DESIGN AND ANALYSIS OF ANKLE FOOT ORTHOSIS FOR DISABLED CHILDREN

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ABSTRACT: Ankle Foot Orthosis (AFO) is a brace or device that is worn on the lower leg to support and correct the foot and ankle position. AFO is also used to correct the foot drop. In this paper, a new design of AFO is proposed and its analysis using AUTODESK Inventor will be discussed. The design concept was based on the short and long size of pneumatic artificial muscle (PAM). The PAM are custom made in the laboratory with the short and long size are 150mm and 250mm respectively. Single point statics analysis including reaction force and moment at selected points were conducted for both designs. Based on the von Mises stress, displacement, safety factor and PAM experiment result, the long size design is selected for this research. Fabrication and further testing needs to be conducted in order to evaluate the device.

KEYWORDS: Ankle Foot Orthosis; Brace; Foot Drop; Design