

# The role of foot orthoses in children with developmental coordination disorder

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		<input type="checkbox"/> Protocol
<b>Registration date</b> 04/03/2008	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
<b>Last Edited</b> 20/06/2016	<b>Condition category</b> Musculoskeletal Diseases	<input type="checkbox"/> Individual participant data
		<input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

Not provided at time of registration

## Contact information

### Type(s)

Scientific

### Contact name

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## Additional identifiers

## Study information

### Scientific Title

A pilot study to evaluate the benefit of foot orthoses prescribed in the rehabilitation of children with developmental coordination disorder

### Study objectives

Developmental coordination disorder (DCD) is defined as a "motor skill disorder characterised by a marked impairment in the development of motor coordination abilities" (American Psychiatric Association, 2004) and such a condition will affect the execution of everyday tasks.

Characteristics of DCD noted within the literature include poor balance, delayed developmental characteristics and a "clumsy" and "awkward" gait (Polatajko and Cantin, 2006). DCD is reported to have an impact upon both fine and gross motor skills which results in limited participation in everyday activities of childhood (Polatajko and Cantin, 2006). Further impact of DCD has been reported as limited academic achievement, reduced participation in sport and implications for psycho-social development; particularly with regards to limited interaction with peers. (Polatajko and Cantin, 2006).

Hypotheses:

1. Do University of California Biomechanics Laboratory (UCBL) foot orthoses improve balance and reduce tripping in children with DCD?
2. Do UCBL foot orthoses normalise the spatial and temporal gait parameters in children with DCD?

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Lewisham LREC, 11/06/2008, ref: 08/H0810/38

### **Primary study design**

Interventional

### **Study design**

Randomised controlled trial. The children will be quasi-randomised into two groups.

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Developmental coordination disorder (DCD)

### **Interventions**

UCBL foot orthoses are being used in the study. The effect of the foot orthoses in the management of DCD diagnosed children will be determined by comparing the two groups of children:

1. One group of children will be prescribed their orthoses at the start of the seven week rehabilitation programme
2. One group of children will be prescribed their orthoses at the end of the seven week programme

This will allow all children who would normally be prescribed orthoses to receive orthoses - no children will be prevented from receiving the treatment that they would normally have because they are participating in the study.

The intervention will be assessed over a period of seven weeks; once at the start of the seven week programme and once at the end. These foot orthoses currently form part of the multi-disciplinary management of children with DCD therefore, the duration will be as long as the subject requires them.

### **Intervention Type**

Other

## **Phase**

Not Specified

## **Primary outcome(s)**

The GAITRite Gold Footmat will be used in the study to identify spatio-temporal gait parameters. This is a walkway which is embedded with sensors. The GAITRite system can provide measurements of spatial parameters such as step length, stride length, base of gait, angle of progression; it can provide measurements of temporal parameters such as cadence, velocity, stance phase duration, swing phase duration. Previous studies have identified the following parameters as being changed in children with DCD:

1. Single support duration (decreased)
2. Swing phase (decreased)
3. Cadence (increased)
4. Stride length (decreased)

These parameters will be used as primary outcome measures and recorded pre- and post-provision of foot orthoses, assessed at the start and end of the seven week programme.

## **Key secondary outcome(s)**

The Bruininks-Oseretsky test of motor proficiency (BOT) is a tool that measures improvement in function in children using an individually administered measure of gross and fine motor skills.

The score consists of eight subtests which assess:

1. Fine motor precision: seven items (e.g., cutting out a circle, connecting dots)
2. Fine motor integration: eight items (e.g., copying a star, copying a square)
3. Manual dexterity: five items (e.g., transferring pennies, sorting cards, stringing blocks)
4. Bilateral coordination: seven items (e.g., tapping foot and finger, jumping jacks)
5. Balance: nine items (e.g., walking forward on a line, standing on one leg on a balance beam)
6. Running speed and agility: five items (e.g., shuttle run, one-legged side hop)
7. Upper-limb coordination: seven items (e.g., throwing a ball at a target, catching a tossed ball)
8. Strength: five items (e.g., standing long jump, sit-ups)

The data taken from BOT composite scores will be used in secondary analysis. This will include body coordination, strength and agility and total motor composite scores. Secondary outcome measures will be assessed at the start and end of the seven week programme.

## **Completion date**

31/05/2010

## **Eligibility**

### **Key inclusion criteria**

The study population will be composed of children entering the multi-disciplinary therapy programme at the Sanderson Child Development Centre, Medway Maritime Hospital. Children entering this programme:

1. Have an established diagnosis of DCD
2. Will be aged 7 years and over

### **Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Child

**Lower age limit**

7 Years

**Sex**

All

**Key exclusion criteria**

1. Any relevant medical complications that are likely to prevent a change in gait parameters. This includes any condition affecting neuromuscular integrity and orthopaedic condition causing a gait disturbance.
2. Unwilling to wear footwear that is suitable to use with an orthoses (low heeled, fastening, supportive footwear)

**Date of first enrolment**

01/06/2008

**Date of final enrolment**

31/05/2010

**Locations****Countries of recruitment**

United Kingdom

England

**Study participating centre**

University of East London

London

United Kingdom

E15 4LZ

**Sponsor information****Organisation**

Canonbury Products Ltd (UK)

# **Funder(s)**

## **Funder type**

Industry

## **Funder Name**

Canonbury Products Ltd (UK) - supported with a £5000 research prize

# **Results and Publications**

## **Individual participant data (IPD) sharing plan**

### **IPD sharing plan summary**

Not provided at time of registration