

Parallel Session RTD Line 1 / Diet and weight (re)gain prevention

Lecture 3: Developing a common methodology across Europe to assign glycaemic index values to foods

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Abstract

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There is growing interest in the glycaemic index (GI) of the diet, which classifies carbohydrate-containing foods based on their blood glucose-raising potential, as a dietary modulator of metabolic disease risk. However, research is limited by the paucity of GI values for commonly-consumed carbohydrate-rich foods in European nutrient databases. A new methodology has been developed for consistent assignment of GI values to foods across centres in the Diogenes intervention study. This presentation will describe this method and discuss the confidence with which dietary GI can be calculated from food diaries across Europe.

Three-day food diaries were used to assess diet in adults and children prior to the dietary intervention, 4 weeks into the intervention, after 26 weeks (all eight study centres) and after 52 weeks (in two of the centres). Foods from national food composition tables were used for Denmark, Netherlands, UK, Germany and Czech Republic, whereas Spain, Greece and Bulgaria used the UK food tables. GI values were assigned to all carbohydrate containing foods reported in the food diaries that contained more than 0.1 g carbohydrate per 100 g. GI values were assigned according to 5 decreasing levels of confidence: 1) Measured values – for country specific foods; 2) Published – from published sources; 3) Equivalent – where published values for similar foods existed; 4) Estimates – three values (45/63/85) were selected representing low/medium/high GI ranges; 5) Nominal – 70, where no other value could be assigned with sufficient confidence. The study centres assigned GI values to their own national databases. A final cross-check of the assigned GI values was done by the UK and the Dutch centres. A total of 7,142 different food codes were used when analyzing the food diaries reported by adult participants. Of these, 6,988 food codes contained carbohydrate and were assigned GI values. Carbohydrate sources differed across centres, but at baseline bread and sweet bakery products were the largest contributors to carbohydrate intake in all centres. At baseline, the contribution to carbohydrate intake of foods assigned confidence levels 1-2, ranged from 15.5% in the Czech Republic to around 42.8% in the Netherlands. Including level 3 foods increased the figures to 53% in the Czech Republic, 63% in Bulgaria, 67% in Germany, 70% in the Netherlands, 75% in Greece and the UK, 79% in Spain and 81% in Denmark. Conversely, around 5 to 6% of carbohydrate intake was from level 5 foods in Denmark, the Netherlands, the UK, Spain and Germany, whereas 12% of the carbohydrate intake was from level 5 foods in Bulgaria and in the Czech Republic. Four weeks into the intervention, when the study volunteers were recommended specific carbohydrate-rich foods to either increase or decrease their dietary GI, the use of level 1 and 2 foods increased, but when including level 3 in the calculations the figures were similar to those obtained at baseline.

In conclusion, the degree of confidence of assigned GI values differs across Europe. Less GI information is available for foods consumed in the Czech Republic, Bulgaria and Germany, whereas substantially more information is available for foods consumed in the UK and Denmark. When including level 3 food codes the confidence of the assignment was good in Greece and Spain, but this result should be interpreted with caution as Greece and Spain used the MacCance and Widdowson food composition tables rather than country specific databases. This standardised approach of assigning GI values to European foods will be made available to other researchers to further investigation into the effects of dietary GI and health.