

Dyspraxia

DEVELOPMENTAL CO-ORDINATION DISORDER

a Practical Montessori Response

In the second of a four part series focusing on the education and care of children with Special Educational Needs within Montessori schools, Wendy Fidler explains how a prepared Montessori learning environment can help children with Dyspraxia.

Dyspraxia – what is it? Towards a definition

Dyspraxia is generally recognised to be an impairment or immaturity of the organisation of movement. Associated with this may be problems of perception, language and thought. Other names for dyspraxia include Developmental Co-ordination Disorder (DCD), Clumsy Child Syndrome, Minimal Brain Dysfunction, Motor Learning Difficulty and Perceptuo-motor Dysfunction.

Children with Dyspraxia may have the following problems or difficulties:

Perception: children with dyspraxia tend to have poor understanding of the messages that their senses convey and difficulties in relating those messages to actions.

Thought: children may have difficulty planning and organising their thoughts.

Movement: physical activities can be hard for dyspraxic children to learn, and difficult to retain and generalise. Children can be hesitant and awkward in performance.

Speech and language: children's speech may be immature or unintelligible in early years. Language may be impaired or late to develop.

For some children, the primary difficulty is in making and coordinating the precise movements that are used in the



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production of spoken language, which results in severe and persisting speech production difficulties. The condition is termed developmental verbal dyspraxia: it may occur in isolation or in conjunction with general motor difficulties.

Up to ten per cent of the UK population may show symptoms of dyspraxia; and two per cent are severely affected by the condition according to the Dyspraxia Foundation, a UK charity which exists to help people understand and cope with dyspraxia. Of those diagnosed, 80 per cent are male.

Early recognition of dyspraxia enables a

child's special educational and social needs to be identified. Action can then be taken to reduce the impact of this condition on their whole family.

What causes dyspraxia and how would I recognise it?

For the majority of children with the condition, there is no known cause. Current research suggests that it is due to an immaturity of neurone development in the brain rather than to brain damage. People with dyspraxia have no clinical neurological abnormality to explain their condition.

For the pre-school child, some general

indicators of dyspraxia include:

- delay in reaching developmental milestones, for example, rolling over, sitting, standing, walking, and speaking;
- may not be able to run, hop, jump, or catch or kick a ball although their peers can do so;
- may have difficulty in making and keeping friends, or judging how to behave in company;
- may have little understanding of spatial concepts such as 'in', 'on', 'in front of';
- difficulty in walking up and down stairs;
- being slow or poor at dressing and hesitant in most actions;
- appearing not to be able to learn anything instinctively but having to be taught skills;
- falling over frequently;
- poor pencil grip;
- inability to do jigsaws or shape sorting games;
- immature artwork;
- often being anxious and easily distracted.

For the school-age child, some general indicators of dyspraxia include:

- often having all the difficulties experienced by the pre-school child with dyspraxia, with little or no improvement;
- avoiding PE and games;
- progressing badly in class but significantly better on a one-to-one basis;
- reacting to all stimuli without discrimination and having a poor attention span;
- possibly having trouble with mathematics and writing structured stories;
- experiencing great difficulty in copying from the blackboard;
- writing laboriously and immaturely;
- being unable to remember and /or follow instructions;
- being generally poorly organised.

Montessori – a special education through movement

Montessori education is, in essence, an education through movement. Dr Maria Montessori researched and understood the links between movement organisation and learning. During her early work in the Casa dei Bambini in Rome, she studied the behaviour of socially disadvantaged, uncontrolled

children, many of whom had learning difficulties.

Montessori observed unco-ordinated and clumsy children, and those who acted apparently without thinking about the consequences of their actions. As a result she designed and adapted games and individual pieces of equipment to help children walk and carry gracefully, and some which helped them discriminate between visual perceptions (such as length, height, breadth and diameter), and others that prompted them to consider the order of a process and what might happen next.

Girls and boys practised repeatedly with these until they really understood the concepts behind the activities. The children later progressed, at their own individual rates, to refining their actions into precise, graceful and purposeful large and small muscle movements.

All supporting Montessori routines and activities also have the purpose of further underpinning children's confidence in their own ability and the importance of their role within their learning community. For example, as children roll out a floor mat in preparation for their work, or as they carry a tray of activities to a table, they conform to themselves and to others that:

- their learning space is to be respected, and that they themselves are valued – by extension they learn to respect and value the interests and needs of others; children with dyspraxia often have very low self-esteem.
- there is no hurry to finish – the activity is theirs to repeat until they replace it (which is the other children's signal that they can now use it); children with dyspraxia need more opportunities to break down activities into smaller parts, to practise and fine hone movements.
- every time an activity is selected and carried, children practise the deportment and levelling movements necessary to control what is in their hands, thus giving them further confidence in their own abilities.
- children learn to make choices, to think about what they are going to do, and why they are expected to put things back where they were found; planning and organisation skills do not come easily to the dyspraxic child.

These supporting routines are underpinned by the readiness of the adults in preparing and maintaining the learning environment, and their ability to watch out for 'sensitive periods' when children are ready for a little extra ▶



Small muscle movements: Children progress from tracing around the Montessori insets for design to filling in the insets with pencilled left to right tracking lines before moving on to writing. Children with dyspraxia write best using joined up cursive script from the start.



Everyday living: Exercises of Practical Life break down everyday tasks, such as buttoning, into manageable movements



Confidence and self-esteem: Children practise intricate activities, such as screwing and unscrewing little bottle tops until they are fully satisfied with their work.



Motivation and encouragement: Montessori children progress at their own individual pace; there is no hurry to finish a task, and everyone is encouraged to 'do it for myself'.

Dyspraxia – a Practical Montessori Response Continued

challenge or encouragement in their learning.

The fruits of Montessori's early observations, research and designs can now be found in Montessori schools all over the world. Today, children with simple and profound learning difficulties often make good progress with motor coordination, perception, language development and most importantly, their confidence and self-esteem as they become independent learners in a practical, hands-on Montessori learning environment.

The stability and consistency provided in a Montessori setting can provide the 'level playing field' needed by dyspraxic children. In this case study we follow a special little girl's progress as she interacts with traditional Montessori practical life, sensorial, cultural, communication and language activities.

When Elizabeth started part-time classes at Montessori school, she was a happy, gregarious, inquisitive ten-year-old who had been diagnosed with dyspraxia shortly after her birth. She had been late

smell, change of light or movement became an immediate cause for investigation; altogether she was a very distracted and distracting little girl.

Discussions with Elizabeth's mother revealed that she had been late to reach many of the milestones of child development and, most pertinent of all had a complete lack of curiosity as a baby and toddler. Elizabeth had not yet explored her environment, interacted, striven, made mistakes and succeeded as most babies do. She had missed out on the 'fine tuning' of selecting and dismissing sensory stimuli or repeating and perfecting favourite activities.

The rapid cerebellum development, and the expected cycles of developmental activity, which are normally driven by a baby's innate desire to learn, had been delayed and Elizabeth was only now exhibiting these characteristics. She lacked comprehension because she had not learned to discriminate between desires within the usual cycles of work, repetition and practice. She lacked coordination because she had not experienced purposeful, independent

dyspraxic child is effectively 'taught thinking'. Elizabeth's parents continued many activities at home and eventually appropriate responses were achieved.

The first delightful improvements resulted from Elizabeth's work with the Montessori insets for design. The steady tracking of the pencil across the page (and across the body mid-line) as she gained mastery of the parallel lines helped her to achieve a sense of centre, of body image and spatial awareness of her body parts. She began to develop a reference point from which to determine left from right. Elizabeth's increasingly controlled use of the pencil, with well coordinated hand and eye movements, enabled her to work for longer periods and with less physical and mental exhaustion – she was at a double disadvantage as she is left handed and could not at first see the work she had attempted.

Once she learned to track from top to bottom and from left to right, a skill used in reading, writing and spelling, these skills also began to improve as Elizabeth found and retained her place

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to reach developmental milestones; she shuffled on her bottom rather than crawling and she lacked the usual toddler instincts to investigate everything and everywhere.

Elizabeth was poorly coordinated in both her large and small muscle movements; she was continually distracted, jumping up from activities and knocking things over. She had little facility for processing information and because her attention span was so short, she was seldom able to listen to information or instructions for long enough to interpret them meaningfully. Clearly this was having an impact both on her ability to take direction and her communication and inter-personal skills development in and out of school.

Now ten years of age, Elizabeth lacked many of the characteristics of a healthy, inquisitive toddler. She had a need to pick up everything within her reach and spontaneously moved from one stimulus to another without a clearly defined objective. Unable to sift out inappropriate stimuli, any new sound,

movement, or, as Montessorians would say, her 'apprehension had not become purposive'.

It seemed that, because Elizabeth's essential curiosity for life had been delayed, whole areas of her prehension and cognitive reasoning ability had also been delayed. The appropriate initial Montessori response was to introduce practical activities to help Elizabeth organise the movement she needed for graceful, socially acceptable daily living: "The essential thing is for the task to arouse such interest that it engages the child's whole personality." Maria Montessori *The Absorbent Mind*.

The pose, or attitude assumed by the Montessori teacher when presenting, for example, the apparatus designed to enhance visual discrimination between widths, lengths, diameters etc. indicates profound consideration. As the child catches the pose by repetition of hand and eye movements associated with the apparatus, the necessary links into mental integration of the sensory perceptions will begin. In this way, the

on the page more easily. As she acquired central stability she began to use her eyes and arms independently of her body. In order to scan a page of print or to catch a ball it is necessary to be able to isolate hand and eye movement, and the body needs to be still for effective visual skills such as copying from a board. As linear sequential organisation was mastered, reading became less physically and mentally demanding and Elizabeth was soon choosing, reading and reviewing books independently.

Whilst we may never fully understand how these exercises, broken down into isolated individual movements of each body part, trigger a response in the creative nebulae of the dyspraxic child's brain, we certainly saw the results in Elizabeth's joyful face when she completed a piece of work to her own satisfaction. Elizabeth began to organise her writing on the page and on the writing line more efficiently. Practice with the Montessori sandpaper letters helped her to identify and blend letter sounds, to build words and sequence the alphabet. She also perfected a new

cursive script and a love of drawing.

As Elizabeth achieved normalisation in her movement organisation, so her learning difficulties began to disappear. She appeared to have suffered a chronological delay in the appearance of sensitive periods for learning; her newly acquired kinesthetic awareness of movement and position was accompanied by order in the whole of her personality.

Access to a Montessori learning environment enabled Elizabeth to blossom into a better coordinated, more graceful child with a growing facility for mental abstraction.

Elizabeth progressed to full-time mainstream education with special support where she is now well-integrated socially, self-motivated and able to complete her own cycles of work. Although she still acknowledges distracting stimuli, she can disassociate her work from them and she can organise her own choice of work. Montessori education has an effective pragmatic role to play in the treatment of dyspraxia, most especially where there is good partnership with parents and clinical professionals.

Key Points

- Interactions with the Montessori Sensorial activities develop individual sensory discrimination, for example of weight, length, breadth and height
- With repeated practice, boys and girls learn to combine these discriminations in a more mature, joined-up fashion
- This jump-starts a child's purposive prehension or practicability (see box below).
- As a result, children's concentration span, hand and eye coordination, deportment and general sense of self-worth is greatly enhanced with an increasingly positive effect on their day-to-day school progress
- In addition children often achieve significant success in writing, drawing and creative thinking. (This is in accordance with Maria Montessori's own findings, last century, when disaffected, disadvantaged and disabled children at her schools progressed better than others in Italian state examinations.) ■

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Resources:

The Dyspraxia Foundation can help you to find sources of support in your area. It publishes a range of leaflets, booklets and books on aspects of the condition, such as games and PE activities, behaviour management, handwriting, speech and help with tests and exams call 01462 454986. (Mon-Fri 10am-2pm)

There is useful information in the DfES booklet *Special Educational Needs: A Guide for Parents* call 020 7925 5000 (UK) or 0131 222 2400 (Scotland) for a copy.



Large muscle movements: Children learn to combine a range of movements, such as lifting, holding, aiming and squeezing for a specific and controlled purpose.

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Dyspraxia comes from two Greek words: 'dys' (meaning abnormal) and 'praxis' (meaning doing). It is also known as Developmental Coordination Disorder (DCD). However, this term can be misleading, for although dyspraxia's defining symptoms are excessive clumsiness and problems with balance, the condition can also impact on short-term memory, personal organisation, attention span, mathematical ability, and social skills. Dyspraxia is a condition, generally present in early childhood, that affects motor skills. Occasionally, it can be caused by traumatic brain injury, but in most cases, the cause is unknown. It affects many aspects of development and learning, and in infants, a hesitancy to crawl, difficulty learning to use cups and utensils, and walking delays may signify early symptoms. Since each child is unique, however, developmental delays may not be noted.