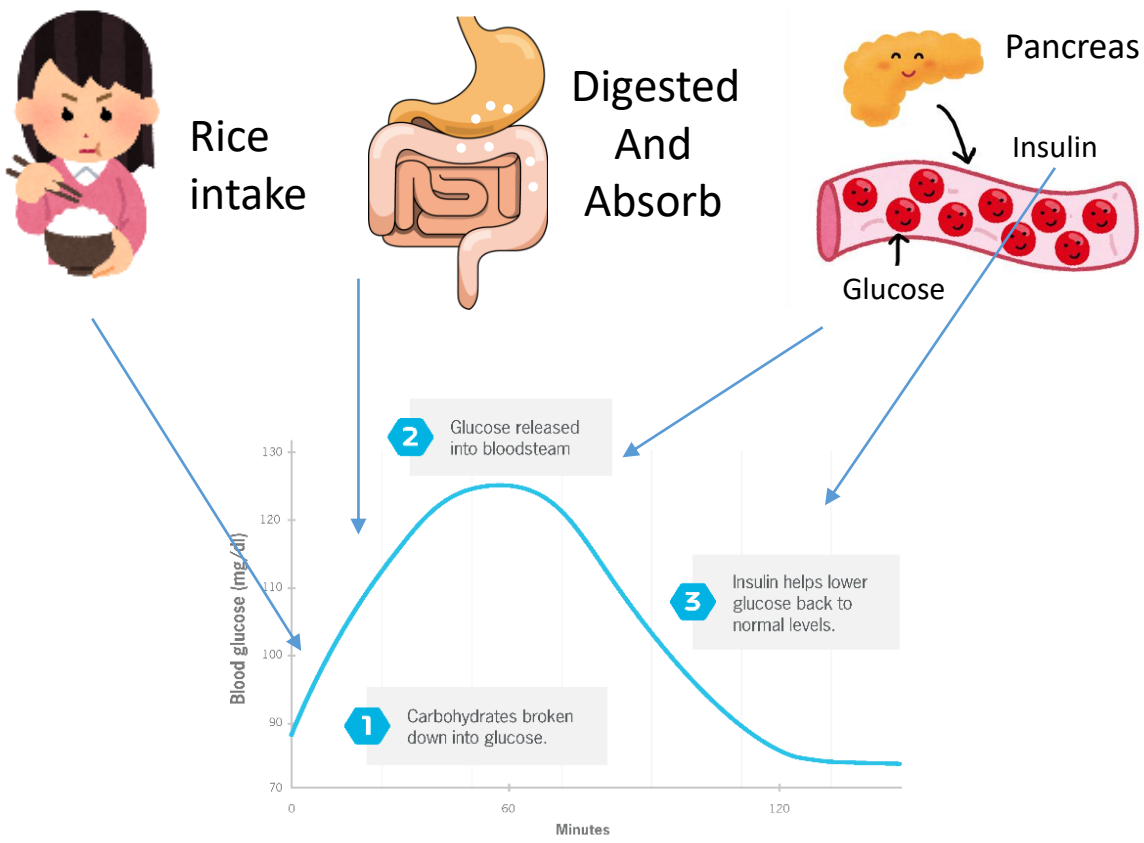
Effect of high-amylose rice "Hoshinishiki" on continuous blood glucose measurement in diabetic patients

○LI JIA
Ehime University • Applied Bioscience

【Objective】

The objective of this study was to clarify the functionality of high amylose rice, by analyzing the effects of high amylose rice 'Hoshinishiki' on the measurement of continuous blood glucose levels in diabetic patients.



【Method】

Subjects

The subjects of this study are the inpatients in the Ehime University Hospital who were diagnosed with diabetes. Taking the beginning of the study as the node, 11 patients (7 males and 4 females) participated in this study .

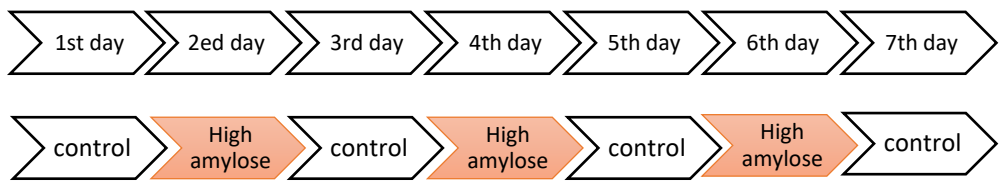
N	11
Male (%)	7 (64%)
Age (years)	59.0±9.9
BMI (kg/m²)	26.0±3.9
HbA1c (%)	8.8±0.9
Fasting blood glucose (mg/dL)	160.2±26.4

Each value is expressed as the mean ± standard deviation or number (%).

Study design

The Subjects participated in this study for a maximum of 7 days. They were alternately provided with high amylose rice for 3 days and control rice for 4 days (every meal).

Flash Glucose Monitoring (FGM) was performed during the period of this study.



FGM was performed to continuously record the subcutaneous glucose concentration every 15min.

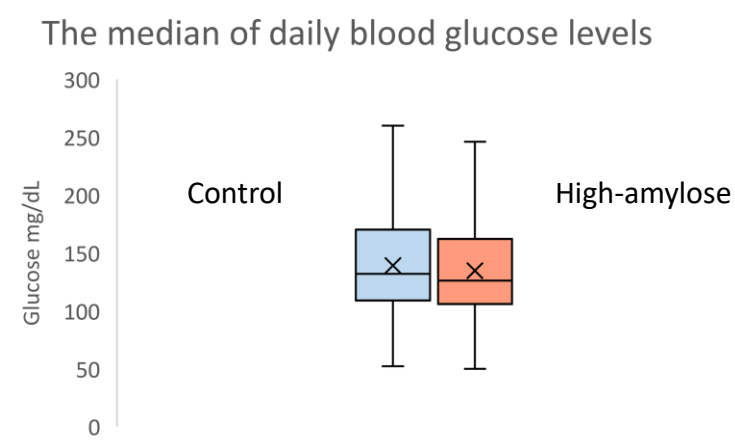
Analysis

- The median of daily blood glucose levels between the two rice were tested by Wilcoxon rank sum test.
- The Glucose control index-- the proportion of time when the blood glucose was in the range below: Time In Range (TIR), and Time Below Range (TBR), and Time Above Range (TAR) ,were tested by Linear mixed model.

	TBR	TIR	TAR
Glucose （mg/dL）	＜70	70～180	＞180

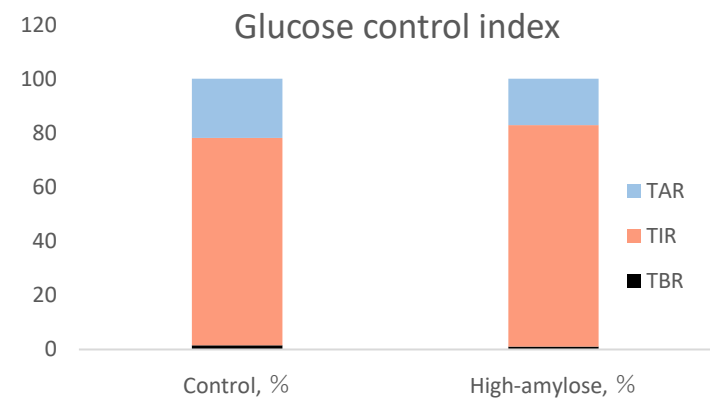
【Results】

There were missing data due to some reasons. The data used for the analysis were **high amylose rice for 2 days and control rice for 2 days**.



Glucose	Control	High-amylose	
Mean±SD （mg/dL）	147.6 ± 22.4	141.0 ± 22.7	Wilcoxon rank sum test
Median （Q1-Q3） （mg/dL）	145.1(132.5-148.5)	134.2(130.5-147.6)	p=0.02

SD: Standard Deviation　　Q1-Q3: 1st Quartile-3rd Quartile



	TBR	TIR	TAR	
Control, %	1.51	*76.66	21.83	Linear mixed model test
High-amylose, %	1.09	*81.72	17.19	*P=0.01

【Conclusion】

- High amylose rice has beneficial effects on postprandial glucose levels in diabetics.
- Ingestion of high-amylose rice may moderate diurnal fluctuations in glucose levels.