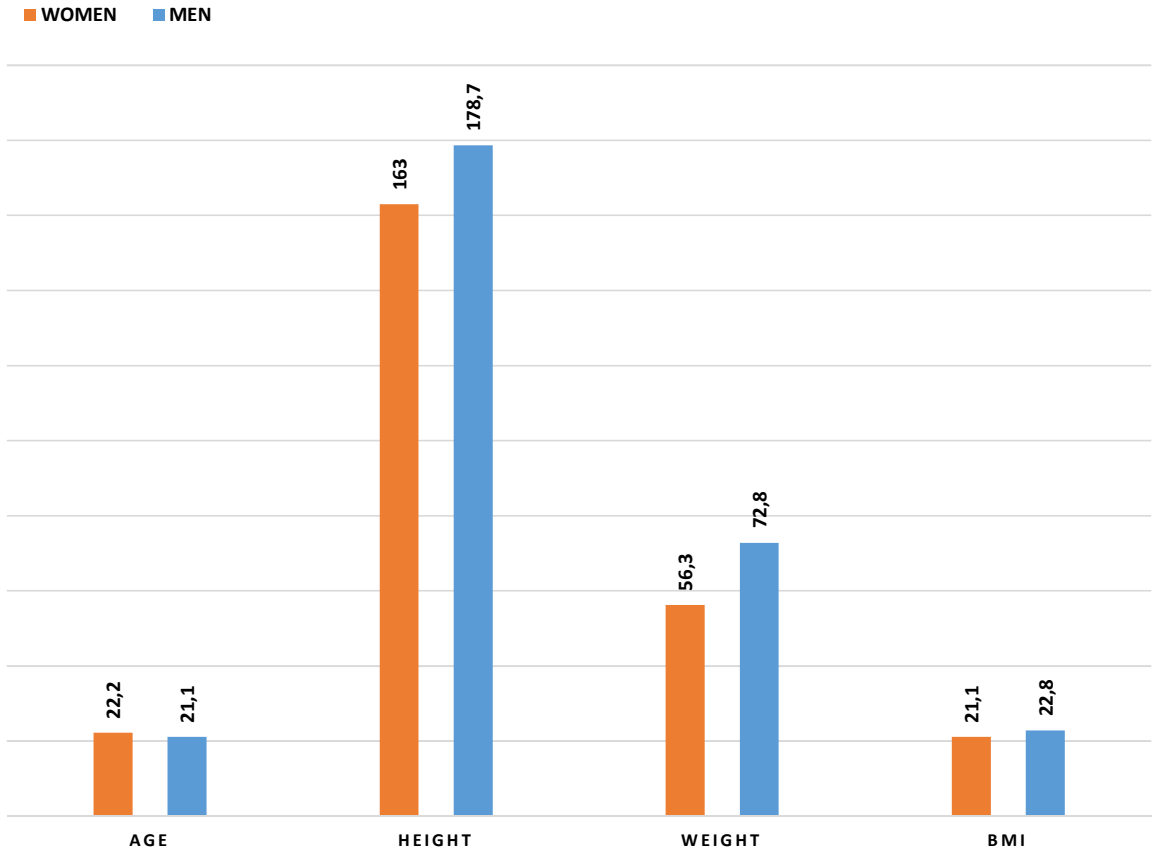
Results. A Pilot Study





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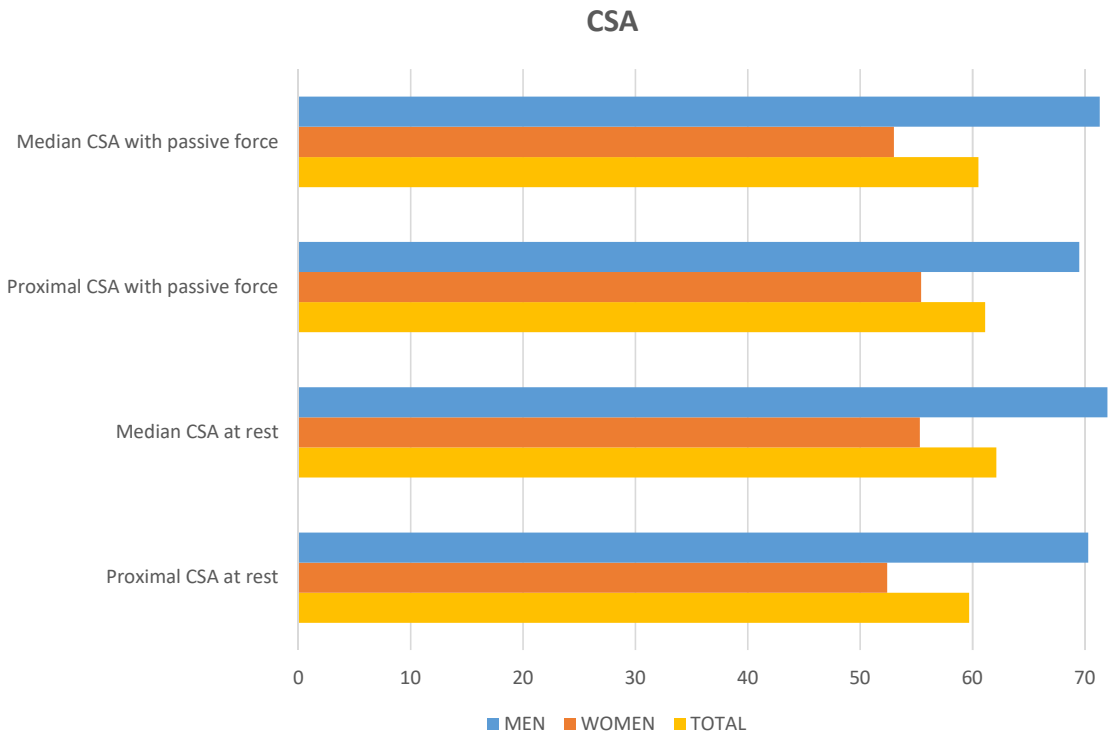

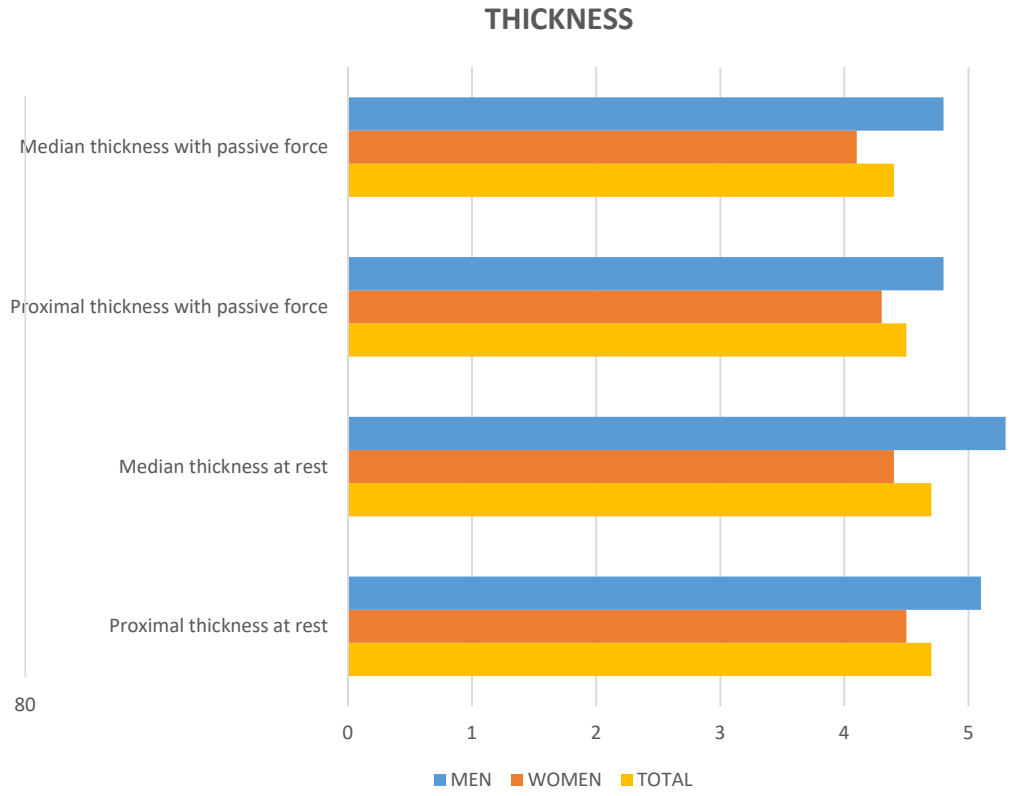

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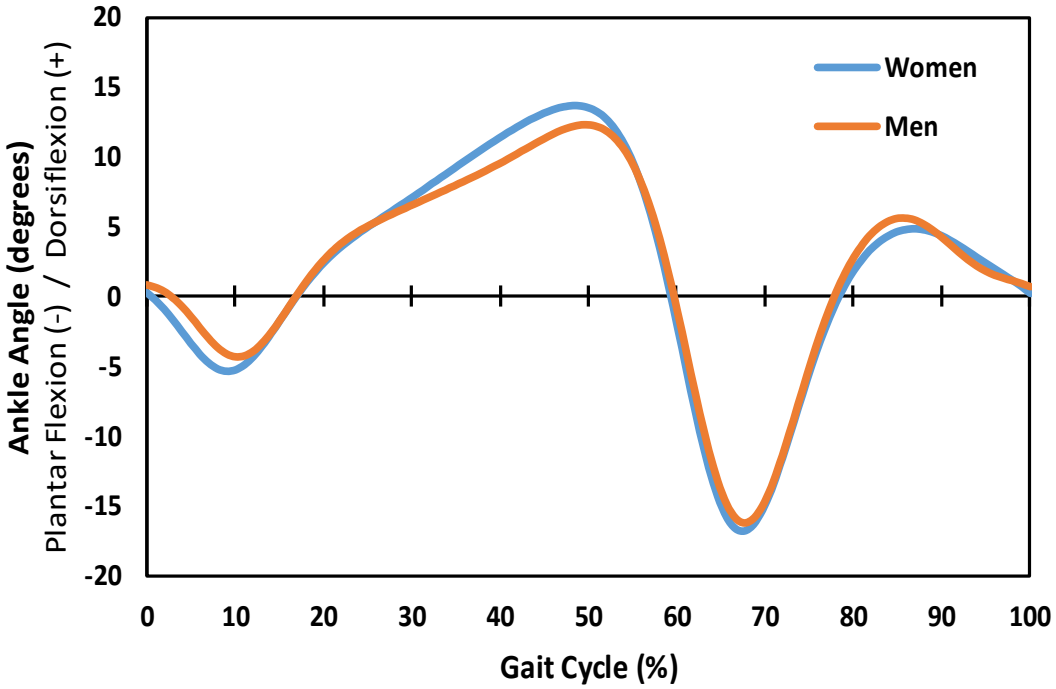
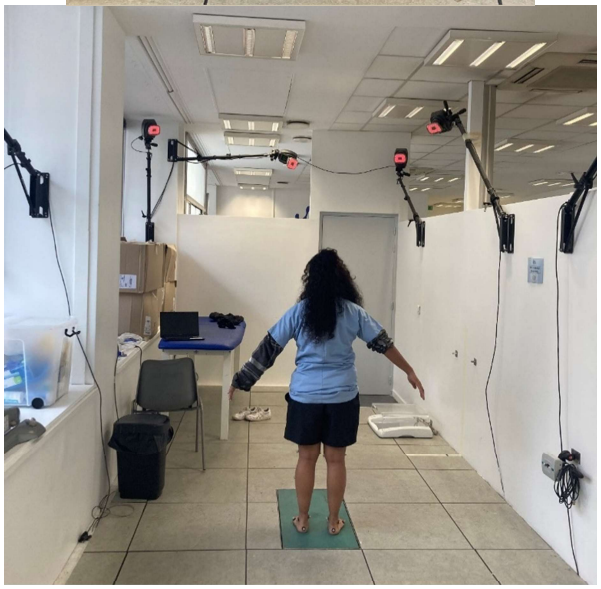
Gait Analysis

Independent Samples T-Test

	t	df	p
FD MAX Marche	1.845	52	0.071
FD RoM Marche	3.088	52	0.003





- Anatomical differences in the properties of the tendon structure can be caused by physical function and/or by the adaptations of the tissue to the patients load.
- Men have higher testosterone levels, which leads to muscle hypertrophy.
  - Muscle hypertrophy leads to a lack of movement.
- The ↓FD of TPA ↔ Achilles Tendinopathy **Risk Factors**.
  - NON-activation of the soleus muscle - ↓ the RoM FD of gait.

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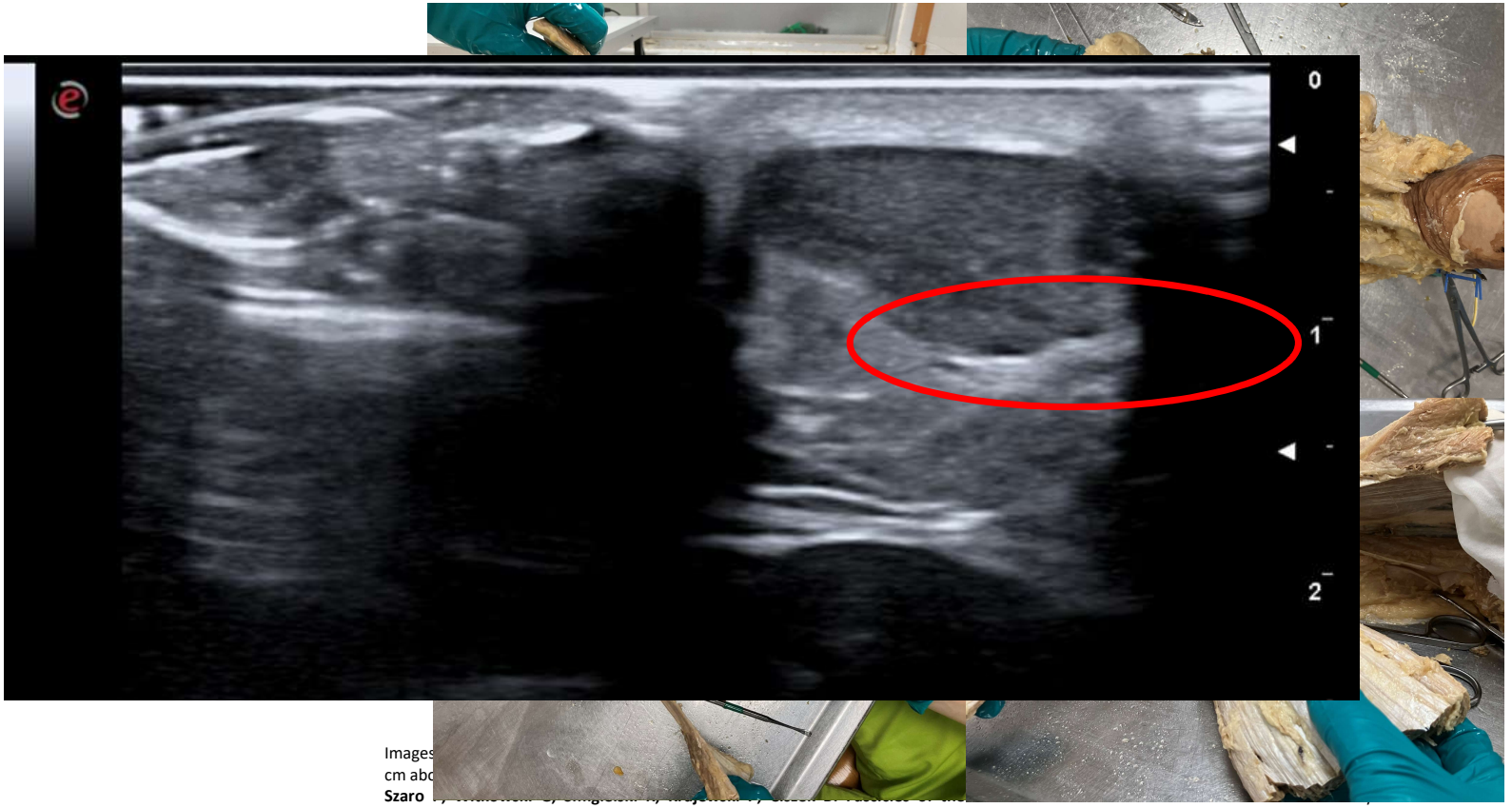

Images
cm abo
Szaro
2009;191(6):586–93


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