

Prematurity Information

For New Zealand educators



The Champion Centre
Tamariki Toiora

Being born too early...

Children who are born prematurely are at risk of learning and behavioural difficulties at preschool and school; the earlier a child is born, the more likely it is that problems may occur. Difficulties may be seen in children born earlier than around 34 week's gestation (a full term pregnancy is 40 weeks).

Approximately half of all infants born at less than 30 weeks gestation will experience some kind of long-term developmental consequence which may impact negatively on their success in school.

Often these difficulties are 'hidden' until the child reaches school age when the workload increases and becomes more complex.

At risk from...

These difficulties are not confined to children who were born prematurely but often occur in this population of children.

- Distractibility (problems with attention), hyper arousal or under arousal, sensory overload, increased incidence of ADHD, delayed social skills.
- Reduced endurance for learning in 1:1 and group settings, easily fatigued, fragile health.
- Learning and memory problems including reading, writing and mathematics, difficulties forming concepts and remembering sequences of activities.

- Problems with poor language comprehension, expressive language, speech articulation, fluency, and lower perceptual organization skills; acquired hearing loss.
- Difficulties with co-ordination, movement and balance; delays in fine and gross motor skills, poor visual-motor perceptions; increased risk of dyspraxia.

Some specific areas in which a child born premature may experience difficulties at school.

Recently, a cluster of skills which frequently challenge children born premature (and indeed other children) has been identified. Researchers use the term executive functioning to describe these skills.

A video and further information/advice about executive functioning can be found on the Harvard University website. <https://developingchild.harvard.edu/resources/what-is-executive-function-and-how-does-it-relate-to-child-development/>

In brief, there are three key aspects to executive functioning:-

1. Self-Regulation

The ability to calm oneself; the management of brain and body arousal systems.

2. Working Memory

The ability to hold task relevant information in the mind for brief intervals so that the information can be stored in long term memory and used to guide future actions.

3. Cognitive Flexibility

The ability to adapt to change and transition efficiently between activities. A useful video by Philip Zelazo which explains this further is on Youtube -

<https://www.youtube.com/watch?v=dZFtvNeDOdw>

These three areas of functioning can be a problem together or may present individually.

How can you help

At school entry, ask parents/whānau if their child was born prematurely.

Be aware that many parents will not know that some premature infants do not show developmental problems until they reach school age. The evidence for this is emerging, as this population of children grows and progresses through the school system.

Self-Regulation

- Be aware of 'sensory overload'. Does the child have access to a quiet space and quiet time when their system becomes dysregulated/ overloaded?
- Find out ways of helping a child calm their system (ask the parents what they do at home, try out different strategies e.g. firm hand massage, singing, regular clapping, a repetitive rhythm, physically move to another space, bouncing a ball up and down outside).
- Music and movement activities that provide patterned, repetitive, rhythmic stimulation of the brainstem are very successful in helping modulate brainstem dysregulation.
- A child in a dysregulated state will not be able to play/learn until their system has calmed down.

Routines/Working Memory

- Have clear, regular routines. Eliminate as much of the 'unpredictable' and 'surprise' elements of the day as possible as this can cause increased anxiety levels and inhibit a child's learning.
- Use individual visual plans (using pictures to show mat time, reading, morning tea etc.) for each child to help them plan their day and keep on track with starting and finishing activities.

- Use verbal and visual prompts during activities and keep directions short and simple. Give one or two instructions at a time and wait until these are completed before giving more. Use tools such as individual whiteboards and cue cards.



- Allow the child time to process information and instructions before repeating or rephrasing.
- Provide gentle prompts or reminders as children organise tasks or work through abstract problems - verbal prompts, written prompts, visual prompts e.g. picture of scissors on shelf where scissors are kept.
- Display the timetable of the day in visual form e.g. pictures or symbols. Run through this at the beginning of the day and refer to it often during the day.
- Start the day with the whole class focussed on a News Board type activity where you review things learnt yesterday and talk about the plan for the day ahead.
- Use a communication diary for individual children. Towards the end of the day write a sentence about what the child did at school/preschool that day. The child illustrates. This goes home and returns the next day with a sentence from home. e.g. I built a tall bridge out of coloured blocks.
- Provide simple problem-solving activities. These may facilitate an altered course of neurodevelopment in the early injured brain as it proceeds through the critical window of middle childhood.
- Teach children mind mapping.
- Memory games such as animal pairs as well as card games such as poker which rely on the child remembering what cards have been used and what people have shown in previous moves.

Mental Flexibility

- Be aware of this difficulty and give ample warning before changing activity. Have a timetable in accessible form and clearly displayed (e.g. pictures of activities), be clear about when switch is going to happen and how.
- Provide the child with their own visual plan of the activity/day. Encourage them to regularly refer to it and cross off each activity as they go.
- Make transitions between activities clear and appropriate for the activity.

Skill Level

- Know the child's skill level. Sometimes children born prematurely achieve developmental steps in a different order compared to their full-term peers. You may need to teach specific skills e.g. climbing backwards down ladder on climbing frame, who to look at when on the mat etc.

Further reading

Christchurch, through the universities of Otago and Canterbury, has been the centre for much internationally-recognised research on prematurity.

A review of research relevant to teachers has been written by Garry Hornby & Lianne Woodward of the University of Canterbury:-

Educational Needs of School-Aged Children Born Very and Extremely Preterm: A Review- Educ Psychol Rev (2009) 21:247–266.

New e-learning resource about premature birth for education professionals.

This new resource for educational professionals, developed by Professor Samantha Johnson and her colleagues at Leicester University, now articulates through easy to access, high quality research and practice evidence, why we need a fuller and deeper understanding of how children born prematurely will learn and progress in our school system and what some of their learning challenges may be .

The e-learning resource can be accessed online for free here: www.pretermbirth.info. It was supported in its development by Action Medical Research.

There is also a podcast with the editor of the TES about the development and evaluation of the resource and about the educational needs of preterm born children more broadly. This can be accessed here if you would like to listen: <https://www.tes.com/news/should-teachers-be-told-if-pupil-was-born-preterm>

Catherine Woods, RTLB 2006 (updated Dr Alison Gray, 2019)

This information is correct to the best of my knowledge at the time of print. This area of research continues to bring new issues to light as greater numbers of these precious children are surviving at increasingly earlier gestation, and as they continue to progress through the education system.



Contact

The Champion Centre
Administered by the Christchurch Early Intervention Trust

The Champion Centre
C/- Burwood Hospital, Private Bag 4708, CHRISTCHURCH

Phone: (03) 383 6867, Fax: (03) 383 6866 office@championcentre.org.nz