Glycemic Index, Glycemic Load and Glycemic Response:
An International Scientific Consensus Summit
Stresa, Italy • June 7th, 2013

An international panel of experts has formed the "Carbohydrate Quality Consortium (CQC)" which met in Stresa on June 6-7, 2013 and discussed the importance of carbohydrate quality in addition to quantity.

DRAFT Scientific Consensus Statement*

1. Carbohydrates present in different foods have distinct physiological effects, including effects on post-prandial glycemia (PPG), with different implications for health.

2. Reducing PPG is recognized as a beneficial physiological effect.

3. Ways to reduce PPG include slowing carbohydrate absorption by consuming low glycemic index (GI) and glycemic load (GL) foods to reduce the dietary GI and GL.

4. The GI methodology is a sufficiently valid and reproducible method for differentiating foods based on their glycemic response (GR) [footnote: high vs low GI foods as defined by the isostandard, [55; processing and cooking effects]

5. The GI quantifies specific physiological properties of carbohydrate -containing foods as influenced by the food matrix. These characteristics extend beyond their chemical composition including delaying gastric emptying and reducing the rate of digestion and small intestinal absorption.

6. When considering the macronutrient composition, the GL (the product of GI and carbohydrate content/1000kJ) is the single best predictor of the glycemic response of foods.

7. There is convincing evidence from meta-analyses of controlled dietary trials that diets low in GI improve glycemic control in people with type 2 diabetes.

8. There is convincing evidence from meta-analyses of prospective cohort studies that low GI/GL diets reduce the risk of type 2 diabetes.

9. There is convincing evidence from a large body of prospective cohort studies that low GI/GL diets reduce the risk of coronary heart disease.

10. The proof of principle for the concept of slowing carbohydrate absorption is the use of alpha-glucosidase inhibitors (acarbose etc.) to reduce progression to type 2 diabetes and coronary heart disease.

11. The carbohydrate quality as defined by GI/GL is particularly important for individuals who are sedentary, overweight and at increased risk of type 2 diabetes.

12. Potential mechanisms for reduction of type 2 diabetes include evidence that low GI/GL diets improve insulin sensitivity and beta-cell function in people with type 2 diabetes and those at risk for type 2 diabetes.

13. Potential mechanisms for reduction of coronary heart disease include evidence that low GI/GL diets improve blood lipids and inflammatory markers including C-reactive protein (CRP).

14. Probable evidence exists for low GI/GL diets in body weight management.

15. The GI complements other ways of characterizing carbohydrate-foods, such as fiber and whole grain content.

16. Low GI is to be considered in a context of a healthy diet.

17. Given the rapid rise in diabetes and obesity there is a need to communicate information on GI/GL to the general public and health professionals.

18. This should be supported by inclusion of GI/GL in dietary guidelines and in food composition tables.

19. In addition package labels and low GI/GL symbols on healthy foods should be considered.

20. More comprehensive high-quality food composition tables need to be developed for GI/GL at the national level.

NOTE: This Statement will be finalized when footnotes and scientific references and other minor changes are added.

Scientific Consensus Committee:

Chairs:

David J.A. Jenkins, MD, PhD, DSc, University Professor and Canada Research Chair in Nutrition and Metabolism, Department of Nutritional Sciences, Faculty of Medicine, University of Toronto, Director, Risk Factor Modification Centre, St. Michael's Hospital (Toronto, Canada)

Walter C. Willett, MD, DrPH, Fredrick John Stare Professor of Epidemiology and Nutrition Chair, Department of Nutrition, Harvard School of Public Health (Boston, USA)

Members:

Livia Augustin, PhD, Research Fellow, Risk Factor Modification Centre, St. Michael's Hospital (Toronto, Canada)

Sara Baer-Sinnott, President, Oldways (Boston, USA)

Alan W. Barclay, PhD, Head of Research, Australian Diabetes Council; Chief Scientific Officer Glycemic Index Foundation (Sydney, Australia),

Inger Björck, PhD, Professor and Managing Director Antidiabetic Food Centre, Lund University (Lund, Sweden)

Jennie C. Brand-Miller, PhD, Professor, Boden Institute of Obesity, Nutrition, Exercise and Eating Disorders, University of Sydney (Sydney, Australia)

Furio Brighenti, DrPH, Professor of Human Nutrition, Department of Food Science

University of Parma (Parma, Italy)

Anette E. Buyken, PhD, Research Associate, Department of Nutritional Epidemiology, University of Bonn (Bonn, Germany).

Antonio Ceriello, MD, Head of Research at the Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS) (Barcelona, Spain)

Cyril W.C. Kendall, PhD, Research Associate, Department of Nutritional Sciences, Faculty of Medicine, University of Toronto (Toronto, Canada) and Adj. Professor College of Pharmacy and Nutrition, University of Saskatchewan (Saskatoon, Canada)

Carlo La Vecchia, MD, Chief, Department of Epidemiology, Mario Negri Institute, and Professor of Epidemiology, University of Milan, (Milan, Italy)

Geoffrey Livesey, PhD, Director, Independent Nutrition Logic (Wymondham, UK)

Simin Liu, MD, ScD, Professor, Departments of Epidemiology and Medicine, Brown University (Providence, USA)

Andrea Poli, MD, Scientific Director, Nutrition Foundation of Italy (Milan, Italy)

Gabriele Riccardi, MD, Full Professor of Endocrinology and Metabolic Diseases, Department of Clinical Medicine and Surgery, Federico II University (Naples, Italy)

Salwa W. Rizkalla, MD, PhD, DSc, Senior Researcher, National Institute of Health and Medical Research (INSERM) U 872, team 7, Research centre in human nutrition, ICAN Institute of Cardiometabolism & Nutrition, University Pierre et Marie Curie-Paris 6, Centre of Research in Human Nutrition, Pitié Salpêtrière Hospital (Paris, France).

John L. Sievenpiper, MD, PhD, Toronto 3D Knowledge Synthesis and Clinical Trials Unit, Clinical Nutrition and Risk Factor Modification Centre, St. Michael's Hospital (Toronto, Canada), Department of Pathology and Molecular Medicine, Faculty of Health Sciences, McMaster University (Hamilton, Canada).

Antonia Trichopoulou, MD, PhD, Professor and Director, World Health Organization Collaborating Centre for Food & Nutrition, Department of Hygiene and Epidemiology, University of Athens Medical School, and Vice President, Hellenic Health Foundation (Athens, Greece)

Thomas M.S. Wolever MD, PhD, Professor, Department of Nutritional Sciences, University of Toronto (Toronto, Canada)

This International Scientific Consensus Summit was co-organized by the Nutrition Foundation of Italy and Oldways.