UNIVERSITY OF CAMBRIDGE

Department of Paediatrics
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The Cambridge Baby Growth Study

Welcome to the Autumn edition of our newsletter. Our latest figures show we have over 1100 children (612 boys and 547 girls) on the study, including 13 sets of twins, and we are still busy recruiting new mums. We have had nearly 300 births this year already!

Joshua Fawcett was the Study's 1000th baby, born on 29th April weighing 3.64kg (just over 8 pounds). Anglia TV came to film him with his mother and produced a clip which was shown on their news programmes on Thursday 22nd June.

"It's a pleasure to be involved in this research," said Mrs Sarah Fawcett, Joshua's mother. "I realise how important advances are to improving medical care for everybody in the future."

Mrs Fawcett was presented with a bottle of champagne by Professor Ieuan Hughes.

ENDOCRINE DISRUPTING CHEMICALS: A NEW AND EMERGING PUBLIC HEALTH TREND?

This was the question posed by the title of an article written by two members of our Cambridge Baby Growth Study team (Carlo Acerini and Ieuan Hughes), which was the leading item in the August edition of the International Medical Journal *Archives of Disease in Childhood (91:633-638; 2006)*. The article provides a broad introduction to the topic of environmental toxins acting as so-called 'endocrine disrupting chemicals'. It begins with a description of the changing trends in male reproductive health, including the apparent wide geographic variation in the rates of undescended testis seen at birth, followed by a description of what is known about the way chemicals may interact with genes to cause some of these problems. The article also summarises what has been found out from studies carried out in the wildlife setting and in humans, and tries to place into context the enormous concern there is about the 100,000-plus man-made chemicals currently on the market. It is clear that there remain wide gaps in our knowledge about the health effects of endocrine disrupting chemicals and strongly highlights the need for further research in this area.

RAPID INFANCY WEIGHT GAIN AND SUBSEQUENT OBESITY

Ken Ong, one of the Cambridge Baby Growth Study principal investigators and Ruth Loos, his colleague at the MRC Epidemiology Unit, recently surveyed the published literature and found over 20 studies all consistently reporting that babies who gain weight very rapidly from birth have an overall 2 to 3-times increased risk of being overweight as children, and also even as adults (*Acta Paediatrica Aug;95(8):904-8; 2006*). We strongly support the current Department of Health infant feeding guidelines to promote breast-feeding and to introduce solid foods at around age 6 months. However, the genetic and other causes of very rapid infancy weight gain, and the development of future safe interventions to prevent childhood overweight and obesity remains a key research theme of the Cambridge Baby Growth Study. Further details regarding both of these articles can be found on the Cambridge Baby Growth Study website.

PHYSICAL ACTIVITY IN CHILDREN AGED 4-5

In our previous newsletters we have featured a study measuring physical activity in 4-5 year old children. Many of the volunteers in this study so far have been siblings of those in the Baby Growth Study.

The study involves measuring physical activity in different ways, including with the Actiheart; a small and discreet heart rate and movement sensor (less than 10g). The study visit takes 2 hours in one of our exercise laboratories in either Cambridge or Ely and includes some treadmill walking. We also measure physical activity for two weeks after the visit, using the Actiheart monitor and daily urine samples.

Volunteers receive detailed feedback on their physical activity levels, energy expenditure and body composition from the study results.

We are nearing the end of the study but still need 10 more volunteers. If you have a son or daughter aged 4-5 and are interesting in finding out about their physical activity and body composition then please get in touch.

TIME FOR A CHANGE

Six years ago in January I started working on the Cambridge Baby Growth Study. The first mother I recruited is still on the study today with baby number three. After a few months Lesley Dark joined me. For a while we managed on our own before Amie, Karen and

Suzanne joined the team. For me it has been a privilege working with families who in the short time we are together have shared all sorts of personal information about their families, their joys and just about life in general. Visiting a baby perhaps within a few hours of their birth was always a pleasure. Then working with so many other professionals made for a diversity of people that I dealt with on a daily basis: Judith and Chris in Phlebotomy who have done blood tests too numerous to count, the staff at the ACCI who run such an amazing facility just for research purposes, Fiona who deals with the food diaries and latterly Ema who is performing abdominal ultrasounds on the babies. Lastly though, and as important to me as the mothers, were my immediate colleagues – Amie, Karen and Suzanne. All of us very different indeed but we worked well as a team despite the busyness of the project and the juggling we sometimes had to do to balance work and family life.

Three weeks ago I started as a full time student at Anglia Ruskin University where I am studying for a degree in Criminology and Sociology. The classes are large, I am one of the older students but everyone is so friendly. The work is piling in but with the support of friends and family I'll manage. It feels very strange still not to be cycling to Addenbrooke's but I'm enjoying that feeling. As my daughter finishes sixth form I hope to finish my degree. As to where the degree will lead me I have no idea but it is something I have wanted to do for a long time now. I'm sure Amie and co. will fill you in on how I am doing so all I need say now is a big Thank You and Goodbye.

Petra Tucker

A NEW MEASUREMENT OF BODY COMPOSITION IN THE BABY GROWTH STUDY!

In September, the study team started the measurement of abdominal fat depth using an ultrasound system. In adults, this particular measurement closely predicts the amount of fat stored in the abdomen. In the study, we are investigating if this new method can accurately assess abdominal fat in infants and young children, whether some children could have more abdominal fat than others at various ages, and if so why.

Our ultrasound system (pictured right) is exactly the same as that routinely used during pregnancy to visualize the baby.

This measure will also provide detailed information of the different fat compartments in the abdomen, known as: intra-abdominal fat (the fat deposited around the abdominal organs) and subcutaneous fat (the fat depot below the skin – what you can normally pinch!).

Research has shown that accumulation of these tissues might be related to metabolic complications such as Diabetes and Obesity. Therefore, the amount of fat inside the abdomen may be a valuable measure in predicting future health in children. However, current imaging methods, such as Magnetic Resonance Imaging (MRI) or Computer Tomography (CT), are often inappropriate in this age group due to exposure to radiation (CT) and due to lack of cooperation from the children (individuals are normally required to lie down still for long periods). Ultrasound is therefore a safe, quick, non-invasive and inexpensive procedure to employ in large population studies like our Baby Growth study.

In addition, this new method will inform us on body composition changes after birth (e.g. abdominal fat accumulation) and will also contribute to the overall study aims e.g. the identification of antenatal (pre birth) and postnatal (after birth) factors (e.g. birth weight, post birth weight gain, feeding patterns) related to postnatal body composition changes.

In this study, the abdominal ultrasound test involves applying a small amount of gel on the child's abdomen and placing a transducer gently around the level of the belly button. The actual scan takes only 5-10 minutes and it is performed by a trained sonographer at the three months, 12 months and 24 months visits. Up to October 23rd, the team has measured 65 children and it seems that the children are quite content with the new procedure.

If you have any other questions about the ultrasound scan, please do not hesitate to contact Dr Ken Ong or myself, Ema De Lucia Rolfe on **01223 748189**
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Please remember to inform us if any of your contact details have altered or would like the next newsletter electronically

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Thank you to all those who are taking part or have completed the Study