Theirworld

Edinburgh Birth Cohort

Summer 2024

NEWSLETTER

Welcome,

to the latest edition of our newsletter. It's hard to believe the oldest children in the study are now turning 7! In this edition we have an update about the 7 year visit and also the ongoing 5 year visits that have been in full swing for some time.

Lorena Jiménez Sánchez, TEBC post doc researcher, created a commemorative art piece that combines data and design. We share news about that and an award winning, beautiful image of all 18 images.

New research findings include that babies' attachment to their caregivers at nine months is not affected by how their brains' amygdala and hippocampus are shaped and connected at birth, and, a study of how being born early affects cerebral cortex development in babies. You can find summaries of all the findings from TEBC cohort data on our website: https://www.ed.ac.uk/centre-reproductive-health/tebc/publications

Meet Melissa Thye in our 'Who's Who'. Melissa works mainly on the 5 year visits so she may well be a familiar face if you've been for a visit this year.

As always, huge thanks to everyone who helps us with our research, without your time and commitment none of it would be possible.

Warm wishes, The TEBC Team.

Summer holidays to fill?

With the summer holidays almost here, we've put together a few ideas for an Edinburgh day out.

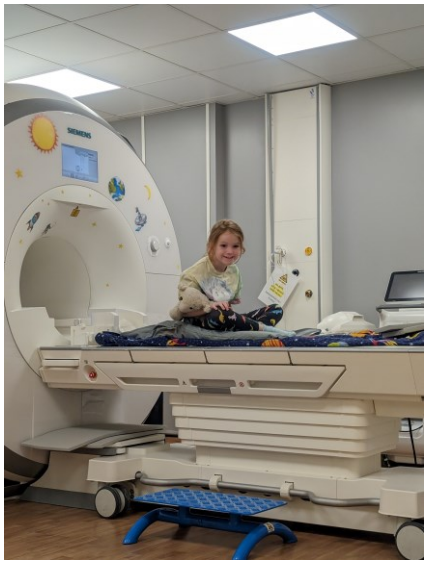
Thank you for coming to the party!

It was great to see so many of you at the party! We hope you enjoyed it as much as we did. Children created lots of fantastic birthday card designs – we'll be in touch when we've got them printed! Head over to the FaceBook Group where we have shared some lovely photos.

If you enjoyed 'Think Circus' you might be interested in their free family sessions https://thinkcircus.co.uk/community/ They will also be at Fringe by the Sea on 10th August https://www.fringebythesea.com/

News

7 Year Visits



Another milestone was passed recently when we started seeing the children who are now turning 7! This is a single visit and is very similar to earlier visits. It includes an MRI brain scan and behavioural assessment games. We have plenty of snacks and lunch available, and make sure that everyone has a fun, enjoyable time! After the visit your child will get a picture of their brain to keep and a £20 shopping voucher.

5 Year Visits

We have lots of children who are now turning 5 and we have a very busy summer ahead! If your child is due to visit us soon, we have a child friendly video to help them prepare for their visit. Click on the waving scientists below to watch the video. You can also find the video on our website at https://www.ed.ac.uk/centre-reproductive-health/tebc/about-tebc/for-families/five-years

Artwork completed and wins award.

To celebrate the completion of participant recruitment, TEBC post-doctoral researcher, Lorena Jiménez Sánchez, developed a project that combined data and design, and created a commemorative art piece. We proposed a series of images, each representing a fetus at a certain gestational age, created entirely of numeric data points – such as birth weight – from all babies born at that gestational age in our cohort.

This panel showing all 18 images was selected as the winner in a University of Edinburgh photographic competition in the category 'Community and Collaboration'.

The images convey three key aspects of our research. First, they map fetal development, and the breadth of prematurity. Second, they highlight how many individual contributions help to form the big picture. Third, they reflect on the power of anonymised data to facilitate research.

We hope you enjoyed receiving your printed copy of the image representing your child's gestational age at birth. If for some reason you didn't receive it, please let us know and we would be very happy to send it again.

Who's Who

Hi, I'm Melissa! I joined the TEBC team after finishing my PhD late last year. I have a background in developmental psychology and cognitive neuroscience and am particularly interested in how both children and adults think about the stories we listen to, read, and watch. Understanding how we make sense of a story as it quickly unfolds and how we remember enough details to think and reason about the events and characters can teach us a lot about how the brain works and develops. You may see me at 5-year follow-up and MRI appointments; if you do, let me know what your favourite story is!

I moved to Edinburgh from Alabama, although I'm a native of sunny Florida, about 5 years ago. In my spare time, my favourite things to do are explore Holyrood Park, go for hikes and runs, and try to find a turtle in Scotland (no luck yet!).

Neonatal Society prize awarded to Dr Katie McKinnon

The Neonatal Society aims to bring together scientists and clinicians with an interest in the fetus and newborn to promote neonatal science. At their spring meeting, our PhD student, Dr Katie McKinnon was awarded the prize for the best presentation by a Trainee for her presentation 'Epigenetic scores indicate differences in the proteome of preterm infants'.

Melissa completes Edinburgh half!

Melissa completed the Edinburgh half marathon in May, raising money to support the work of Theirworld and the Jennifer Brown Research Laboratory. Well done and thank you Melissa!

Research Findings

We have published over 50 research papers using data from the study cohort. Summaries of all our published research findings are available on our study website.

Babies' attachment to their caregivers at nine months is not affected by how their brains' amygdala and hippocampus are shaped and connected at birth.

Research question

We wanted to determine if the development of the amygdala, hippocampus, or their whole-brain connections at birth influences attachment in term and preterm infants later on. Understanding which parts of the brain are linked to attachment and what affects them can help us find ways to support babies' socioemotional growth. To address this, we conducted brain MRI scans at birth and observed how babies reacted when their caregiver briefly stopped interacting with them at nine months.

Findings

We did not find any significant links between the size or connections of the amygdala and hippocampus at birth and babies' distress, anger or attention to their caregiver during the 9-month test. Importantly, these results applied to both preterm and term babies. This suggests that the way babies form attachments might involve more parts of the brain or develop later in life rather than being determined by these specific brain structures early on.

Conclusion

If more studies demonstrate that infants' natural traits around birth – like brain structure – do not play a big role in how they attach to their caregivers, strategies trying to support infant socio-emotional growth could focus more on how parents care for the baby after birth. By paying attention to how parents interact with their babies, we may be able to help term and preterm infants develop socially and emotionally in a positive way.

Studying How Being Born Early Affects Cerebral Cortex Development in Babies

Research question

We aimed to investigate how being born preterm affects the detailed structure of the brain at the time of normal birth (term-equivalent age) using a new measurement method called the Vogt-Bailey (VB) index.

Findings

The study found that preterm babies have different microscopic details in brain structures in several areas compared to full-term babies, with more uniform structures in parts of the temporal, occipital, frontal, and parietal lobes. The VB index provided a detailed and reliable way to see these differences, offering better precision than previous methods. These findings were consistent across two different groups of babies, ensuring the reliability of the results.

Conclusion

Understanding how preterm birth affects brain development can help identify early signs of potential cognitive or functional issues. This knowledge can guide interventions and support for preterm babies. Future studies could use the VB index to link early brain differences to long-term outcomes, leading to strategies that help preterm babies develop as healthily as possible.

To read more about the background to these research findings and link to the full paper publications click here.

Summer holidays to fill?

The National Museum of Scotland is full of fun for kids of all ages! Check out their top 10 activities to try with kids https://www.nms.ac.uk/national-museum-of-scotland/things-to-see-and-do/top-10-activities-to-try-with-kids/

A short walk from the National Museum is the East Meadows play park. One of Edinburgh's biggest play parks, it caters for all ages and has swings, slides, climbing rocks and sand play.

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No day out is complete without a picnic! Ham and cheese pizza pinwheels are super easy for children to make – 5 ingredients, 5 minutes preparation time.

You will need:

- Readymade puff pastry
- Tomato paste
- Pinch of Italian herbs
- Slices of ham, chopped
- Grated cheese

To make:

- Spread pastry with tomato and herbs.
- Add ham and cheese.
- Roll up and cut into 2cm rounds
- Place on a tray lined with baking paper and bake for 15 mins at 200 degrees.

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