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SUPPORT

SUJITRA BOONYONG: EFFECTS OF MEDIAL LONGITUDINAL ARCH SUPPORT ON PLANTAR PRESSURE DISTRIBUTION IN ASYMPTOMATIC FLEXIBLE FLATFOOT. THESIS ADVISORS: ANANPAT IMPOOLSUP M.D., ROONGTIWA VACHALATHITI Ph.D. 163 p. ISBN 974-661-704-4

The purpose of this study is to compare the plantar pressure distribution pattern during stance phase of gait between normal and asymptomatic flexible flatfoot groups. Flexible flatfoot group was considered into two conditions; with and without applying medial longitudinal arch support. Twenty female subjects aged between 15 and 30 years were recruited for each group. Age, weight and height were matched for both groups. The parameters were maximum force, contact areas and peak pressure. The plantar pressure distribution of left and right feet were measured for normal foot, flatfoot and flatfoot with medial longitudinal arch support by using the EMED-SF system (Novel GmbH, Munich, Germany).

In this study, there were significant differences in maximum force, contact areas and peak pressure at some areas of the foot between left and right normal feet. Despite this, both feet showed the same pattern of plantar pressure distribution. Comparisons between normal foot, flatfoot and flatfoot with medial longitudinal arch support, demonstrated significant differences in maximum force, contact areas and peak pressure at the areas of lateral and medial midfoot ( $p < 0.05$ ). When applying medial longitudinal arch support, flatfoot showed the increased maximum force, contact areas and peak pressure at the area of medial midfoot ( $p < 0.01$ ) and the decreased maximum force and peak pressure at the areas of lateral and medial heel ( $p < 0.01$ ). There were tendencies for decreased maximum force and peak pressure at the area of hallux. Maximum force and peak pressure tended to be increased at the area of 3<sup>rd</sup> to 5<sup>th</sup> metatarsal when medial longitudinal arch support was used in flatfoot.

In conclusion, the applying medial longitudinal arch support can lead to the lateral transference of load and pressure redistribution in asymptomatic flexible flatfoot.