Prematurity and your child's learning (3-5 years)

The Champion Centre

Christchurch Early Intervention Trust

At the Champion Centre, we believe it is important to keep monitoring the development of children born premature until they reach school age. Research tells us that for some children born premature, there could be a risk of longer-term difficulties even if, in the early years, development seems to be progressing well. As children grow-up, their strengths and weaknesses become clearer. As yet, no-one can predict how development will progress for any individual child.

Key point: The development of children born premature should be monitored for the first few years

By the time children reach 3 years old, we start thinking ahead to how they will get on when they go to school. We all want children to start school with good skills to enable them to get off to a flying start. Because we know that children born premature have an increased risk of difficulties at school, in

their pre-school years we are looking for any signs that challenges may lie ahead. This is so that we can prevent or minimise any difficulties early. Infants, who are born before 32 weeks gestational age, are on average more likely to have difficulties than children born at a later gestational age.

Results from Christchurch research

A research study that has been going on in Christchurch over the last 15 years followed 110 children who were born very preterm (i.e. born at less than 33 weeks gestation or under 1500g birth weight). They have also followed a group

of 100 full-term children for comparison. The study has shown the following results:-

Reading and writing

At 6 years, teachers rated 51% of children born very preterm as being average or above in reading (compared to 86% of the full-term group) and 52% of children born very preterm were rated average or above in writing (compared to 78% of the full-term group).

Language

When children who were born early were compared with full-term comparison children at age 6 years, there were no differences in expressive language, but children born preterm had significantly more difficulty understanding a story and following directions than the comparison group.

Physical education

At 6 years, teachers rated 60% of children born very preterm as average or above in physical education (compared to 89% of full-term children).

Maths

In maths at age 6 years, 56% of children born preterm were rated by teachers as average or above, compared to 86% of the comparison children. When the children were tested at the university, 48% of the children born preterm were working at the expected level or above in year 1 maths (compared to 67% of full-term children).

Comparison of parent reports of children born preterm and those born full-term

	Children born premature	Children born full-term
Attentional difficulties	38%	14%
Peer relationship problems	27%	12%
Severe behaviour problems	12%	3%

Behaviour

Overall at age 6 years, the parents of 28% of children born very preterm reported their children had emotional or behavioural problems compared to 11% of comparison parents. However, most of

the problems that parents reported were mild or only evident in some situations.

Key point: Research suggests that children born early are more at risk of learning and behavioural difficulties than those born full term.

Executive function

In the Champion Centre's first leaflet, "Prematurity and your infants' learning", we described some of the difficulties with self-regulation that can be more common in children born premature. As children move towards their third year, we can begin to assess a broader range of executive function (EF) skills. Executive function includes self-regulation, but it incorporates other skills as well. It

describes a collection of brain processes that control:-

- selecting and focusing on the relevant information and not being distracted by all the things that are going on in the environment.
- flexible thinking – i.e. being able to stop one train of thought and switch to another
- getting started on appropriate actions and/or stopping yourself from doing something inappropriate
- short-term memory – i.e. remembering what you are doing while you are doing it.
- abstract thinking – i.e. understanding more complex ideas
- understanding rules
- planning and organising actions

It is thought that these functions are largely located in the front of the brain. Research which has assessed the abilities of school-age children born premature often identifies executive function as a

problem area. Children can have EF difficulties even if they are very capable in other areas. This makes it sometimes frustrating for parents and hard to pin down exactly what the problem is. It is thought that delayed EF skills could be linked to the difficulties children born premature have with maths, paying attention and behaviour.

If children's executive function skills are well-developed, it will help them remember complicated instructions, avoid distractions, adjust to new rules and persist with a challenge. Executive function abilities continue to improve as children grow up, even into early adulthood.

Key point: Executive function skills are important as children get older and can be a problem area for children born premature.

What can we do?

Research evidence is clear that parents are really crucial in helping pre-school

children to make the best possible progress. If necessary, we can work with you to plan a programme for children who are having problems with self-regulation or other areas of development. For all pre-schoolers born preterm, these are some of the things you can do to help with EF development:-

- Provide structure and a predictable daily routine.
- Support your children's efforts. Guide them from dependence on you towards gradual independence, by providing activities which challenge them, but do not overwhelm them.
- Involve children in activities where they can practise their skills with you.
- Foster social, open-ended, creative play that they can share with you.

- Incorporate vigorous physical activity into their day. This has been shown to positively affect brain development.
- Protect them from chaos and stress. A negative environment will disrupt brain circuits and may trigger impulsive behaviour.
- Model good skills. If you are calm and regulated, then they will learn these behaviours from you.

Key point: There are many ways in which parents can help children develop good executive function skills.

Children born premature and starting school

We would recommend that you let the school know that your child

was born early when you enroll him or her for school. We have a leaflet for teachers at the Champion Centre. We will give you a copy before your child starts school. It helps if the teacher understands some of the consequences of prematurity for children's learning.

Once they start school, children are expected to be more independent, organised and pay attention for longer. Parents can continue to support this by encouraging children to solve their own problems. Children need appropriate boundaries and parents can use language to help children understand and express their feelings appropriately. Children also need to be motivated to succeed. Individual goals may be needed. For children born premature, these goals may need to take individual strengths, weaknesses and temperamental differences into account. Individual sports may be more successful than team sports, for example. Children born premature may also tire more easily and this may need to be worked around.

Key point: In school, children born premature may be challenged by the new demands to pay attention and be organised.

Parents of children born premature

At times, taking care of a child who may have some challenges, even if these are hardly noticeable to most people, can still be very demanding. Parents can only support their child in the ways discussed above, if they are feeling okay. It can take years to come to terms with the shock of the sudden end of a pregnancy, a premature birth and the feelings that follow. It helps keep children calm and responsive, if the adults are calm too! Some people find this easier than others. It is always a good idea to discuss any difficulties you or your child are having with a team member at the Champion Centre.

So if there are concerns for your child or for you as parents, then find time to

discuss them further with the team. Parenting can be a wonderful task, but not always an easy one. Staff are always available to help, either in person or by phone.

Written by Dr. Alison Gray with help from the Champion Centre team. 2014.

Further reading

- http://www.huggies.co.nz/childbirth/premature-babies
  (Explains some of the common issues)
- University of Canterbury, Child Development Research Group
  www.psyc.canterbury.ac.nz/research/cant%20child%20dev/index.shtml
  (Access articles from a local research study)
- http://developingchild.harvard.edu/resources/multimedia/videos/inbrief_series/inbrief_executive_function/ (video & information from Harvard University about executive function)

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