



gemini

health and development in twins

Newsletter

Issue 6, December 2013

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CONTACT

Gemini
Health Behaviour
Research Centre,
Department of
Epidemiology and
Public Health,
University College
London
1-19 Torrington
Place
LONDON, WC1E 6BT
UK
FREEPOST SE64 15

T: 020 7679 1263
F: 020 7679 8354
E: Gemini@ucl.ac.uk

Gemini Research in 2013

Welcome to the 6th Gemini newsletter

Gemini is now in its sixth year. Over the last few years we have collected lots of information about children's characteristics, such as their food likes and dislikes, appetite, sleep, activity, and growth. This has helped us understand children's development, so we can provide better advice to parents. 2013 has been a busy year; we have published findings in scientific journals, spoken at conferences, and received media publicity. This has all been made possible by the continued efforts of the Gemini families, and we are very grateful. We hope you enjoy reading about our recent findings in this newsletter.

Children's food likes and dislikes

You may remember completing a questionnaire about how much your twins like different types of foods when they were about 3 years old. We used your answers to identify whether food likes are driven mainly by early environmental experiences, or genes. We found that the environment plays a more important role in shaping children's liking of unhealthier snack foods such as chocolate and biscuits. But genetic and environmental factors contribute equally to children's liking of vegetables, fruit and protein foods (such as meat and fish).

Many of you will know how difficult it is to persuade your children to eat vegetables. These findings suggest that disliking vegetables is partly due to genes, but the environment also plays an important role.

Increasing children's vegetable liking

We were interested in finding out if it is possible to increase children's liking of vegetables. Some of you took part in this experiment, called Tiny Tastes. The research was extremely encouraging, and showed it is possible to increase children's liking and consumption of vegetables through perseverance. Alison Fildes led this research; and you can read about Tiny Tastes in more detail on page 3.

Appetite and weight gain in infancy

We have been very interested in the role that appetite plays in early life growth. We used the Gemini twins to study this relationship in a unique way, focusing on two features of appetite: satiety sensitivity (feelings of fullness) and food responsiveness (responses to food around us).

A number of the Gemini twins had quite different appetites at 3 months. In these families, the twin with lower satiety sensitivity and higher food responsiveness grew faster than the other twin; by 15 months there was nearly a 1 kilogram difference in their weights, suggesting a baby's appetite causes their growth to be slower or faster.

Clare Llewellyn, Gemini Study Coordinator



www.geministudy.co.uk

DIET DIARIES



Hayley Syrad is a PhD student studying eating behaviour and weight in Gemini

Thank you so much to all those families who completed 3-day diet diaries when your twins were 21 months old. You have helped to create the largest and most comprehensive set of dietary data for toddlers in the UK!

The diaries have all been coded by the Human Nutrition Unit at Cambridge University, and we have started to explore eating and diet in toddlers. We are particularly interested in how the frequency of eating and drinking, and the average calories consumed in meals, snacks and drinks, relate to appetite and weight gain.

Whilst studying the diet diaries we noticed that lots of the twins were still having formula milk and follow-on milk at 21 months. We therefore set out to explore the transition from formula milk to solids. We interviewed several families to help us understand more about the reasons why many toddlers are still having formula/follow-on milk at the same

time as solid foods. Thank you to all of you that took the time to speak to us about this. The results were so useful that we might be asking some of you to complete another diary next year. We will let you know what we have discovered soon. We hope to publish our diet diary research next year, so please keep an eye on the Gemini website (www.geministudy.co.uk). You can also view all of the other Gemini publications here.



Laura McDonald is a PhD student studying sleep and eating behaviour in Gemini

We have long known that sleep is very important for health. However, in children particularly, research suggests that those who don't get enough sleep at night are more likely to be overweight. We don't yet understand exactly why this is, but in Gemini we are using the wealth of information you have provided to help find out.

Using the diet diaries, we discovered that children who sleep the least each night consume the most calories throughout the day. This suggests that insufficient sleep can lead to weight gain in children, because they end up eating more.

The next question we want to answer is why insufficient sleep makes children consume more calories. We are therefore going to find out if children who sleep less consume more throughout the day (suggesting they are hungrier), or consume more during the extra hours they are awake (suggesting they eat more because they are awake for longer). We will keep you posted on our progress!

RESULTS OF THE TINY TASTES STUDY

Back when your twins were 3 or 4 years old we asked you to take part in a study called Tiny Tastes. Tiny Tastes is a game that encourages children to try new foods, and particularly to eat more vegetables, by making it fun. We promised to keep you up to date with the results and we are happy to report that the study was successful (see the graph on the right).

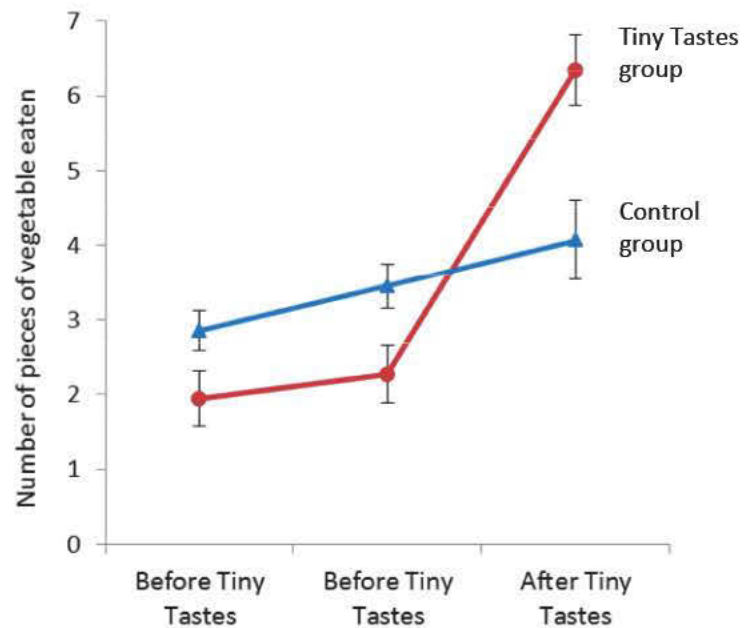
The scientific paper reporting the study's results was published in the Journal of the Academy of Nutrition and Dietetics in September this year. Tiny Tastes involves encouraging children to try a tiny piece of a disliked vegetable every day for two weeks. Most of the Gemini children who played the Tiny Tastes game showed a big improvement in the amount of the vegetable they would eat, and how much they liked it.

The Gemini mums who took part were also very positive about their experiences with Tiny Tastes, and many went on to use it again or recommended it to friends. In fact, the study was so successful that our colleagues at UCL and the charity Weight Concern wanted to make Tiny Tastes available to more families. The Tiny Tastes pack is now on sale through Weight Concern's website and you can also read more about Tiny Tastes, including an interview with a Gemini mum, when you visit:

www.weightconcern.org.uk

Alison Fildes is a PhD student studying food preferences

Tiny Tastes



The graph above shows how many more pieces of vegetable children were willing to eat after playing Tiny Tastes than before, compared to 'control' children who had not played the tasting game at that time.

THE FUTURE OF GEMINI

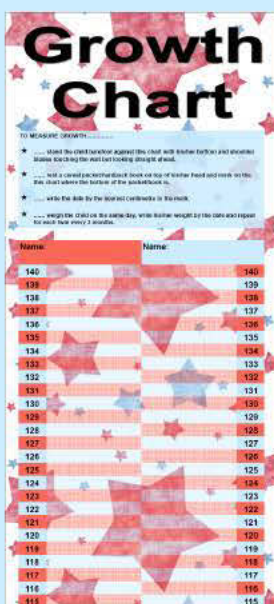


Twins: Sam and William

THE MICROBIOME—YOU WANT ME TO DO WHAT?!

Some of you may have heard about the human microbiome on the news recently. The microbiome is the community of bacteria (bugs) that live in our body. We actually have 10 times more microbial cells in our body than human cells, and the microbiome includes lots of different types of bacteria. Contrary to common perception that all bacteria are bad, research has revealed numerous health benefits of the microbiome. In fact, we can't survive without our bacterial buddies—they help us digest our food, make vitamins for us, and prevent us getting harmful infections, among many other benefits. But microbiomes differ from one person to another, and scientists are very interested in finding out what causes the differences. For example, could it be that our genes influence what bacteria live in us, or do environmental aspects such as our diet determine our microbiome? There is very little research into the microbiome in young children, and so we are going to look at this in Gemini next year. It is very easy to study the microbiome—all that is required is a small sample of poo! This can be collected with easy-to-use and hygienic equipment. It is then put into a sealed tube, and sent straight to a laboratory where scientists will find out which different types of bacteria are living in each child. We can then use all of the rich information collected in Gemini during the last 5 years to find out which early life factors might be important in influencing the microbiome.

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GROWTH REMINDER

We are continuing to collect height and weight information, as this will allow us to track important growth patterns, and see how the information we collected between birth and 5 years relates to your twins' on-going growth and development. So please do keep sending in your measurements. You can use our online form to submit measurements: www.geministudy.co.uk/gemweight or email them to us at: gemini@ucl.ac.uk.

Thank you all for your continued support and providing us with measurements as it is extremely important for our study. If you have found it hard to submit heights and weights every three months, please remember that providing any measurements at all is still very helpful for our study. If your Gemini weighing scales or height charts need to be replaced, please don't hesitate to contact us and we will happily send you some more.



SEASON'S GREETINGS!

