

Evaluation of the plantar fascia thickness along its length in equivalent locations in both feet

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The purpose of this research is evaluating plantar fascia thickness along its length and quantifying plantar fascia thickness in equivalent locations in both feet in living individual. It is believed plantar fascia is dense connective tissue and quantified plantar fascia thickness is parameter to study plantar fascia structure, plantar fascia function and plantar fascia injury in both feet. Thus previous studies about plantar fascia evaluation with ultra sound were reviewed. Plan of investigation to evaluate plantar fascia thickness was designed based on six landmarks and three reference lines. Plantar fascia thickness was scanned and evaluated in equivalent locations on both feet in sagittal and frontal planes in three areas of the plan of investigation. It was found to approach the real thickness of the plantar fascia in living individual is achievable, individually. Outcome of the plantar fascia thickness evaluation of an individual with 70 Kg was in areas 1, 2, 3 longitudinally; (3.8±0.4 mm), (1.2±0.7 mm), (1.3±0.3 mm), transversely; (2.3±1.0 mm), (1.1±0.6 mm), (1.4±0.2 mm). The percentage of the body weight applied in identified locations of the plantar fascia in erect posture in areas 1, 2, 3 was (0.6%±0.18%), (0.7%±0.09%), (0.6±0.67%), in mid stance was (0.8%±0.25), (1.0%±0.052%), (0.8%±0.28%) and in double support was (1.1%±0.27%). In locomotion range of length, width and applied load in area 1 was (82-86 mm), (14-27 mm), (35-90 KPa), in area 2 was (108-119 mm), (40-50 mm), (65-75KPa) and in area 3 was (163-176 mm), (40-53 mm), (35-100 KPa). In static, range of length, width and applied load in area 1 was (72-76 mm), (24-30 mm), (35-65 KPa), in area 2 was (101-103 mm), (44-53 mm), (45-60 KPa) and in area 3 was (149-155 mm), (38-45 mm), (40-50 KPa). Concluded quantitative information can be useful and applicable in differential diagnosis, rehabilitation and to relieve pain in static and locomotion.

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