Press Release

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New evidence to support the importance of psychosocial factors in determining type 2 diabetes risk

The research findings 'Understanding the complexity of glycaemic health – Systematic bio-psychosocial modelling of fasting glucose in middle-age adults; a DynaHEALTH study' have recently been published in the International Journal of Obesity. They form a major output of the DynaHEALTH study, a large-scale European funded research collaboration, providing evidence to support the importance of biopsychosocial factors in adult glycaemic health and exemplifies an evidence-based approach to modelling bio-psychosocial relationships and the associated type 2 diabetes risks.

Maintaining a healthy blood glucose in middle age and therefore preventing an individual's risk of type 2 diabetes (T2D) is complicated by multidimensional interplays between biological and psychosocial factors. The current research explored the bio-psychosocial predictors of blood glucose in mid-life. Analysis was focused on four factors: socioeconomic (basic and further education, occupation and household income), metabolic (adiposity, insulin resistance, hypertension, dyslipidaemia), psychosocial (marital status, home ownership, employment status, depression, sleep quality and life satisfaction) and blood pressure status. The importance of psychosocial factors, in addition to established and robust metabolic risk factors, was highlighted in this paper published by the DynaHEALTH consortium. The combination of metabolic and psychosocial factors at 31 years of age provided the best prediction of fasting glucose 15 years later, at the age of 46. Fasting glucose generally follows a relatively stable linear upward trajectory with age and has been observed only to steeply increase up to 3 years before the onset of diabetes. Preserving a stable and low fasting glucose is the key to substantially delay diabetes onset.

Lead author Estelle Lowry explains, "This study is the first step in developing a model, which may be used clinically to identify those with an increased risk of developing poor glycaemic health and T2D. Early identification of these individuals can provide an opportunity for healthy ageing by implementing targeted interventions and policy recommendations for personalised prevention. This is also the first step towards providing evidence to support the novel concept on which the DynaHEALTH project is based."

By replicating this combined data-driven approach in other studies, the main aim and underpinning concept of DynaHEALTH is to create risk scores during the life course to reflect the dynamic trajectory of deteriorating glycaemic control. Ultimately this will lead to the

translation of a theoretical model into a practical framework that may be used to personalise preventative healthcare.

The article in the International Journal of Obesity (2018) is " Understanding the complexity of glycaemic health – Systematic bio-psychosocial modelling of fasting glucose in middle-age adults; a DynaHEALTH study," by Estelle Lowry, Sylvain Sebert, Marjo-Riitta Järvelin et al. (doi:10.1038/s41366-018-0175-1).

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Notes to editors:

See more at: www.dynahealth.eu

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About DynaHEALTH

Partners:

- University of Oulu, Centre for Life Course Health Research and the Northern Finland Cohort Centre, Finland (Coordinator);
- Abbott, Spain;
- Academic Medical Centre, Amsterdam, the Netherlands;
- Beta Technology Ltd, UK;
- Brunel University London, UK;
- Erasmus University Medical Centre Rotterdam, the Netherlands;
- Imperial College London, UK;
- Institute of Diabetes Research, Helmholtz Zentrum München, Germany;
- Center for Clinical Research and Disease Prevention, Bispebjerg and Frederiksberg Hospital, The Capital Region, Copenhagen, Denmark;
- Laboratorios Ordesa, Spain;
- Ludwig-Maximilans-University of Munich, Germany;
- The Folkhälsan Research Centre, Finland;
- University College London, UK;
- University of Granada, Spain.

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About Horizon 2020

Europe has a 10-year growth and jobs strategy called **Europe 2020**. It was launched in 2010 to create the conditions for smart, sustainable and inclusive growth. Five headline targets have been agreed for the European Union to achieve by the end of 2020, covering employment, research and development, climate/energy, education, and social inclusion and poverty reduction.

Europe has identified new engines to boost growth and jobs; these are addressed by seven **'flagship initiatives'**. Within each initiative both the European Union and national authorities have to coordinate their efforts, so they are mutually reinforcing. **'Innovation Union'** is one such flagship initiative. **'Innovation Union'** is the European Union strategy to create an innovation-friendly environment that makes it easier for great ideas to be turned into products and services that will bring our economy growth and jobs.

Horizon 2020 is the financial instrument implementing the Innovation Union and:

- Has a budget of nearly €80 billion for the period 2014-2020 which makes it the biggest European Union Research and Development programme ever.
- Is open to everyone.
- Has three priorities (Industrial Leadership, Excellent Science and Societal Change); each of which has a number of sections with a different focus and each section has a detailed work programme.

http://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020

About International Journal of Obesity

The International Journal of Obesity publishes the latest research on basic clinical and applied studies in biochemistry, physiology, genetics and nutrition, molecular, metabolic, psychological and epidemiological aspects of obesity and related disorders.