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Clinical gait analysis of Patients with the Charcot Foot

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The Charcot foot is caused by stress fractures of the foot. The increased drop of the os naviculare and the decrease of absorption result in increased stress to ligaments and the skeletal structures of the foot. **Purpose:** To analyse the “medial longitudinal arch” (MLA) during the stance phase of gait. **Methods:** 7 diabetic neuropathic patients (DNP) and 5 control subjects (CO) walked on a 9m walkway with a neutral shoe. The DNP had one Charcot foot whereas the non-affected side had no pathological findings. A pressure insole measurement (FASTSCAN) and a 2D-videoanalyse (COVILAS) for at least 4 valid steps were performed. Momentum, force rate, and the angle of first metatarso-phalangeal joint, MLA, Achilles tendon and ankle joint during the stance phase were analysed. The range of the MLA for both the CO and the DNP *Non-Charcot-Side* was evaluated. **Results:** The range of the MLA and momentum of the DNP *Non-Charcot-Side* are higher compared to CO. **Discussion:** With the MLA it is possible to assess the movement of the os naviculare. The increased MLA-range and momentum are indicators for an additional stress of the passive structures which may cause stress fractures, because the atrophic muscles can not absorb the mechanical loading.