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FUNCTIONAL ADAPTATION OF METATARSAL BONES IN STATICALLY DEFORMED FEET

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The aim of this study was to evaluate the functional adaptation of the metatarsal bones, which occur as a result of static deformations of the feet. Sixty female statically deformed feet, patients of age of 20-40 years, with symptoms of metatarsalgia were compared to a control group of 39 asymptomatic feet of female patients of the same age. Pedobarographic and radiographic analysis were performed to evaluate the loading and skeletal functional adaptation of the feet, respectively. Out of 3 267 measured parameters, 32 parameters as potential indicators of the increasing loading of the metatarsal bones were statistically evaluated. Only 5 parameters, out of 32 evaluated, showed changes in statically deformed feet: plantar cortical index of the first metatarsal

bone; cortical index of the first metatarsal bone in lateral projection; medial cortical index of the second metatarsal bone; dorsal cortical index of the second metatarsal bone and cortical index of the second metatarsal bone in lateral projection. Statistical analysis showed significant difference between asymptomatic and symptomatic group of female patients only in 2 parameters: dorsal cortical index of the second metatarsal bone and cortical index of the second metatarsal bone in lateral projection. The results of our study show that the increase in dorsal cortical index of the second metatarsal bone above 25 is the sign of mechanical overloading of the bone which would result in metatarsalgia. These data show that prevention in these patients, namely anterior foot load relieve, could prevent the symptoms of metatarsalgia.