



# Development of a gait training device for children with cerebral palsy



moorings mediquip

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## Introduction

Children with Cerebral Palsy (CP) can generally not walk unaided, but do have some weight bearing ability. Therefore walking aids are often more appropriate than wheelchairs, see figure 1. These devices facilitate mobility and also provide vital mechanical stimulation of the lower limbs [1]. However, existing designs show little evidence of being optimized for ergonomics and biomechanical function, let alone aesthetics. A current collaboration between Moorings Mediquip (Northern Ireland) and Trinity College Dublin funded by an Intertrade Ireland Fusion grant is concerned with developing a new gait trainer for children with CP which has improved functionality and aesthetic features compared to existing products.



Figure 1: Product range of existing gait trainer devices

## Objectives

Design, develop and bring to market a new walking aid device that will allow Moorings Mediquip to grow their market in the UK and Ireland and potentially address the wider European market

## Progress to Date

Fundamental design calculations have been performed to ensure the proposed device is compliant with the Medical Devices Directory requirements. A preliminary prototype has been produced and assembled, see figure 2. Current work is focusing on specific aspects of the interface between the child and the device. Progress is on schedule with the original workplan, see table 1.

## Acknowledgements

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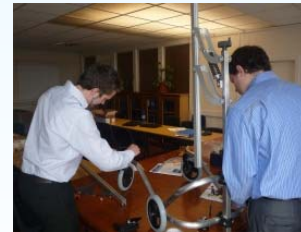


Figure 2: Preliminary prototype assembly

Table 1: Schedule of progress

Target Outcome	Detail	Completion
T01	Induction	100%
T02	Report of necessary regulatory standards and guidelines for medical device design and manufacture	100%
T03	Selection and implementation of CAD design software	100%
T04	Product specification including 3D CAD drawings of initial design	100%
T05	Detailed design drawings with aesthetic, biomechanical and ergonomics features developed	80%
T06	Report of design for lean manufacture and supplier evaluation criteria	80%
T07	Prototype produced and product evaluation undertaken	50%
T08	Produce design procedures manual- "know how" manual	-
T09	Develop required CE marking technical file & users manual	10%
T10	New product ready for market launch leading to increased profit in company	-
T11	New capacity for in-house design implemented in company	-

## Conclusions

Progress is on schedule with the original workplan, and substantial benefits have accrued to both the university and the company through this collaboration.

## References

[1] Cosentino et al, [Changes in locomotory functioning after gait trainer rehabilitation training in patients affected by cerebral palsy \(PCI\)](#), Gait & Posture, Volume 30, Supplement 1, October 2009, Page S35.