Stress & Health

Newsletter Summer 2014

30th year of the Stress and Health Study

It is hard to believe it is almost 30 years since we set up the Stress and Health study and you, a total of 10,308 men and women at that time all working in London-based Civil Service departments, agreed to be screened. Now we are just about to start the seventh clinical examination. At every screening so far, over 80% of those invited take part in the study. This makes our investigation extraordinary. High participation rates are absolutely crucial to the scientific validity of a longitudinal study. Very few studies have such a high rate of participation. Thank you, you have done us proud.

A couple of years ago we invited a small sample of you to discuss your motivations for continuing to be part of the study. Important reasons you gave were the desire to benefit others through contributing to medical research, a sense of loyalty and membership, a free comprehensive medical check every five years and, now as most of you have retired, an opportunity to catch up with former colleagues.

Each new clinical screening makes the Stress and Health study (or Whitehall II study, as it is known in the press and the scientific literature) more special. As you know, our original aim was to understand why those in the higher grades were often healthier than those lower in the grading structure and how the good health enjoyed by the best off can be extended to everyone. This theme continues to be important and timely. At the same time, the age range of our participants, now 65 to 85, implies that it is time for us to focus on what happens as we age; which factors from across our adult life promote health and well-being at older ages.
With two clinics in London and five clinics in the regions, plus home visits for those no longer able to travel, we look forward to seeing all of you at our 30 year clinical examination.

Professor Sir Michael Marmot **Professor Mika Kivimaki**

UCL

We're coming to you!

Following requests from many of you for the medical examination clinic to be nearer to home, we are pleased to announce that the next phase will be based at clinics throughout the country. Likely locations include London, Watford, Romford, Bristol, Birmingham, Manchester and Edinburgh. Each clinic will open for a set period during 2015-2016. We hope that this will make the journey to us more manageable.

We will write to you between Autumn 2014 and Summer 2016 to inform you of the clinic that is closest to you. Following our letter, our appointments team will contact you by telephone to arrange a suitable appointment for you to attend the clinic.

For those of you who are unable to make it to one of our clinics, for instance due to frailty, we will continue to offer home visits during 2015-2016.

At Phase 12 we will be assisted by a social research organisation, TNS BMRB, who have partnered with Medicals Direct Group (MDG) who manage a nationwide network of clinics and mobile nurses.

Further information about TNS BMRB and MDG can be found on their websites:

- www.tns-bmrb.co.uk
- http://www.wearemdg.com

As always, we will of course continue to safeguard any information that you give us.

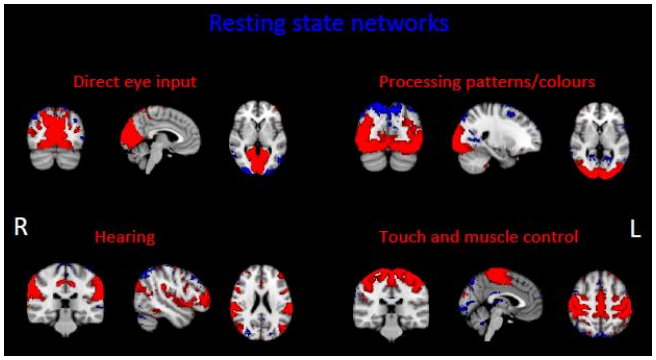
As ever, we look forward to seeing you at the next medical examination!

Whitehall Imaging Oxford

800 study members to have a brain scan in Oxford

Together with researchers at the University of Oxford, we are trying to understand what happens to the human brain as it ages, in particular changes in thinking, memory, and mood that are often seen in older age. We also want to know why these changes are more prominent in some people than others, and why some people stay well throughout the whole of their lives while others don't. In this project we are using a range of measures, from simple paper and pencil tests to complex measures like magnetic resonance imaging (MRI), which uses a magnetic field and radio waves to provide detailed images of the brain. MRI is used routinely in clinical practice to acquire images of various body parts in a safe, non-invasive way. Here you can see a composite picture showing the networks within the brain working together on a particular task. Red represents areas of high activity and blue areas of lower activity. The images show the dramatic differences in brain activity pattern linked with different tasks. The research uses MRI measurements of position, size and activity to test hypotheses about relationships of brain structure and function to cognitive and mental health.

Over a period of four years, we hope that 800 participants from the Stress and Health study will have a MRI scan in Oxford. So far, 400 of you have attended and found it to be an enjoyable experience and an exciting opportunity to learn about the latest brain imaging techniques. If you are invited, we hope to see you in Oxford in the very near future!



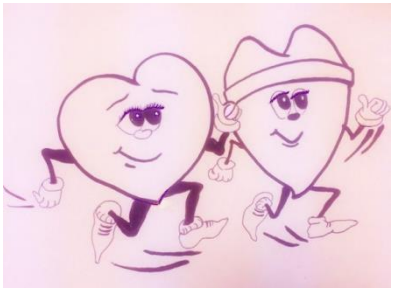
Research news from the Stress and Health Study

A good diet now; a healthy heart later.

Researchers from the Stress and Health study have looked at whether sticking to a healthy diet might help someone live longer in good health. The findings showed those with a healthy balanced diet reduced their risk of heart and circulatory disease, regardless of other health behaviours such as smoking. On the other hand, eating a diet consisting of fried, processed and sweet foods and red meat reduced the chances of healthy ageing. So remember, eating a balanced diet can not only help us maintain our health now, but also as we get older. *American Journal of Medicine 2013 May;126(5):411-419*

Heart protection and healthy ageing

The British Heart Foundation (BHF) has provided vital grant support for our research since 1992. We are delighted that this funding was renewed in 2013 for another four years. BHF will support us to carry out research on the links between heart protection and healthy ageing. The Stress and Health study has made important contribution to the evidence that physical activity and other aspects of healthy lifestyle, together with treatment of risk factors for heart attack such as raised blood pressure, promote healthy ageing. Healthy ageing is ever more important as heart attack rates continue to fall and life expectancy continues to increase. We have formed a new collaboration with leading public health researchers at Liverpool University to identify how best this novel understanding can be applied to the UK population, with the aims of maximising active healthy living and minimising the need for daily care in older age groups. It is likely that combining a heart protective lifestyle and if necessary, medical treatment for certain risk factors, will have dramatic benefits.

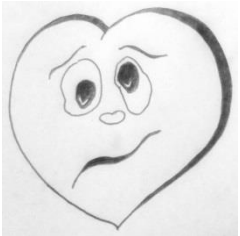


Activity is a plus. Sitting may not be a minus.

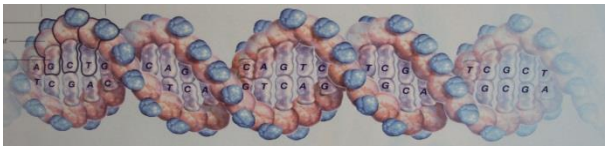
You don't necessarily have to go to the gym: moderate activity such as gardening and brisk walks reduce blood levels of markers of heart risk. Our study of data over ten years has shown that just two and a half hours of moderate physical activity per week is what it takes to get inflammatory markers into the low-risk group. Confirmation of these encouraging findings is needed to show that the benefit of physical activity is also seen in the pattern of new heart problems. *Circulation 2012;126:928-33*.

In another recent study, we tested the idea that physical *inactivity*, measured as time spent sitting, may be an independent risk factor for obesity. While more research is needed, this link was not confirmed in our analysis. *American Journal of Preventive Medicine 2013;44:132-38*.

Perception of the effect of stress on health is linked to risk of heart attack



Previous analyses from Whitehall II and other studies have shown that stress might have an adverse effect on people's risk of a heart attack. In this project, Whitehall II researchers have, for the first time, investigated how people's *perceptions* of stress might affect their health, in particular their risk of developing heart disease. We found that study members who *believe* stress affected their health "a lot or extremely" had double the risk of a heart attack compared to people who didn't believe stress was important in this context. After taking other biological, behavioural or psychological risk factors into account, there was still a 50% greater risk of experiencing a heart attack in those who believed stress affected their health. *European Heart Journal 2013 Sep;34(34):2697-705*



Progress in understanding the genetics of obesity

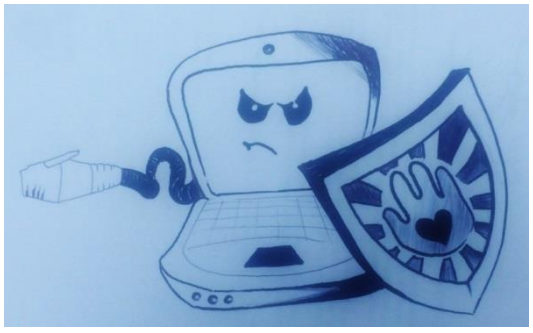
With obesity being common and also a major risk factor for cardiovascular disease and some cancers, it is important to understand its causes.

In addition to environmental determinants, some genes are thought to increase the risk of weight gain. Genetic studies require very large numbers of people for the results to be conclusive, so the Stress and Health study researchers have teamed up with colleagues at The Children's Hospital of Philadelphia in pooling around 50 studies. This consortium found three novel 'signals' from specific genes were associated with obesity in adults. As is common in this kind of research, the individual effects of each gene are small, however, these results provide important clues to the biology of adult obesity. *Human Molecular Genetics. 2013 Jan 1;22(1):184-201. doi: 10.1093/hmg/dds396. Epub 2012 Sep 21.*

Heavy drinking and cognitive function

It is known that heavy alcohol consumption increases the risk of several chronic diseases. However, less research exists exploring its effect on cognitive function. We found that heavy drinking during midlife was associated with decline in cognitive functioning over the next decade, as measured by tests of memory and reasoning. Men who said they drank more than four units of alcohol/day (e.g. two pints of beer a day) on average experienced memory loss similar to that typically observed in respondents six years older than them. *Neurology 2014 Jan 28;82(4):332-9*

We are taking care of your data



We have all heard stories of personal data being lost or not securely handled, thus leaving them vulnerable to misuse by unknown third parties. You can put your mind at rest in relation to your data.

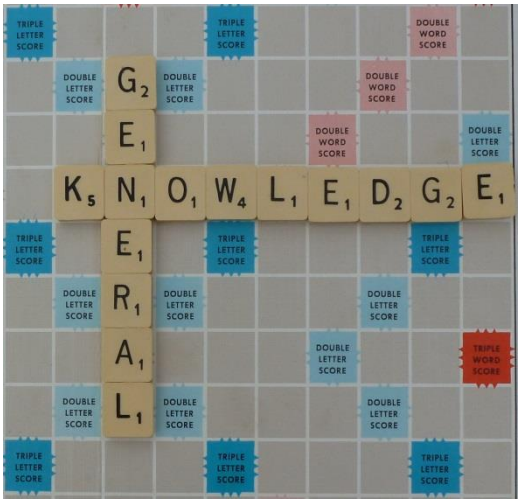
Our safeguards and security policies ensure appropriate use of your information. At every stage of the research process our measures fully conform to the UK Data Protection Act and the NHS Information Governance requirements.

Your personal data, both in paper and electronic form, are stored securely in our restricted-access computer network and lockable cabinets. All personal information we hold about you is exclusively handled by the Stress and Health administrative team and is used only to contact you or send clinical results. Biological samples are also securely stored and only the study clinical team are allowed to access them.

By the time your questionnaire and clinical data reach our researchers they have been anonymised and therefore cannot be linked back to you as an individual. Anonymisation is achieved by assigning each of you a unique identifier and by removing all your personal information (e.g. name, NHS number, contact details, date of birth, GP details, etc) from the databases used by the researchers.

We have implemented a data sharing policy to make the anonymised research data available to the scientific community. However, our collaborators must be scientists with an established record, who will conduct high quality, ethical research. The research files provided to these external collaborators are tailored to their project and are securely transferred for their use only.

The "what" and "why" of General Knowledge



The Stress and Health study was established to examine the social determinants of health by gathering a wide range of social, behavioural and clinical data using self-completion questionnaires and a medical examination. Some of the tests we use are routinely administered by GPs and hospitals, and other tests are only used as part of research studies. These include a series of cognitive tests referred to as the "General Knowledge" questions.

Cognitive function refers to processes through which information is obtained, transformed, stored, retrieved and used. It is known to decline with age, but not all individuals decline at the same rate. We hope that these data, collected with your important contribution, will allow us to identify the determinants of age-related cognitive decline. We will use them to identify possible protective and modifiable risk factors and improve cognitive ageing outcomes. However, the clinical implications of these tests have not yet been established and they are not designed to reveal changes in *individual* level cognitive functioning over time. Therefore, we do not routinely provide you with the results for these tests, as we might do for others, such as blood pressure.

Altruism and participation in longitudinal health research? Interview insights.

Research that follows individuals over time makes an extremely vital contribution to medical science and the ageing process. If participants leave, the value of the study findings is diminished.

We interviewed some of you in the context of focus groups to examine the motivation behind the valuable contribution you have all made to the Stress and Health study over the years. Many of you said how much you enjoyed coming to the clinic and the caring approach of our staff. There were also many positive comments about the health screening information you received from us, as well as the sense of loyalty and membership associated with being part of the study. We love getting feedback from you and do our best to accommodate your views. Keep your views coming…

For practical purposes, please do carry on letting us know if you change your address! *Social Science and Medicine 2012 75, (12) 2345-2352*

Stress and Health Study Website

Our Stress and Health study (also known as the Whitehall II Study) website covers the history of the Whitehall studies, current research projects and recent findings and details all our publications. Please visit the site for further details www.ucl.ac.uk/whitehallII

Don't look now!

Answers below for word search on page 6

Clinic, Computer, Consent, Couch, Cuff,
Doctor, Electrocardiogram, Examination,
General Knowledge, Height, Lung Function,
Pencil, Pulse, Sample, Sandwich, Stethoscope,
Thermometer, Water, Weighing scales

You asked us...

Why LDL and HDL results do not add up to total cholesterol

Cholesterol is carried in the blood stream in the form of 'lipoprotein' particles. There are five major types of lipoproteins including LDL (Low Density Lipoprotein) and HDL (High Density Lipoprotein). Measured total cholesterol includes the cholesterol from all lipoproteins. This is why LDL and HDL results do not add up to total cholesterol. LDL and HDL are measured and reported because they are important for assessment of future risk of cardiovascular diseases.

Why must I not speak to you during the BP test?

A blood pressure measurement includes both systolic and diastolic values. Neither of these is constant, having huge beat-to-beat variation. There are many factors that can cause heart rate to change immediately, such as stress (even the circumstances of the measurement), physical activity, and also speaking or laughing. This is why we ask you to sit in a relaxed position; not speaking, eating, or doing physical exercise, for at least 5-10 minutes before we take the first reading. We take two or three blood pressure measurements to allow us to calculate a reliable measure of your blood pressure.

I was told that my hair is too short and you can't take from my arm instead.

There are several reasons why we can only take hair from your head for this test. When hair from the head is used as a sample, we can take it from just below the cranial bone. Previous research has found less variation in cortisol concentration in the hair found here. Although cortisol is also found in the hair which grows on your arms or legs, it is regulated differently in these locations and so we would not be able to compare your sample with others. We also take the sample from your head because the hair there has quite a predictable growth rate (about 1cm/month) and so we can assume that the hair closer to your scalp approximates the last month's cortisol production.

Proxy respondents: In the most recent phase of data collection, some of you reported filling in the questionnaire with the help of a relative or a friend. Thank you for letting us know. If you wish, you can continue to do so in future phases of data collection. While we of course encourage you to attend our research clinic, or take up our offer of a home-based assessment, if poor health prevents you from doing so at the next phase we would be grateful if a close relative or friend could provide us with some basic information about your health.

Keep in touch…

Now more than ever, we want you to stay in touch, particularly if you have retired, or have moved out of the area, even if you live, or are about to move, abroad. With this newsletter we enclose a change of address card, which will allow you to fill in all your up-to-date details. If there's no card in your pack, or if you prefer simply to ring us, please phone **0800 068 1562** (freephone from landline) or e-mail **s&h.study@public-health.ucl.ac.uk**

Just for fun…

Find 20 words related to Stress and Health in the grid – horizontal, vertical or diagonal. Answers on page 5.

G	O	M	L	U	N	G	F	U	N	C	T	I	O	N	I	E
H	E	I	G	H	T	O	C	O	U	C	H	D	W	C	X	L
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E	A	D	A	R	W	Q	U	I	M	U	M	B	A	L	I	T
I	T	X	S	W	A	T	E	R	C	D	O	C	T	O	R	R
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S	A	N	D	W	I	C	H	I	D	C	U	F	F	I	N	M

Please send or email your questions, comments or change of address to:

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