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New research to investigate brain responsiveness to food and the link with type 2 diabetes

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Researchers from the University of Birmingham are set to monitor brain reactions when exposed to images of food in a study which will provide an insight into the difficulties of weight and diet control faced by young diabetes patients. Brain reactions to pictures of different types of food will be compared between teenagers who are a healthy weight, teenagers who are obese, and teenagers who have type 2 diabetes.

Obesity is one of the most serious public health problems of the twenty-first century and carries increased risk of diabetes, which can be managed by eating the right kinds of foods. Past research shows maintaining weight loss depends upon brain responses to food, with increased activity when exposed to tempting food triggers.

The study to be carried out by the School of Psychology at the University of Birmingham, in collaboration with Birmingham Children's Hospital, is seeking to establish if there are differences in brain reactions between teenagers who are a healthy weight, obese and who have type 2 diabetes, when shown images of food.

Project researcher, Magda Chechlacz commented:

"Our research is being conducted in response to alarming figures showing an increased prevalence of childhood and adolescent obesity in the UK which is associated with high risk of developing early onset of type 2 diabetes.

"We are investigating how the brains of young people react to food images and how these brain responses change depending on what type of food young people prefer to eat. We hope that our research will help improve understanding of why some young people struggle with overeating and make poor food choices, therefore putting themselves at risk of developing obesity and type 2 diabetes."

Volunteers aged between 13 and 18 years old, who are a healthy weight, obese, or who have type 2 diabetes are needed to take part in the study. To take part, the volunteers will be asked to complete an eating habit and diabetes management questionnaire, provide a blood sample after consuming a sugary drink and have their height and weight measured. Brain activity will be monitored during an MRI scan whilst exposed to images of foods and then completion of a survey about the food shown will be required. All volunteers will be able to take home an image of their brain after they have participated.

Magda adds:

"We expect to further our understanding of why young people suffering from type 2 diabetes resulting from obesity sometimes find it hard to follow a healthy diet, lose weight, and control their diabetes by finding out if young people who have type 2 diabetes and young people without diabetes prefer one kind of food over another based on their brain activity."

The study will provide increased knowledge for health educators and professionals who advise people with diabetes about their diets. A parent or guardian chaperone will also be required to complete a questionnaire about their child's eating habits and breakfast and lunch will be provided for all volunteers, with travel costs reimbursed.

The research is funded by the European Foundation for the Study of Diabetes (EFSD) in partnership with Novo Nordisk and has been approved by the Coventry NHS Research Ethics Committee.

For more information, please contact lead researchers Professor Timothy Barrett via 0121 333 9267 or **t.g.barrett@bham.ac.uk (mailto:t.g.barrett@bham.ac.uk)** or Dr Arie Nouwen via 0121 414 7203 or **a.nouwen@bham.ac.uk (mailto:a.nouwen@bham.ac.uk)**

Note to Newsdesks

• The researchers are seeking to recruit members of the public for this study aged between 13-18 years old

• The research team are particularly keen to recruit participants from the South Asian or African-Caribbean as these populations experience a high prevalence and risk of type 2 diabetes and are historically underrepresented in research

For more media information, please contact Amy Cory, University of Birmingham Press Office via 0121 414 6029 or **a.cory@bham.ac.uk (mailto:a.cory@bham.ac.uk)** .

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