

**[P27] STRUCTURAL CHANGES AND BIOMECHANICAL DISORDERS IN PATIENTS WITH DIABETES MELLITUS AND HIGH-RISK FOOT**

Raúl Molines Barroso<sup>1</sup>, José Luis Lázaro<sup>2</sup>, Francisco Javier Alvaro Afonso<sup>1</sup>, Esther Garcia Morales<sup>1</sup>, Yolanda García Álvarez<sup>1</sup>, Rebeca Alvarez Madroñal<sup>3</sup>

<sup>1</sup>*Diabetic Foot Unit. Complutense University Clinic., Instituto de Investigación Sanitaria del Hospital Clínico San Carlos, Madrid, Spain*

<sup>2</sup>*Diabetic Foot Unit, Complutense University Madrid, Madrid, Spain*

<sup>3</sup>*Diabetic Foot Unit. Complutense University Clinic.*

**Introduction:** The objectives of this study were to examine the factors associated with structural changes measures in x-ray planes and second to identify which is the radiological angle more disrupted in patients with Diabetes mellitus.

**Methods:** A cross-sectorial study between January and December 2015, was performed in a Diabetic Foot Unit. We evaluated 73 consecutive adult patients (N=123 feet) with Diabetes mellitus (DM). Patients were excluded with the following criteria: individuals with diabetic neuropathic osteoarthropathy; with history of ankle or first ray surgery or amputation; and those with history of rheumatoid arthritis. Neuropathy was diagnosed by using the Semmes-Weinstein 5.07/10 g monofilament and a biothesiometer. Passive dorsiflexion was assessed in the foot at the ankle and at the first metatarso-phalangeal joint (MFJ). A lateral radiographic view was obtained and the angles associated with the ankle and first MFJ were measured: tibiotalar angle, tibiocalcaneal angle, talo-calcaneal angle, talus inclination angle, calcaneal pitch angle, and first metatarsal inclination angle. Foot position was evaluated by using the foot posture index (FPI). Linear regression in SPSS version 20.0 (SPSS, Chicago, IL, USA) was used to evaluate the variables associated with each angles.  $p < 0.05$  was considered to be statistically significant for a confidence interval of 95%.

**Results:** Neuropathy was identified in 68 (55.3%) feet and 57 (46.3%) feet had history of forefoot ulcer. Variables associated with the measured angles are shown in the table.

n=123 feet	Tibiotalar angle	Tibiocalcaneal angle	Talus inclination angle	Calcaneal pitch angle	First metatarsal inclination angle.
Age	p=0.012 * [0.062-0.490]	p=0.024 * [0.022-0.300]	p<0.001 * [0.099-0.263]	p=0.002 * [-0.281—0.067]	p<0.001 * [-0.200—0.079]
Body Mass Index	p=0.609 [0.049-0.998]	p=0.001 * [0.153-0.600]	p=0.081 [0.169-0.954]	p=0.001 * [-0.458—0.116]	p=0.034 * [-0.202—0.008]
Foot Posture Index	p=0.387 [-0.083-0.971]	p=0.139 [0.143-0.953]	p=0.017 * [0.234-2.328]	p=0.002 * [-3.524—0.803]	p<0.001 * [-2.286—0.669]
Ankle joint mobility	p=0.307 [0.098-0.978]	p=0.678 [0.040-0.961]	p=0.041 * [0.005-0.265]	p=0.887 [-0.014-0.921]	p=0.303 [-0.100-0.941]
Neuropathy	p=0.228 [0.116-0.940]	p=0.323 [0.096-0.926]	p=0.711 [-0.036-0.889]	p=0.293 [-0.102-0.881]	p=0.646 [0.045-0.840]

First MFJ mobility	p=0.987 [-0.002-0.999]	p=0.270 [-0.107-0.974]	p=0.070 [-0.175-0.884]	p=0.076 [0.172-0.876]	p<0.001 * [0.046-0.123]
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**Conclusions:** Neuropathy was not found as a factor associated with structural changes in the foot. Changes in inclination of talus and first metatarsal angles were associated with foot position and limited joint mobility. These radiological changes could help to understand rocker bottom foot. Pronated feet associated with limited first MFJ showed similar changes to the rocker bottom foot.