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## A high content of Slowly Digestible Starch decreases glycemic and insulinemic responses similarly in Asians and Caucasians

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### Abstract

**Introduction:** Glucose intolerance and type 2 diabetes are increasing worldwide. Current scientific evidence tends to demonstrate that people with an Asian phenotype have a lower glucose tolerance compared to Caucasian phenotype. In addition, in Caucasian population, consumption of products with a high content of Slowly Digestible Starch (SDS) significantly decreases postprandial glycemic and insulinemic responses compared to products with a low-SDS content. The aim of this study was to evaluate the effect of consuming products with varying levels of SDS on postprandial glycemic and insulinemic responses, both in Asian and Caucasian populations.

**Materials and methods:** Five products with varying starch digestibility profiles (determined by the SDS method developed by Englyst) and one glucose solution were tested. A randomized cross-over controlled study was set up in the University of Sydney to study the products' Glycemic and Insulinemic Indexes (GI and II) and postprandial responses over 2 hours. 12 Caucasian and 12 Asian participants were recruited and consumed 50 g of available carbohydrates from each product (norm ISO-26642(2010)).

**Results:** Asian participants were  $28.0 \pm 2.6$  yo with a body mass index (BMI) of  $21.4 \pm 0.3$  kg/m<sup>2</sup> and Caucasians were  $26.0 \pm 1.1$  yo with a BMI of  $22.4 \pm 0.5$  kg/m<sup>2</sup> (no difference between groups). Among the products tested, 3 had a high-SDS content (26 to 28 g SDS / 100g) and 2 had a low-SDS content (0 to 2 g SDS / 100g). GI values for Asian participants ranged between 44 and 54 for high-SDS products (low GI) and were medium (64) or high (90) for low-SDS products. GI values for Caucasian participants ranged between 40 and 48 for high-SDS products (low GI) and between 60 and 79 for low-SDS products. In a statistical model including product effect, ethnicity effect, session effect, and the interaction term product\*ethnicity, the product effect was the only significant parameter and products were split according to their SDS content. Furthermore, products with a high-SDS content decrease the glycemic peak value by about 1 mM, both in Asian and Caucasian participants. Consumption of high-SDS products also decreases the insulin demand by 29% and 32% in Asians and Caucasians respectively compared to low-SDS products.

**Discussion:** Our study demonstrates that consumption of products with a high-SDS content similarly decreases the glycemic and insulinemic responses in both Asian and Caucasian participants. This decrease may be beneficial in the long term to prevent metabolic diseases.

### Conflict of Interest

Aurélié Goux and Sophie Vinoy are employed by Mondelez International. Lola Neufcourt realised her training period at Mondelez International. Olivier Brack was commissioned by Mondelez International.