

## Special Education Support Service: Information on Motor Dyspraxia (DCD)

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### **Introduction:**

Developmental Co-ordination Disorder (DCD) is the term used internationally to describe coordination difficulties in children. In the past, many terms have been used to name this condition, including “Developmental Dyspraxia” and “clumsy child syndrome”. In the past 10 years the term D.C.D. has become the most acceptable term to be used in diagnosis and terminology. This is mostly due to the fact that it is a classification in the DSM IV, which is an international classification of diseases. In this manual, diseases and syndromes are explained and information on diagnosis is outlined in order to ensure consistency of diagnosis between regions and countries.

### **How is DCD diagnosed?**

D.C.D. is diagnosed when a child has unexpected difficulties doing activities involving coordination and movement. These difficulties may be in play skills such as riding a bike, playing ball games; in daily living skills (e.g. buttoning shirts, using a knife and fork); in school activities such as writing, art and crafts and P.E. To date, there are no medical, biological or radiological tests to confirm a diagnosis, i.e. x-rays or neurological tests will not show up anything. As a result, diagnosis is a clinical procedure. It involves assessing the child on a range of motor, cognitive, self-care skills, and needs to involve a multi-disciplinary team

DCD diagnosis is made under the following conditions

1. the child presents with significant impairment in the development of motor coordination
2. this impairment interferes with academic achievement or activities of daily living
3. the coordination difficulties are not due to a general medical condition (such as cerebral palsy)
4. where the child has a general learning disability, the motor coordination difficulties are in excess of those usually associated with it ( DSM IV).

### **What causes DCD**

We now know that clumsiness is not the child’s fault, but is caused by a disorder of the movement control systems of the body. The cause is not known but is thought to be due in part to poor processing of information in the brain. Children with DCD are healthy and usually of normal intelligence- they do not have any known brain or muscle disorder. In some cases, DCD runs in families

### **How many children present with DCD?**

It is estimated that as many as 6% of children in the 5-11 years of age range present with DCD. This means that there is probably 1 child in every class in primary school with this condition.

DCD is often seen for the first time when a child is aged 4 or 5 because that is when the coordination skills involved in learning to write and play ball, ride a bike and cut with a scissors are really needed. Before this a child may be showing early signs of coordination problems, but often gets over these problems by the time they start school.

As a result, the teacher is often the first adult to really notice when a child is having significant coordination difficulties- the teacher is able to compare the child to many others his/her age and see to what extent the motor difficulties are affecting the child

Usually, twice as many boys than girls present with DCD.

### **Do children grow out of it?**

In the past, it was thought that children would just grow out of this condition. However, longitudinal studies that looked at children and adolescents with DCD have shown that many children do not grow out of it

### **Do children with DCD usually have other problems?**

Some children just have motor coordination difficulties, but others have other problems such as learning difficulties, behaviour problems or speech and language difficulties as well. It is thought that as many as 50% of children with specific learning difficulties may also have DCD

In many cases, the child develops poor self-confidence and low self-esteem.

This is why a careful assessment needs to take place- in order to identify all the factors early, to make Occupational Therapy easier on the child and keep the problems small

### **How do you know if a child has DCD? When should you refer?**

Children with DCD are not just a bit clumsy. They usually have a great deal of trouble in learning new motor tasks, despite a lot of effort. The child with DCD may prove to you that he/she understands what to do but cannot show you in writing, or cannot carry out the task to a standard you would have expected. Even when the child has learnt to write a letter of the alphabet for example, they often still form the letter very slowly or continue to get it wrong. Usually the child with DCD will not only have trouble in writing, but in the range of activities that involves motor skills in school-

SELF-CARE: hanging up coats, doing up zips, opening lunch boxes or managing yogurt cartons,

FINE-MOTOR: cutting with scissors, doing threading or construction activities, hand-writing

GROSS-MOTOR: throwing or catching a ball, jumping and hopping,

POSTURE: sitting upright at the desk, standing up straight, walking without banging against furniture

See sample identification checklist for referral to Occupational Therapy

### **What can be done for children with DCD?**

Firstly, the family need to know that this is a real condition and not any ones fault. Clumsiness is not due to laziness or stupidity

Secondly, it is important to identify the child's needs following a good assessment. The child may need one or all of the following:

- specific work on coordination to develop posture control or hand dominance for example (usually carried out by the Occupational Therapist or through Sensory integration therapy)
- specific practice on skills ( often using a multisensory approach) such as tying laces, forming letters, cutting with a scissors worked between the resource teacher, parents and the occupational therapist
- adapted teaching to address the visual-motor, visual perceptual difficulties that often accompany DCD
- adapting the environment to help the child compensate for areas of difficulty- this may include using a pencil grip, working on a sloped board for writing, use of a laptop , having a chair with supportive armrests- the Occupational Therapist can assess and advise on this
- psychology and speech and language therapy input if the child also has learning, behavioural or speech and language needs

### **What an Occupational Therapist does:**

An Occupational Therapist is a health care professional who is concerned with the child's ability to carry out occupations of childhood. In a child's life, occupation involves play, school-work and self-care skills. An Occupational Therapist combines knowledge of sensory-motor, cognitive, social development in order to improve the child's level of independence in a holistic way. When a child is presenting with coordination problems, he or she is referred to Occupational Therapy for assessment and intervention. The Occupational Therapist will assess the child's sensory, motor, visual-perceptual, visual-motor perceptual and functional skill (such as handwriting or dressing skills)

Occupational Therapy for children with DCD aims at improving the child's ability to integrate movement, sensation and organisation skills. A variety of treatment approaches may be used, the most common of which is Sensory Integration Therapy. Sensory Integration is used when the DCD child presents with gross and fine motor difficulties that seem to be due to poor sensory processing, i.e. poor ability to integrate the sense of movement, body awareness and tactile input in particular.

Sensory Integration involves working on the child's reflexes, postural control, balance, bilateral coordination, tone and general movement abilities. By working on the underlying areas of weakness, the child's skills at more complex levels improve, e.g. if a child has difficulties in staying seated, it can be due to poor postural control. Through sensory integration he can be helped to strengthen his tone and muscle control and so develop better stamina for sitting at his desk.

### **What to expect from intervention:**

Children with DCD do not usually grow out of it. While their skills will develop and improve, many will continue to have some coordination difficulties. Early identification and intervention will help the child to learn specific tasks, develop sensory-motor skills and learn alternative ways of doing things. This in turn helps the child's confidence and sense of control over the environment. The most important long-term goal is to ensure the child develops good self-esteem and confidence in his or her ability to do well in every-day life.

## The child with DCD in the classroom

Small changes to the classroom environment will help the child with DCD to experience as much success in school as possible. It is important to consider the following features of DCD that may affect a child's ability to function effectively in the classroom:

- **Motor planning difficulties** make it difficult to follow multiple directions and to remember regular routines.
- **Sensory sensitivities** may make it hard for the child to function in a busy classroom particularly if the child is auditory defensive (sensitive to sound).
- **Poor organisational skills** e.g. the child may have forgotten the required books or may still be looking for his/her pencil case when the rest of the class has moved on.
- **Handwriting difficulties:** This may mean the child is slower to take down written material. They may also miss the teacher's instructions due to the concentration required for writing.
- **Speed:** since many tasks require more effort, the child with DCD will have difficulty completing tasks within the allocated time frame.
- **Attention and Concentration difficulties** make it harder for a child to focus on and complete tasks. It can be especially difficult to divide attention between two tasks e.g. listening to the teacher whilst writing down homework.

## Tips for teachers

- Try to give clear, short instructions that the child can follow one step at a time. Praise the child for successful completion of each step.
- Give as many cues as possible. Use visual demonstration and verbal instructions to reinforce message.
- If the child has sensory sensitivities accept that this is not their fault and allow them time out from the classroom in order to calm down.
- Place the child at the front of the classroom so they can hear instructions and copy from the board easily.
- Try to provide the child with extra time to complete written or fine motor activities. If speed is necessary allow the child to be messy.
- Ensure furniture is at the correct height and suitable for the child, if not, consult an Occupational Therapist.
- Consider the use of a computer for final copies of written assignments.
- Keep the environment as predictable as possible to allow child time to plan their actions and avoid anxiety.
- Remove distractions within the child's environment, limit noise and visual distracters.
- In P.E. make participation **not** competition the key.
- Give positive feedback wherever possible and reward effort instead of the end product.
- Encourage the child to keep belongings in a particular place all the time, to aid with organisation.
- Allocate the child to have a buddy within the classroom to help with organisation and written work.

## Strategies to help your child learn new motor tasks

Children with DCD generally have difficulty learning motor tasks that most children learn automatically. Some can have problems recalling the correct plan of action for that particular task. Other children may not have the adequate skills needed for a task e.g. a child may not have the strength to pull on his shoes.

## 1. Handwriting

### ***Why is it difficult?***

- **Poor posture** e.g. difficulty holding body upright while writing.
- **Poor motor planning** e.g. to make all the letters the same size.
- **Fine motor skills** e.g. to move the pen in a controlled way.
- **Weak shoulder stability** e.g. to hold the arm and hand in a steady position.
- **Motor memory** e.g. to remember what movements make a letter.
- **Complex** Handwriting draws on all these skills at once.
- **Ideation** It may take so much of a child's effort to cope with the physical requirements of writing that they lose their train of thought.

### ***Helping your child with handwriting***

- **The pencil** Thicker pencils and pencil grips are easier to hold. Pencils with soft leads are easier to move. Ask the child about the type of pencil they prefer.
- **The paper** Tape or clip the paper to the desk, or use a non-slip mat under the copybook to stop it slipping.
- **Grasp** This should only become a concern if it affects the writing or causes pain. A correct grasp uses the thumb, index and middle finger to support the pencil.

### ***Here are some of the common problems and solutions you may wish to try***

*Weak grasp:* Use large pencils

*Grasp too tight, thumb tucked under or over index finger:* Use Stetro or other pencil grips to position fingers and open up grasp.

*Presses too hard:* Practice with a towel under the page

*Presses too light:* Use carbon paper

*Holds pencil straight up:* Wrap an elastic band around wrist and the end of the pencil.

*Moves whole arm when writing:* Practice while lying on stomach

### ***Seating***

Correct position. Sit back in the chair with hips, knees and ankles at 90 degrees.

Use cushions and footrests to get the right height.

Try a slope desk to aid in positioning and make copying from the board easier.

### ***Other considerations***

Focus on the content rather than appearance of the writing.

Allow extra time.

Allow your child to stop when they are tired.

Encourage older children to do rough drafts to organise their work.

Encourage your child to develop typing skills so that this can be alternative later on if required.

## 2. Sports and physical fitness

### *Why are sports difficult for my child?*

**Gross motor difficulties** A variety of gross motor skills are required to be efficient at sports; these include balance, upper limb strength, fast running gait and the ability to combine all these skills at once.

**Poor motor planning** Children with poor motor planning need extra time to plan and execute their movements. During team sports they do not have enough time to plan their movements.

**Weak hand and finger muscles** e.g. holding onto a bat, catching the ball.

**Poor eye-hand co-ordination** e.g. catching or hitting a ball.

**Eye tracking difficulties** e.g. moving both eyes together to keep track of a moving ball.

**Low postural muscle tone** A child may not be able to stabilise core postural muscles in order to use limbs. Low muscle tone can also affect the muscles in the feet, so that without correct footwear and /or insoles your child may not have good stability and control in their feet.

### *Helping your child with sports*

- Give your child plenty of time to practice a skill before they start a particular sport.
- Practice ball skills with slow moving balls such as balloons, foam balls, bubbles.
- Use large bats and balls to start (e.g. blow up toys).
- Use verbal cues to aid with timing e.g. "1,2,3 catch!"
- Encourage your child to talk about their performance e.g. whether they throw the ball too hard, too soft etc.
- Always reward effort.

### *Physical fitness*

Children with DCD are at greater risk of low levels of fitness. Most children develop fitness through everyday activities such as climbing, running, jumping, hopping etc. Some skills are important to developing fitness as they contribute to the development of strength, power and endurance. Because children with DCD find movement hard they are less likely to be physically active and consequently less fit.

### *Sports and Hobbies*

It is important to encourage your child to lead an active lifestyle and one, which they can enjoy. Therefore less competitive sports/hobbies may be the preferred option.

Below are some suggestions for activities; bear in mind that some may not suit all kids with DCD.

- Swimming
- Scouts
- Horse riding
- Drama classes
- Canoeing
- Gymnastics or trampolining
- Games in the garden with hoops and balls
- Learning to play a musical instrument
- Arts and crafts

