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The information contained herein includes both psychological and non psychological interventions. The delivery of psychological services requires a medical referral whilst non psychological services do not.

Each person is an individual and has a unique psychological profile, biochemistry, developmental and social history. As such, advice will not be given over the internet and recommendations and interventions within this website cannot be taken as a substitute for a thorough medical or allied health professional assessment or diagnosis.

Holistic approaches to Dyspraxia

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INTRODUCTION

Dyspraxia is a developmental disorder, which manifests as a marked impairment in the development of motor co-ordination. The co morbidity with Autistic Spectrum Disorders, Attention Deficit Hyperactivity Disorder and Dyslexia is as high as 40 -45 percent[1]. It is four times more common in boys than girls (some researchers estimate as many as seven times), although when girls are affected, they are usually more severely disabled. Developmental dyspraxia affects between 2 and 5 per cent of the population and if not identified early, can have a devastating effect upon a child's performance and self-esteem.

The word "praxis" has to do with various aspects of imitation, ideation, initiation, construction, feedback, feed forward, grading, timing, sequencing and motor planning.

There is increasing evidence that dyspraxia is a neurological disorder and that metabolic factors are contributors to the condition. Metabolic factors are often apparent before birth. For instance small for date babies, prematurity (birth before 38 weeks), post maturity (birth after 42 weeks), prolonged labour, poor maternal diet, failure to gain weight appropriately during pregnancy, sickness throughout pregnancy, family history of food allergy or intolerance to wheat or dairy products, family history of asthma, family history of celiac disease (intolerance to gluten products such as wheat rye, barley, oats). It has been suggested by some researchers[1-2] that in 50 percent of diagnosed cases of dyspraxia these significant factors are evident during pregnancy.

The American Psychiatric Association's Diagnostic and Statistical Manual - DSM-IV lists five criteria for diagnosis:

1. A marked impairment in the development of motor co-ordination.
2. The impairment significantly interferes with academic performance or daily living activities.
3. The co-ordination problems are not the result of a general medical condition such as cerebral palsy, hemiplegia, or muscular dystrophy.
4. It is not a pervasive developmental disorder
5. If developmental delay is evident, the motor difficulties are greater than those seen in normal children.

The Dyspraxia Foundation of Great Britain describes dyspraxia as "an impairment or immaturity in the organisation of movement with associated problems of language, perception and thought".

What all this translates to in ordinary terms is listed below.

In children up to the age of three, common behaviours include:

- Persistent feeding difficulties (food allergies, restricted diet and preferences for food which is pureed)
- Evidence of sleeping difficulties (bedtime routines hard to establish with constant waking during the night)
- Uncoordinated movement (unsteady when walking independently, falls easily or may walk with a wide gait, unable to move one foot without overbalancing, unable to pedal a tricycle and prefers using sit- astride toys which don't require hands and feet to be coordinated simultaneously)
- Difficulties with fine motor skills (difficulty with manipulating pegs and takes longer to complete the task, avoids scribbling and using pencils and crayons because of difficulty in holding the implement)
- High levels of motor activity (constantly on the go; may have continuous arm movements even when sitting)
- Sensitive to high levels of noise or changes in light intensity
- Toilet training, particularly bowel control may be delayed
- Avoidance of constructional toys (shows no interest in Lego, jigsaws and inset puzzles and finds tower constriction very difficult)
- Delayed language development (can make initial sounds but has difficulty saying the whole word
- Articulation is usually a problem rather than comprehension
- Highly emotional with frequent outbursts of uncontrolled behaviour
- Concentration very limited (usually can only stay on task for two or three minutes)

If dyspraxia is not identified and remediated before children enter pre-school, they are usually excluded from cooperative games because they fail to understand the rules and their behaviour is too erratic. Therefore psychological barriers to progress are often in place before formal schooling begins.

Problem behaviours at the pre-school stage include:

- Insecurity (problems separating from adult)
- High levels of motor activity (inability to sit still for more than 5 minutes, feet swing and fingers tap when concentrating on an activity, hands clapping together or twisting when excited)
- High levels of excitability (voice often loud and shrill, very demanding with evidence of temper tantrums for no apparent reason, becomes very upset at changes in routine)
- Problems with coordination (walks on tiptoes with poor balance and hands waving, afraid of heights and dislikes climbing activities, constantly falling over or bumping into objects, hands flap when child is running or jumping)
- Difficulties pedalling (coordination difficulties continue and the child is unable to "steer" the toy while pedalling
- Poor figure-ground awareness (no sense of danger, jumps from inappropriate heights; misinterpretation of information e.g. a crack in the floor or an edge of a tile in the floor can be perceived as an obstacle to be climbed)
- Feeding difficulties persist (follows a restricted diet, prefers finger food because they lack the coordination to manipulate spoons, forks and knives)
- Avoids constructional toys
- Poor fine motor skills (pencil grip awkward or immature, difficulty using scissors; drawings are immature and unrecognisable)
- Lack of imaginative play
- Perceived as very immature when compared to peers
- Peer group isolation (play alongside rather than with other children)
- Laterality not established (problems crossing the midline)
- Evidence of delayed language skills (referred to speech therapist and then other agencies)
- Sensitive to sensory stimulation (dislikes being touched, high level of noise, new clothes with labels close to the skin, can be affected by changes in washing powder)
- Limited response to verbal instructions (slow response time, problems with auditory sequencing)
- Limited concentration (tasks often incomplete, confusion with sequential processing – don’t know what to do next)

If early intervention is not successful by entry into primary school, a child with dyspraxia will continue to have difficulties with:

- Organisation (forgetting PE equipment, books, pencils, notes etc., difficulty adapting to a structured school environment)
- Coordination difficulties evident in PE (uncoordinated movements, anxiety with heights, difficulty judging distances – throwing a ball, catching)
- Dressing (buttons fastened in the wrong holes, clothes worn back to front, unable to tie shoelaces, slow)
- Spelling (seriously affected as a result of a combination of auditory sequencing and visual perceptual difficulties but reading may develop normally)
- Handwriting (excessive time to complete written tasks, repetition and practice has little effect on the development of skills, drawings continue to be immature, poor formation of letters, reversals of letters and numbers, poor copying skills, awkward pencil grip)
- Language (taking language too literally e.g. "I can't find my manners because I' don't know where to look")
- Remembering instructions
- Auditory sequencing
- Concentration (difficulty remaining on task, high levels of motor activity interfere with written work and with class discussion, motor movements e.g. Foot tapping, hand flapping when concentrating)
- Emotional reactivity (inappropriately high level of distress over trivial situations)
- Social relationships (problems evident in preschool persist, friendships with adults or younger children, isolated within the classroom)
- Physical Symptoms (headaches, migraines, feeling sick)

Observable behaviours in pupils of secondary school age include:

- Disorganisation
- Poor peer / social relationships
- Emotional ability (over-reactivity and almost appears to have a personality disorder exhibiting high levels of excitement at times and almost clinical depression at others, could develop obsessive / repetitive behaviour)
- Coordination difficulties (which are masked so they appear untidily dressed, difficulty carrying equipment or school bags)
- Difficulty recording information (print rather than cursive handwriting, slow speed of information processing and instructions not followed appropriately)
- Poor short term visual and auditory memory (slow at copying from the board or taking dictated notes)
- Being easily led by peer group
- Obsessional behavioiurs which were previously not observed.

"Without intervention the dyspraxic child grows into the dyspraxic adult" (Portwood[1]).

Adults with dyspraxia often have the following characteristics:

- Attentional problems and poor concentration (often lose track of conversations and run off at a tangent, often display symptoms of Attention Deficit Disorder)
- Language (quick and loud speech, problems with intonation and misinterpretation of language)
- Obsessional characteristics
- Coordination difficulties (difficulty differentiating between right and left and this hinders safe driving)
- Poor handwriting
- Very low self esteem
- Very emotional
- Unrealistic expectations
- Constant lateness for appointments
- Inability to remember instructions
- Inability to complete tasks quickly

- Decisions constantly being altered
- Depression
- Difficulty maintaining peer relationships
- Sleeping disorders
- High co morbidity with ADHD and psychiatric illness

Given the above difficulties which persist into adulthood it is vital that a comprehensive assessment and early intervention strategies be carried out. A range of information needs to be collected from a variety of sources including a full developmental history (prenatal factors), family history, parental observations, standardised testing and formal observations.

As any parent of a dyspraxic child knows, dyspraxia is a difficult disorder for parents and children to live with and for therapists and educators to work with. There are no magic cures or "one-size-fits-all" therapies / methods. A holistic approach is therefore not only indicated but essential as the ramifications of dyspraxia can be life-long if undiagnosed or worse still misdiagnosed as something else.

As a psychologist working with dyspraxic children, it is always encouraging to see gains and sometimes remarkable improvements when a holistic approach is used. Recently, the gains made with a blend of interventions and modalities, as well as dietary interventions, have meant that the quality of life for many children has improved. The use of Samonas Sound Therapy[3], inhibiting primitive reflexes[4], nutritional supplementation with essential fatty acids[5] and minerals, a gluten and casein-free diet[6-8], as well as neurofeedback[9] has allowed the positive gains made in sessions to become established in every day routines. Coordination and handwriting difficulties, auditory sequencing and perceptual skills, concentration, emotional lability, sleeping patterns, depression and self esteem are particularly suited to amelioration and improvement when holistic interventions are skilfully tailored to suit individual needs.

Sound therapy via bone conduction has mainly been effective in the remediation of coordination and handwriting difficulties and auditory processing / perceptual deficits. Bone conduction sound therapy not only improves auditory processing and language comprehension by stimulating the auditory pathways in the brain, it also appears to improve visual, motor and other associated neurological pathways and disorders of the brain stem.

Neurofeedback is another non-invasive drug-free intervention that has improved areas such as concentration, coordination, emotional lability and sleep patterns because it teaches the brain to self-regulate. By training the brain to improve its ability to produce certain brainwave patterns, children learn to improve their attention and increase their neurological and cognitive flexibility. Depression and self-esteem have been helped by a combination of dietary intervention and the above mentioned methods.

The presence of primitive reflexes is a major area that is often ignored in the assessment of dyspraxia and rarely addressed in a therapeutic context. Primitive reflexes are a set of automatic, stereotypical movements we are all born with. They are involuntary and controlled by a very primitive part of the brain -the brain stem. Primitive reflexes are retained if they do not fulfil their function in the first few years of childhood. However, these reflexes need to be inhibited if the child is to develop adult (postural) reflexes that are controlled by the higher levels of the brain- the cortex. Certain combinations of primitive reflexes exhibit themselves in ways that affect academic progress because "attention, balance and coordination are the primary ABC on which all later learning depends" (Goddard Blythe 2000). It is not just children with dyspraxia who have retained these primitive reflexes- most children with specific learning difficulties have.

The methods briefly outlined should not be considered "magic bullets", as we all know that time, effort, understanding and awareness are necessary ingredients in the management of children with dyspraxia. Depending upon the child's level of functioning and co-existing conditions, the above interventions are offered as potential avenues to break the cycle of frustration and failure for those whose lives have been impacted by dyspraxia.

For more information or to make an appointment please contact us on (02) 9637 9998 during business hours.

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