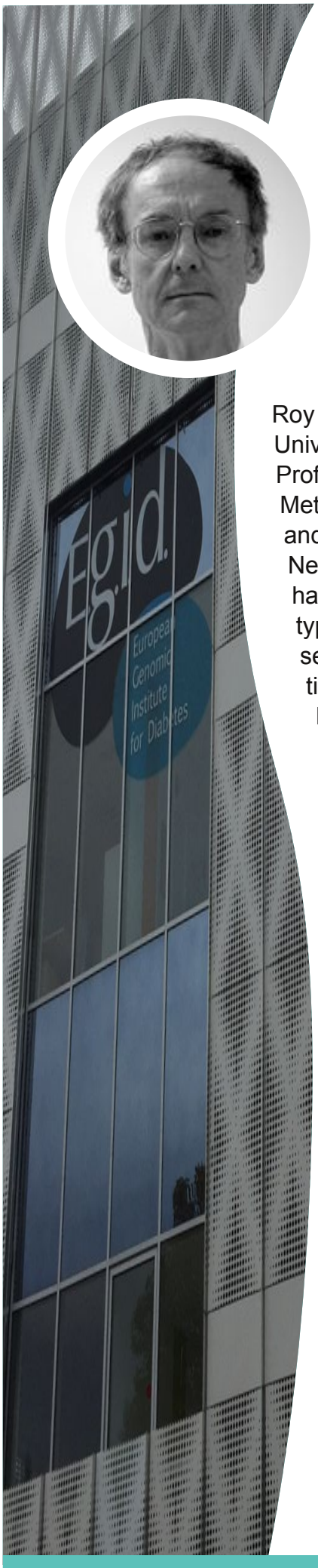

Food and Type 2 Diabetes: Restoring the Milieu Interieur

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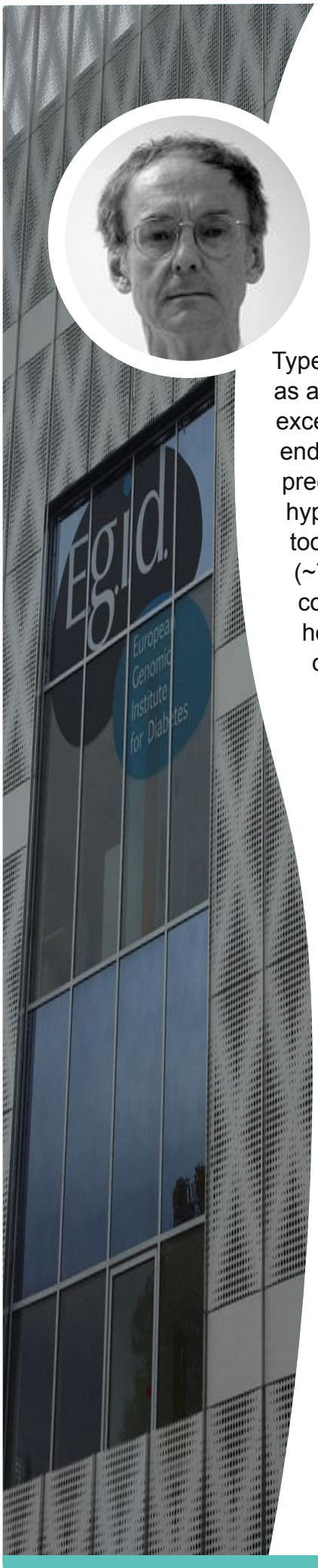
Roy Taylor qualified in medicine at the University of Edinburgh, and is Professor of Medicine and Metabolism at Newcastle University and Honorary Consultant at Newcastle Hospitals NHS Trust. He has been conducting research on type 2 diabetes since 1978, and sequentially studied human adipose tissue, fibroblasts, muscle and then liver and whole body. He worked with Professor Gerald Shulman at Yale in 1990-91, and laying the basis for subsequent research. He created the Newcastle Magnetic Resonance Centre in 2006 and has focussed on developing techniques to elucidate how food is handled by the body in health and disease. Recently he has demonstrated the physiological mechanisms whereby type 2 diabetes can be reversed to normal, throwing light on the aetiology of a condition previously regarded as complex and heterogenous. Professor Taylor developed the system now used throughout the United Kingdom for screening for diabetic eye disease, which has been demonstrated to decrease blindness rates in diabetes. He has produced books and other teaching aids for retinal screeners and co-founded the British Association of Retinal Screeners.

He has delivered several named lectures: The Croom Lecture of The Royal College of Physicians of Edinburgh (1988). The Honyman Gillespie Lecture of Edinburgh Medical Faculty (1992). The RD Lawrence (2001), Arnold Bloom (2005), Banting (2012) and Harry Keen Rank Nutrition Lecture (2016) of Diabetes UK. The Samuel Gee lecture of The Royal College of Physicians of London (2017).



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Type 2 diabetes can now be viewed as a simple, reversible condition of fat excess. A decade-long research endeavour was driven by the predictions of the 2008 Twin Cycle hypothesis [1]. Using the research tool of a low energy diet (~700kcal/day), a 30% fall in liver fat content with normalisation of hepatic insulin sensitivity was observed within 7 days [2]. Over 8 weeks the raised intra-pancreatic fat content gradually, with return of first phase insulin secretion. For the first time, it was possible to describe the simplicity of type 2 diabetes [3]. A second, larger study established that duration of type 2 diabetes was the most important factor (after weight loss) in determining remission [4]. No-one with duration >11 years demonstrated reversal of diabetes, reflecting the eventual loss of beta cell capacity for redifferentiation [5; 6].

The Diabetes Remission Controlled Trial showed that the routine health service staff could be trained to deliver the intervention. At 12 months, 25% of the group had still lost more than 15kg, and 46% were in remission of diabetes off medication [7]. A minority of individuals did not return to non-diabetes glucose control and this was determined by longer duration and absence of beta cell recovery despite decrease in intra-pancreatic fat [8]. Common type 2 diabetes is neither complex nor heterogeneous, and the apparent complexity lies in the individuals, not in the disease process itself.

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