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# LOW-COST ORTHOPEDIC SHOES BASED ON RECYCLED MATERIALS: MANUFACTURING, PLANTAR CORRECTION EVALUATION

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## Abstract

The paper describes a flexible and low cost method regarding the progress of improvement, in terms of foot diseases, when wearing orthopedic shoes containing progressive correction orthotic insoles. The research in the field aims at two purposes. The first one is to find an effective method for orthopedic shoe insoles manufacturing, with the role of progressively correcting plantar diseases by using cheap solutions based on the recycled materials. The research focused on an adaptive insole manufacturing, as to obtain a progressive correction of plantar diseases. The same shoe insole could be simply and quickly adapted, since, by wearing it, the foot degree of deformity will reduce progressively. Specifically, the insole would consist of two simple layers of bio-compatible and antiperspirant materials attached to each other. Several elements of recycled rubber may be placed inside it. Inserting or removing such elements, the degree of the plantar correction evolution may be controlled. The second purpose of the research is to assess to what extent the wearing of such adaptive insoles could lead to progressive plantar correction and, both, to stability and postural improvement for subjects with any foot deformities. This involves two aspects: determining the influence of wearing such orthopedic adaptive insoles in terms of center of mass (COM) on the postural control and stability and, evaluating, in terms of measured plantar pressure, the foot deformity correction.

*Keywords*: adaptive insoles, COM, plantar pressure, recycled rubber, stability

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