

Introduction

Clubfoot is a general term used to describe the general changes which turns the feet away from the normal position. Clubfoot or in medical language "talipes equinovarus", is a type of birth deformity that can be treated. It faced by more than 150,000 to 200,000 babies a year. Clubfoot causes the feet of these children turn down and inward. The incident occurred during the process of formation in the womb. Physicians have found the fetus begins with the normal foot and leg swings in at the age of 3 months. Most babies do not lose any bone, muscle or connective tissue. It was a scene to be observed, meaning that it will happen when the baby is born. It is also a state of physical disability that is common. It may occur on one or both of the baby's feet in which the legs may be flexible to the situation of tension and hard. The condition is not painful for clubfoot newborn baby, but when the children walk up to the clubfoot condition will cause pain and distress if it is able to do so. This condition can be treated with the Ponseti method of treatment (Ponseti method). This treatment method involves the use of special support shoes (Foot Abduction Orthosis-FAO) which is locked using the brace bar on both sides of the foot. Both the baby's legs will be paired brace to ensure the correction of the foot bones and muscles stay until the baby is fully mature. According to experts, the main problem of orthopedic shoes is scarce due to be imported. Therefore, experts encourage this support shoe designs. A support shoe designs have been developed to implement innovative approaches through the material.

Problem Statement

The main issue is the cost of the FAO that is expensive, and unaffordable to purchase by most parents with CTEV children. These phenomena are due to the imported FAOs available in Malaysia market. Subsequently, in terms of design, the existing FAOs are aesthetically bulky and practically heavy with inelastic rubber, and the metal jointing adding to discomfort for the CTEV children whose feet needed to be abducted 23 hours for the first few months.

The Design Of Clubfoot FAO(Foot Abduction Orthosis) And The Improvement Of Its Locking Mechanism

Product Description

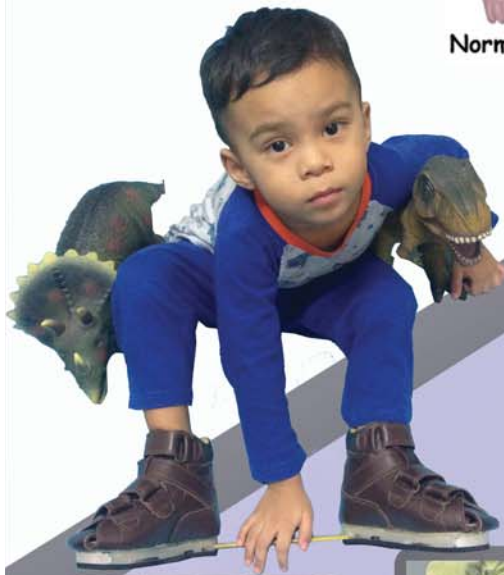
CTEV or better known as clubfoot is abnormal growth of the baby's feet. This product was introduced to assist in repairing the structure of the baby's feet in the final phase of the Ponseti method. This treatment method involves the use of special support shoes (Foot Abduction Orthosis - FAO) which is locked using the brace bar on both sides of the foot. The aim of paired brace is to ensure the correction of bone and muscle is fully mature baby. A support shoe designs have been developed to implement innovative approaches through the material.

Commercial Potency

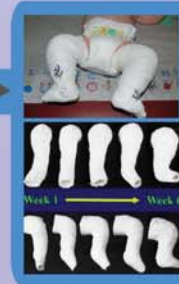
There are a variety of material used in the production of Ponseti especially for the final phase. Although there are various versions of the shoes, it still retains the same functionality in order to provide the best treatment. With this product, it provides the maximum level of comfort with the minimum use of material scale. Based on observations on this product found that it is particularly suitable for application in the production of health oriented products. In addition, it is also able to generate profits and incomes due to the low cost involved in the process of production (treatment and finishing).

Novelty

Based on observations and studies that have been conducted, the treatment of footwear products made from local materials innovations is cost effective compared to the imported orthosis. Furthermore, the C.A.V.E design focus on the footwear's simplicity with easy locking mechanism and much lighter weight compared with other existing FAO in the market. This FAO also promotes stability and safe where there is no hinders such as screw thread and fasteners at the outside.



Ponseti Method Steps



Existing Products In The Market



Approximate Cost of Commonly Used Foot Abduction Orthoses

Orthosis	Cost (US dollars)
Markell	150 ^a
Mitchell-Ponseti	350 ^b
Dobbs	1,200

^aCost includes standard shoes and bar. Does not include orthotist charges. (M.J. Markell Shoe Co. oral communication, May 2010.)

^bCost includes standard sandals and bar. Does not include orthotist charges. (MD Orthopaedics, Inc. oral communication, May 2010.)

Lighweight



Easy brace locking part

Ergonomics in Foot Support & Easy On



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