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The London Podiatry Centre was asked to perform quantitative computerized gait analysis on the Dotty Fish slipper footwear. The specific investigations utilized during the test included an 8 camera Vicon 3D camera system and a Tekscan pressure mat system.

The subject, an 18 month old boy was assessed. Pressure mat analysis was performed with the Tekscan F-Scan Mat pressure system was undertaken whilst standing the clinical setting in order to obtain a number of further more quantifiable measurements. The subject was balanced on the mat to obtain readings in bare feet and with the Dotty Fish footwear.

3-dimensional (3d) Vicon analysis was performed in the clinical setting on a flat, carpeted floor to obtain further information with the child walking independently, but in some cases assisted due to safety concerns. The markers were placed on anatomical areas in the lower limb which allows for multi-segmental, dynamic modelling of the lower limb thus enabling subjective analysis of the objective measures taken by the computer software.

There are some limitations that are important to note. Although the child could walk and stand independently in some cases we had to assist him when taking the measurements for safety reasons. Also, the leg markers were placed over leggings and not directly on the skin so as to reduce the risk of any irritation. This can influence marker movement on clothes which can in some cases confound the data and results.

The results of the investigation are as follows:

1) Balance during stance was assessed using a pressure mat system. Software to measure postural sway was used and the distance travelled during standing was measured. During this specific test, postural sway values, and therefore the child's sense of balance improved markedly when wearing the Dotty Fish footwear.

2) Quantitative 3D analysis was used to assess the child's hip motion in the forward plane (Sagittal hip progression). The results show an improvement in symmetry when Dotty Fish shoes are used.

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3) Quantitative 3d analysis was used to assess knee motion in the forward plane (Sagittal plane knee motion). The results show a significant improvement in symmetry with Dotty Fish shoes.

4) Quantitative 3d analysis was used to assess ankle motion in the forward plane (Sagittal plane ankle motion). Symmetry between the left and right side did not improve but the pattern of movement was much better with Dotty Fish shoes.

Conclusion:

The results of these tests showed a marked improvement in the child's balance when standing on the F-Mat in the Dotty Fish shoes. Movement at the hip, knee and ankle also improved with Dotty fish shoes. The shoes did not, in the test show evidence of a disturbance in normal gait and in a number of areas, gait improved. It may be that Dotty fish shoes improve a child's sense of special awareness by increasing the number of contact points between the foot and the supporting surface which will improve sensory feedback from the bottom of the foot to the brain via the neuromuscular system. However, it must be stressed that at this early age the neuromuscular system is still developing and tasks like walking are still being 'programmed' therefore a relationship between wearing the shoes and the improvement in walking cannot be fully substantiated. The Centre looks forward to assessing further shoes in the future so as to provide more extensive information on the effects of Dotty Fish Footwear, but these early results are very encouraging.