



Biomechanical Analysis of Human Movements

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Research Fields : Physical therapy, Biomechanics, Orthotics and Prosthetics
Keywords : Footwear
Foot function
Activities of Daily Living

● Research Topics

- Innovative insole concept

In the past, our research group devised a new insole concept. The insole is capable of movement guidance through special structures that stimulate plantar perception.

One study was done to ascertain the effects of this insole. Using a video camera, we investigated lower extremity movement during gait.

The figure shows a major gait pattern change that occurred with the new insole.

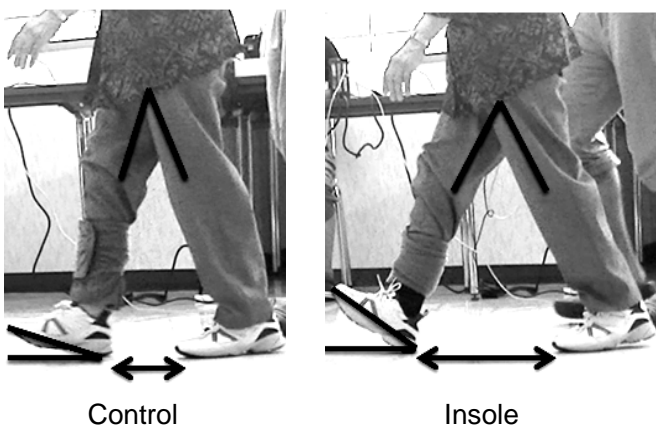


Figure: Compared with the control condition, step length, hip movement range, dorsal flexion angle and toe clearance increased with the new insole.

Therefore, we believe that the use of this insole can effectively guide gait and help prevent falls.

● Future Research Themes

We predict that the insole is versatile, not only in helping to prevent falls, but also to facilitate sports instruction, treatment of disorders, etc. With this aim in mind, future research on and the development of this insole is important.

In addition, from 2014, I joined a new study group called “KANSEI”. In this group, I will learn how to objectively evaluate the feel and comfort of objects.

With these research activities, I plan to develop comfortable shoes.

● Research Collaboration Theme

- I would like to facilitate the production of shoes with various shoe manufacturers.

- I would like to lecture on the prevention of falls and perform physical fitness testing in cooperation with local communities.

● Results of Collaboration Activities

- I have developed shoes in cooperation with a shoe company.

- I presented a class on the prevention of falls and on the measurement of physical fitness as a public support service.