



Welcome to the LBC1921 newsletter for 2013. Our members send their best wishes to you at this time. We hope that you have had a good, healthy year. We shall share with you the many things that have been happening over the past 12 months in the LBC1921 study. It has been another productive year for the study with the latest wave of assessments, at age 92, nearly completed. You can read more about this later on in the newsletter.

Everything you read about in this newsletter is a result of your involvement. We hope you are interested to read more about what's been happening. If you wish to get in touch for any further information, our contact details can be found at the end of the newsletter. We are always delighted to hear from you. Thank you again for your continued participation and interest in the LBC1921 study. We hope that you are proud to be part of the longest cognitive ageing study in the world.

### **A major milestone in 2013**

Throughout 2013, we have been seeing many of you again at the clinic at the Western General. We have been

delighted by the response to this latest set of assessments and, by Christmas, we shall have seen about 60 of you. One of the interesting new things we asked you to do at this visit was to have a magnetic resonance brain scan. Almost all of you tolerated this scan extremely well despite its being very noisy. We are very grateful to those of you who took part. We can now add brain imaging data to the very rich cognitive and health data that you have provided us with between the ages of 79 and 92. This will provide a unique opportunity to examine brain health, and its association with cognitive and physical abilities across many years.



*LBC1921 participant, Mrs Elizabeth Fee attended the clinic in December for further assessment.*

We appreciate the time you have given to us over the years. As a reminder, the principal aim of the LBC1921 study is to find out how people maintain their health and thinking skills into old age. You have allowed us to investigate this important issue by answering our many, many questions! You can be very proud that, by being part of the study, you are

participating in the longest project of its kind: you completed the first test at 11 years old, and have then completed various tests at ages 79, 83, 87, 90...and now 92!

### **Another important milestone**

An important milestone this year was Age UK's publication of the first-ever comprehensive guide for healthcare professionals, care-givers and public policy-makers on the evidence-based needs of people age 80 and over. It is called *Improving Later Life:*

*Understanding the Oldest Old.* With chapters written by many world-leading experts, including our own Professors Ian Deary and John Starr, the book has attracted widespread interest with features in BBC Health News online, Channel 4 News, and the British Medical Journal. In the book, Professor Deary discusses the findings of the LBC studies and their impact on understanding changes in people's thinking skills over time. This guide can be accessed online at: [www.ageuk.org/oldest](http://www.ageuk.org/oldest)



**“Our ability to think and remember is at the core of what we are as individuals.”**

*Professor Ian J. Deary*

### **Latest results**

One of the biggest research developments of this year has been in epigenetics: how the environment switches our genes on and off. We test this, with a process called genome-wide methylation, in almost half a million places in your genome. In all of the

LBC1921 and LBC1936 waves we shall study how the environment has influenced gene methylation and how this in turn affects cognitive ageing and other aspects of ageing. Stay tuned for more information on this research next year.

2013 has been another productive year in terms of the scientific publications coming from the study. A couple of the main findings from this year are summarised below, followed by a selected list of the scientific papers from throughout 2013 at the end of the newsletter. Your data contributed to all of them and we hope you are interested to read about these latest results.

An interesting finding from this year was reported by Professor Deary who examined the stability and validity of individual differences in the same cognitive test administered to individuals in the LBC1921 study at age 11 years and again at 90. This is the Moray House Test that you sat at school and again at your last clinic visit around your 90th birthday. Professor Deary concluded that individual differences in general mental ability show moderately high stability from childhood to old age. This is the longest such study in the world.

Another paper this year presented the results of a study drawn from five British cohorts which included you, the LBC1921. This paper assessed the impact of physical capability on subsequent positive mental wellbeing, which is considered to be an essential component of healthy ageing. The study showed that higher levels of physical capability, such as grip strength and

walking, were consistently associated with higher subsequent levels of wellbeing and highlighted the importance of maintaining physical capability in later life.

Both of the above papers are in press but will be available shortly.

### **Spreading the word**

The LBC1921 team have been kept busy taking the latest LBC1921 results to meetings and events. At the end of January this year, Study Director Professor Ian Deary chaired a session called 'World Class Research Led from Lothian' at the NHS Lothian Annual Research Conference in Edinburgh.

In October, Ian also presented a Keynote lecture on reusing historical data from the Scottish Mental Surveys of 1932 and 1947 at the Scottish Government in Edinburgh.

In April, Ian spoke at the Festival of Neuroscience in London about the determinants of cognitive performance in healthy older people from the Lothian Birth Cohorts of 1921 and 1936. Famous Harvard University psychologist and best-selling author Steven Pinker visited Ian Deary in May this year to deliver the prestigious Gifford Lecture and to discuss the work on cognition arising from the Scottish Mental Surveys, including the Lothian Birth Cohorts of 1921 and 1936. Professor Pinker found the genetic and brain imaging research particularly interesting, and it was great to have him visit the department and to introduce him to your findings.



*Ian Deary (right) meets with Steven Pinker to discuss LBC research.*

### **Grand debate**

A very successful sell-out Grand Debate introduced by Ian Deary, with almost 500 people in attendance to see 'youth' Kyle Thornton (President of the Scottish Youth Parliament) and Dr Susan Shenkin, a member of the University's Centre for Cognitive Ageing and Cognitive Epidemiology (CCACE) argue that the 'Wisdom of Age Trumps the Speed of Youth'. Opposing was MP Sir Tam Dalyell and Dr Tom Russ, another member of CCACE. The full view of the debate is available to view online at: [http://youtu.be/\\_5naEFwmqYs?a](http://youtu.be/_5naEFwmqYs?a)



*Professor Ian Deary (centre) with broadcaster Sally Magnusson and MP Sir Tam Dalyell (right) at the MRC Centenary debate.*

## Excelsior ballroom

Do you remember the Excelsior Ballroom? Now one of the University of Edinburgh's Museums, the history of St Cecilia's Hall in the Cowgate is the subject of interest for our colleagues in the Centre for Research Collections. Very little information is available on what the hall was like between 1939 and 1958. They only have one photo from this period and are keen to hear if any LBC1921 members can share their stories. It is known that Miss Magdalene Cairns – the owner at the time – turned it into a *palais de danse*, with the former Concert Room being turned into the very popular Excelsior Ballroom. Decorated in Art Deco style, it is thought to have flourished during the 40s and 50s. If you have any memories or photos of attending the ballroom during this period, please contact Serena Fredrick who would be very grateful to hear from you:

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## Your portraits

We are still collaborating with the renowned artist Fionna Carlisle on an exciting project in which she is painting and drawing portraits of the LBC research team and participants. Fionna has visited four of you at home already on several occasions. She is building up her

portofolio of paintings and hopes to hold a public exhibition in Edinburgh sometime in the not too distant future. The feedback from these sessions has been very good and both parties have enjoyed them immensely. Fionna is keen to paint another two participants from the 1921 study. If you would like to sit for her, please get in touch with us.



*Ian Deary, Fionna Carlisle and LBC1921 participant, Ms Alexa Purves in front of her portrait.*

## Your film

A 10 minute film shot in the summer by the renowned filmmaker, Anne Milne, featured some participants from the LBC studies and discussed the unique nature of the Lothian Birth Cohort Studies. The film considered what it means to lead a healthy life and to still enjoy life at an advanced age. Participants were asked how it felt to be part of such a long term study and if it had affected how they live their life. The film entitled '**The Ageing Brain**' was finished in October and intended for distribution in and around

Scotland at various film festivals, some science festivals, and hopefully overseas as well so look out for it appearing near you!

### **And finally...**

Many of you will remember Dr Alan Gow who joined the LBC1921 team and saw a number of you at the clinic during the second wave of assessments. Alan left us in January to start a lectureship at Heriot-Watt University. We are delighted that he still continues to collaborate with the team.

We are thankful to have Dr Riccardo Marioni join the team this year, where he will be specialising in genetic and epigenetic influences on cognitive ageing.

We offer our congratulations to Dr Tom Booth and Dr René Möttus; both are taking up lectureships in the Department of Psychology at the University of Edinburgh by the end of 2013. They have been valued members of the team and prolific contributors to the ever-increasing list of publications. You may be interested to hear that the latest wave of LBC1921 testing was only possible due to funding from an MRC Centenary Award awarded to Dr Booth. We wish Dr Booth and Dr Möttus well in their new positions.

Finally, we bid a (temporary) goodbye to Dr Dominika Dykiert who has left us briefly to go on maternity leave after giving birth to a daughter in May. She will return next year and continue to analyse the latest data that you are providing.

### **Thank you!**

We could not continue the LBC1921 study without your participation, so our sincere thanks for your ongoing support.



**Merry Christmas, and best wishes for a happy New Year.**

Yours sincerely,

**Professors Ian J. Deary & John M. Starr**, Study Directors;  
**Mrs Alison Pattie**, Research Associate &  
**Mr Paul Redmond**, Data Manager.

Would you like to talk to us?

We are here:

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Do, please, let us know if there is any change to your address.

**[www.lothianbirthcohort.ed.ac.uk](http://www.lothianbirthcohort.ed.ac.uk)**

## Research publications

The full references for some of the most recent research publications from 2013 are given below. Please get in touch if you would like a copy of any of these articles.

- Benyamin, B., et al. (*in press*). Childhood intelligence is heritable, highly polygenic and associated with FNBP1L. *Molecular Psychiatry*.
- Cooper, R., et al. (*in press*). Physical capability and subsequent positive mental wellbeing in older people: findings from five HALCyon cohorts. *Age*.
- Deary, I.J., et al. (*in press*). The stability of intelligence from age 11 to age 90 years: the Lothian Birth Cohort 1921. *Psychological Science*.
- Gardner, M.P., et al. (2013). Telomere length and physical performance at older ages: an individual participant meta-analysis. *PLoS One*, 8, e69526.
- Hardy, R., et al. (2013). Body mass index, muscle strength and physical performance in older adults from eight cohort studies: the HALCyon programme. *PLoS One*, 8, e56483.
- Hope, D., et al. (2013). Symmetry of the face in old age reflects childhood social status. *Economics and Human Biology*, 11, 236-244.
- McIntosh, A. M., et al. (2013). Polygenic Risk for Schizophrenia predicts Cognitive Change between Childhood and Old Age. *Biological Psychiatry*, 73, 938-943.
- Porcu, E., et al. (2013). A Meta-Analysis of Thyroid-Related Traits reveals Novel Loci and Gender-Specific Differences in the Regulation of Thyroid Function. *PLoS Genetics*, 9, e1003266.
- Rietveld, C. A., et al. (2013). GWAS of 126,559 individuals identifies Genetic Variants associated with Educational Attainment. *Science*, 340, 1467-1471.