

## Fast Food Outlets and **Type 2 Diabetes**

**How close you are to fast-food outlets may be linked to your risk of Type-2 diabetes and obesity a new study led by the University of Leicester has discovered. The research found that there was a higher number of fast-food outlets within 500 metres of inner-city neighbourhoods described as non-white as well as in socially deprived areas.**

The researchers warn that their findings, based on a study of over 10,000 people, have important implications for diabetes prevention and for those granting planning permission for fast-food outlets.

“Our study suggests that for every additional two outlets per neighbourhood, we would expect one additional diabetes case, assuming a causal relationship between the fast-food outlet and diabetes,” the study authors write in the study published in Public Health Nutrition.

The research was carried out by a team from the University of Leicester’s Diabetes Research Centre, Department of Health Sciences and Department of Geography in collaboration with the Leicester Diabetes Centre based at Leicester General Hospital. The Leicester Diabetes Centre is an alliance between the University Hospitals of Leicester NHS Trust (Leicester’s Hospitals), the University of Leicester, the local community and Primary Care.

Professor Melanie Davies and Professor Kamlesh Khunti, Co-Directors of the Department have been conducting one of

the largest screening studies with south Asian patients. The data from this study has also helped with recommendations for the NHS Health Checks Programme.

Professor Kamlesh Khunti, Professor of Primary Care Diabetes & Vascular Medicine at the University of Leicester, said: “In a multi-ethnic region of the UK, individuals had on average two fast-food outlets within 500m of their home.

“This number differed substantially by key demographics, including ethnicity; people of non-white ethnicity had more than twice the number of fast-food outlets in their neighbourhood compared with white Europeans. We found that the number of fast-food outlets in a person’s neighbourhood was associated with an increased risk of screen-detected type 2 diabetes and obesity.

“We found a much higher number of fast food outlets in more deprived areas where a higher number of black and minority ethnic populations resided. This in turn was associated with higher prevalence of obesity and diabetes. The results are quite alarming and have major implications for public health interventions to limit the number of fast food outlets in more deprived areas.”

Dr Patrice Carter, the lead author with Dr Danielle Bodicoat stated “This work has several notable strengths; namely, it is the first

study, to our knowledge, to look at the association between the number of neighbourhood fast-food outlets and type 2 diabetes in a multi-ethnic population. Although it is not possible to infer causal effect, our study found that plausible causal mechanisms exist.

“The observed association between the number of fast-food outlets with obesity and type 2 diabetes does not come as a surprise; fast-food is high in total fat, trans-fatty acids and sodium, portion sizes have increased two to fivefold over the last 50 years and a single fast-food meal provides approximately 5860 kJ (1400 kcal). Furthermore, fast-food outlets often provide sugar-rich drinks.”

The study team add: “Our research is cross sectional by design, so results should be interpreted with caution and further research is required.”

The research was supported by the National Institute for Health Research Collaboration for Leadership in Applied Health Research and Care East Midlands (NIHR CLAHRC EM), the Leicester Clinical Trials Unit and the NIHR Leicester–Loughborough Diet, Lifestyle and Physical Activity Biomedical Research Unit, which is a partnership between University Hospitals of Leicester NHS Trust, Loughborough University and the University of Leicester.

## Would you like to take part in a **research project?**

**We’re conducting a study to understand how the fat gene can influence our health and body shape.**

We’re looking for volunteers to visit our lab for just under one hour to undergo measurements of body composition, DNA and diet and lifestyle factors. Volunteers must have the following characteristics:

- Male from European descent
- Non-smoking
- 18-35 years of age
- Minimal weight change (< 3 kg) in last 3 months
- Not taking any medication

Following this visit, volunteers may or may not be invited back to see how a bout of exercise can influence gut hormones and health risk factors. This will specifically comprise of three visits to

our lab: a familiarisation trial, an exercise trial and a control trial. The familiarisation trial will assess fitness levels and familiarize individuals to measures of the study. The exercise and control trials are main trials where participants visit the lab for a day. On the exercise trial, participants perform a one hour run; on the control trial, participants will rest. Throughout the day, participants will be provided meals while we take intermittent samples of blood, measures of appetite and food intake. Participants will be paid should they are invited back.

All volunteers will receive:

- Personalized information on genetic results
- Feedback on their body fat percentage and body composition

If you are interested please contact Alison Stanley on 01509 226445 or a.stanley@lboro.ac.uk



 **University of Leicester**

University Hospitals of Leicester   
NHS Trust

### Public **Lecture Series**

Join us at Loughborough University for one (or all) of our public lectures.

**Exercise for Patients with Kidney Disease**  
May 12th 2015

**How safe is blood transfusion?**  
June 16th 2015

**Exercise: Living Longer and Dying Quicker**  
September 8th 2015

**Lifestyle and Liver Disease**  
October 20th 2015

**Obesity: Do Your Genes Fit?**  
November 10th 2015

The lectures will be delivered in: Lecture Theatre, HE0.10, Clyde Williams Building, Loughborough University, LE11 3TU

Full directions are available on: [www.lboro.ac.uk/about/findus.html](http://www.lboro.ac.uk/about/findus.html)

Refreshments are available from 6:30pm. Each lecture will start at 6:45pm and anticipated finish time will be between 8:30-9:00pm.

To book your place please email: [a.stanley@lboro.ac.uk](mailto:a.stanley@lboro.ac.uk) or telephone 01509 226445

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# INform

## Photography Competition

**A new competition run by two cutting-edge medical research units in Leicester is challenging local photographers to bring life-changing science into the community.**

The initiative, led by the University of Leicester, aims to showcase local talent and get people thinking about the role of science generally in society and specifically in healthcare.

It has been organised by the National Institute of Health Research Biomedical Research Units at the universities of Leicester and Loughborough and offers the chance for successful applicants to have their work exhibited at the Leicester People’s Photographic Gallery. There is

also a special prize for the photograph that receives the People’s Award, voted for by donors and alumni of the University of Leicester.

The competition challenges budding shutterbugs to submit images by 14th May relating to the theme of ‘Science: Hearts, Lungs and Fitness’ to encourage more people to get involved with science research locally.

Rebecca Pritchard, who is running in the event, said: “We’re really keen to get people thinking about science. The changes in healthcare over the last fifty years driven by science have had immense impact on society and every individual living in the UK.”

The Biomedical Research Units are based in local hospitals and universities and work to find out more about the genetics, treatments and prevention of ill-health.

Rebecca continued: “We want people living locally to start feeling like they can get involved in science and that it’s something happening in the community, not just in labs and research units. This is a project to find out how people identify with health research and what it means to them, and to bring artists and scientists in the community into a shared space.”

Those who wish to apply should send their images to [rp237@le.ac.uk](mailto:rp237@le.ac.uk) before Saturday 11th May for review and selection, with successful applicants informed by 21st May whether their images have been selected for the showcase.

Images must be related in some way to the topic of ‘Science: Hearts, Lungs and Fitness’. Submission is free although artists will have to pay to have their work printed and mounted on a foam board if selected for the exhibition, at no bigger than A3 size. Printed and mounted images can be delivered to either the Leicester People’s Photographic Gallery or the Cardiovascular Research Centre at Glenfield Hospital.

Those artists whose work is selected will have their images exhibited at the Leicester People’s Photographic Gallery on Welford Place from 29th June with one lucky photographer being selected to win the People’s Award voted for by donors and alumni at the Preview Evening, and will have their work transformed into a canvas.



## Working with Patients: Setting Up Research Into Reversing Diabetes

Diabetes is a long-term condition that affects the body's ability to process sugar or glucose. It can have serious health consequences. People with diabetes are unable to stop the level of glucose in their blood from getting too high because a hormone called insulin is either absent from their body, or not working properly. The condition is usually managed through diet and exercise, and people with diabetes can lead full, healthy and active lives, but have to look after themselves very carefully. About 1 in 14 people have diabetes and by 2030 it is estimated that 1 in 10 people will have the condition. Many people who have diabetes will experience nerve damage which can lead to amputations. It is a serious illness.

Much research to date has focussed on managing diabetes to avoid complications like nerve damage and blindness, but new research is looking at whether we can reverse diabetes.

The research will compare effectiveness of regular exercise, a very low calorie diet and standard care. People who sign up for the research will get allocated exercise, diet or standard care by chance. The exercise will comprise 3 supervised sessions a week for 12 weeks. The very low calorie diet will use a complete meal replacement diet (shakes and soups) plus non-starchy vegetables to keep intake to just 600 calories a day.



The research is inevitably hard on the participants and asks a lot of them, so we invited people on our mailing list to come in and talk to us about how we can make the process as easy as possible, what support would be needed and what changes we should make to the research.

The groups told us that every patient would require different support, so we should make a range of support available (including telephone calls, drop in sessions and peer support) but allow the patient to choose what would work for them. The groups suggested we should make it possible for family members to get involved as they would be an important source of support, and provide non-starchy vegetable recipe cards. The groups both felt free access to the meal replacement diet was an excellent incentive.

When we discussed exercise the groups told us that getting to the General Hospital three times a week would be tricky and asked if we could let people exercise independently. We agreed we could after they had been initially trained up in a routine and also agreed we could buy them a gym membership for the duration of the study. The group agreed that different types of exercise like rowing

and treadmill and also some resistance (weights) exercise would be best.

During the discussions patients who had previously done meal replacement diets said that the end of the diet and transition to lifelong healthy eating is challenging and that support is usually provided by the meal replacement provider. The wellbeing of research participants is paramount, and this identified a risk in our research we had not thought of, so we agreed to support people from both the exercise and diet groups with their transition and are discussing how best to do this with local GPs.

The research will now be submitted to funders who will decide if they are going to invest in the project. The patients, and their friends and family who helped us write the research have given us a big advantage because we know our research is designed to be successful and reflects patient needs properly. This means we are more likely to get the research project funded and we owe a huge thank you to the patients who helped us.

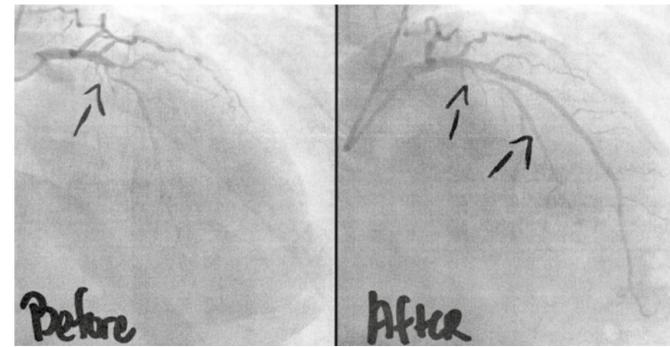
If you'd like to help design and set up new research projects, all the Biomedical Research Units have patient and public groups. Contact Rebecca Pritchard on 0116 204 4737 or rp237@le.ac.uk.

## Results from CvLPRIT study inform Clinical Practice

**Results from the CvLPRIT study, led by the NIHR Cardiovascular BRU's Professor Tony Gershlick are already influencing clinical practice.**

In an unusual move, the American College of Cardiology (ACC) has announced that it is withdrawing one of its Choosing Wisely recommendations, following the announcement of the study's results, which were presented at the European Society of Cardiology in August 2014.

When a patient has a heart attack, a blood vessel supplying the heart muscle is blocked. This is treated by clearing the blockage using a balloon on a wire (a process called Percutaneous Coronary Intervention). Often when doctors take images of the heart to locate the blood vessel causing the problem, they find several are blocked or partially blocked. Guidelines stated that the blood vessel causing the heart attack should be cleared but not the others, because we didn't know whether the benefits of clearing the other blood vessels outweighed the risks. The CvLPRIT study compared patients having all their blocked vessels cleared with patients having only the



blood vessel causing damage cleared and found that the patients who had all the blood vessels cleared had fewer heart problems during the next year. Death rates were twice as high in the patients who had only the blood vessel causing the damage to the heart muscle treated. They may also be more likely to have a heart attack or heart failure but more research is required to prove this. Importantly, patients who had all their blocked blood vessels cleared had no more complications than those only having the one blood vessel cleared.

"Science is not static but rather constantly evolving," ACC President Dr Patrick T O'Gara said. "As such, one of the ACC's primary roles is to stay abreast of this evolution and provide cardiovascular professionals and patients with the most up-to-date information on which to base decisions about the most appropriate and necessary treatment. The newest findings regarding coronary revascularization [clearing of blood vessels] are great examples of science on the move, and we are responding accordingly."

## Improve it

A study at the Cardiovascular BRU has been looking at new medicines in patients with acute coronary syndrome, a severe condition in which blood flow to the heart muscle is decreased causing heart muscle to stop working properly. Acute coronary syndrome often leads to heart attack. The research looked at the clinical benefit and safety of a medicine called Vytorin which combines Ezetimibe and Simvastatin, compared to just Simvastatin in high-risk patients admitted to the hospital with acute

coronary syndrome. Previous research has shown that statins, like Simvastatin, in high doses reduce illness, death and heart problems. The other part of the combined medicine, the Ezetimibe, lowers cholesterol. The research results were promising showing that the combined tablet did successfully reduce cholesterol by 20% and that people taking the combined medicine had fewer heart problem afterwards. Fourteen patients were recruited at Leicester, and the research was carried out in several UK hospitals.



## DAPT Study

Lots of people have a stent. It is a scaffold placed in the blood vessel, usually after a blockage has been removed, to keep the structure strong. Rarely, blood cells can stick to the stent and form a clot which can get loose and cause a heart attack or stroke. This is called stent thrombosis. It is rare, and the longer you have had a stent the less risk there is. Usually patients who have a stent have medicines to prevent this happening. They take anti-platelet medicines, which reduce clotting, usually for a year. However, we know that a clot can form after a year. The DAPT study explored whether we should keep using anti-platelet medicines for longer than a year and was designed in response to a request from the American organisation who regulate US medicines



(the Food and Drug Administration). The research found that continuing the anti-platelet medicines for longer than a year reduced the risk of stent thrombosis and blockages in the blood vessel

where the stent was placed and more widely. However, the side effects of the medicines include an increased risk of bleeding because they prevent clotting. This is rarely severe or life threatening.

**Leicester-Loughborough  
Diet, Lifestyle and Physical Activity  
Biomedical Research Unit**

**NHS  
National Institute for  
Health Research**

## Looking for a healthier future?

### Why not take part in our study?

We are looking into the relationship between the amount of exercise we do and how hungry it makes us feel.

If you are aged 18-65 contact us for more information on how you can take part!

**Jessica Douglas**, PhD Student e: J.Douglas@lboro.ac.uk t: 01509 226351

**Alison Stanley**, Research Administrator e: A.Stanley@lboro.ac.uk t: 01509 226445

