

## Plasma glucose kinetics following ingestion of two cereal products differing by their Slowly Digestible Starch content in healthy males and females

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### Background and Objectives:

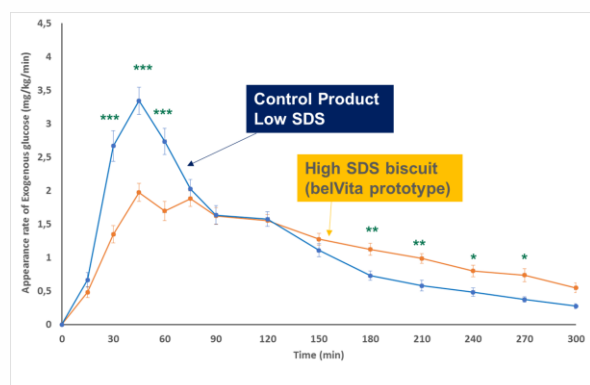
Management of postprandial glycaemia has been implicated in the development of chronic metabolic diseases. Products high in Slowly Digestible Starch (SDS) have been shown to elicit lower glycemic responses than foods low in SDS. This has been shown previously in the context of breakfast. The objective of the present study was to evaluate the kinetics of glucose provided by two cereal products differing by their SDS content and consumed alone in healthy males and females.

### Methods:

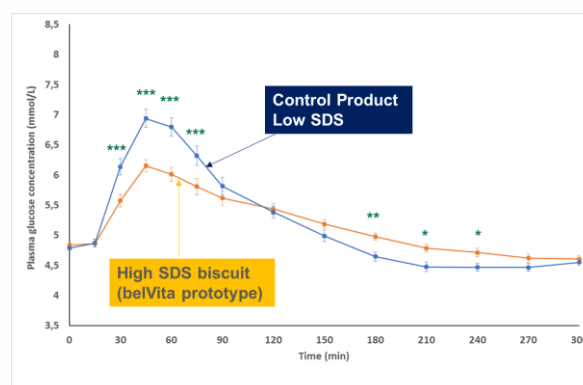
- 41 Young adults healthy males and females were recruited (age = 27 ± 5 years, BMI = 22 ± 2 kg/m<sup>2</sup>)
- Study with a cross-over design
- 2 products labeled with <sup>13</sup>C and differing by their Slowly Digestible Starch (SDS) and GI levels were tested at a portion size of 45 g consumed alone
- Follow-up of blood glucose kinetics by double-isotope labeling method and of glycemia and insulinemia

Macronutrients	Hi-SDS biscuits (g/100g)	Lo-SDS co-extruded (g/100g)
Total fat	15	14
AV. CHO	69	61
Starch	45	41
SDS	19	0,2
Sugars	21	20
Dietary fibers	5	6
Protein	8	7
Glycemic Index	36 ± 4	72 ± 5

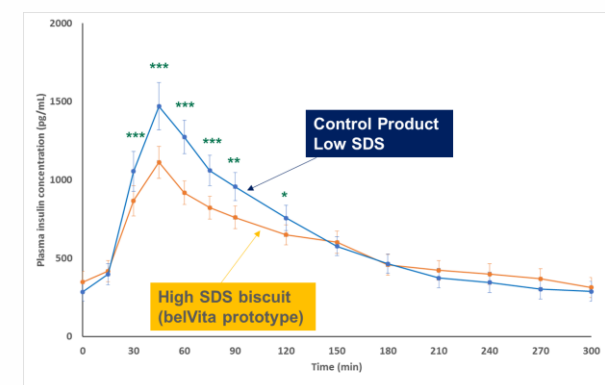
### Results:



Significantly lower Appearance rate of Exogenous glucose (RaE) with Hi-SDS biscuits in the first part of the morning and higher in the second part of the morning compared to Lo-SDS co-extruded cereals



This resulted in a lower glycemic peak during the first 2 hours with Hi-SDS biscuit compared to Lo-SDS co-extruded cereals and to a better maintenance of glycemic response after 2 hours



Blood insulin was also lower with Hi-SDS biscuits compared to Lo-SDS co-extruded cereals in the first 2 hours of postprandial period

### Conclusions:

Hi-SDS biscuits slows down the availability of glucose from the cereal product and its appearance in peripheral circulation compared to Lo-SDS co-extruded cereals. It reduces the peak of plasma glucose and distributes the glucose ingested over a longer period following the meal. Blood insulin levels were also reduced with the Hi-SDS biscuits compared to Lo-SDS co-extruded cereals

### Keywords:

Slowly Digestible starch, cereal products, glucose appearance rate, glycemic response, insulinemic response

### Conflict of Interest:

A. Meynier and S. Vinoy are employees of Mondelēz International R&D; F. Péronnet is an occasional consultant for Mondelēz International R&D; R. Rabasa-Lhoret received an unrestricted grant from Mondelēz International R&D to conduct this work. The remaining authors declare no conflict of interest.