

## Plantar support for a correct gait

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Postural adjustments to maintain static and dynamic balance depend on the relationship between sensory input organs and the environment. The study of foot posture assists in the evaluation of overall posture. The human foot is the basis of support and propulsion for gait and it provides support and flexibility for effective weight transfer (1). Foot posture involves the integration of sensory information from the periphery to the body, especially mechanoreceptors in the sole of the foot, related to gravitational acceleration, the environment and the position of the segments of the body. Numerous studies have investigated the effectiveness of orthotics that, by increasing the contact surface between the foot and the ground, were going to decrease the load associated with certain areas of plantar surface (2). The aim of our study was to evaluate the effects of innovative insoles, named Regular Gait (RG), on plantar pressures distribution during standing position and walking in healthy subjects; therefore, we investigated whether these effects are maintained after insole removing. 30 subjects were tested; these were free of foot diseases or damage to the anatomical structures involved in the processes above posture. These subjects underwent rating scales and static and dynamic baropodometric examination before and after using RG. The results obtained, subjected to statistical analysis for significance, show that the RG, for as we have designed, is able to restore a correct distribution of the parameters both in static and dynamic conditions. We have also shown that the best results were obtained only after a month of treatment with RG and that the results obtained persist even in the tests post-treatment without insoles. The fact we charged to the special geometry with which the insole is designed: its supports, that are located in specific regions of the plantar arch, go to stimulate the mechanoreceptors found there. In this way, through the streets proprioceptive, you can obtain a reorganization of the plantar stance even at the higher nervous centers level. This allowed the subjects treated to improve their posture both while walking and during the maintenance of the upright position. As far demonstrated, the RG seems to be a tool whose potential does not end in the modification of the plantar stance, but that influences a number of processes, by acting on the kinetic chains that originate from the foot.

### References

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### Keywords

Proprioception; arch support; deambulation.