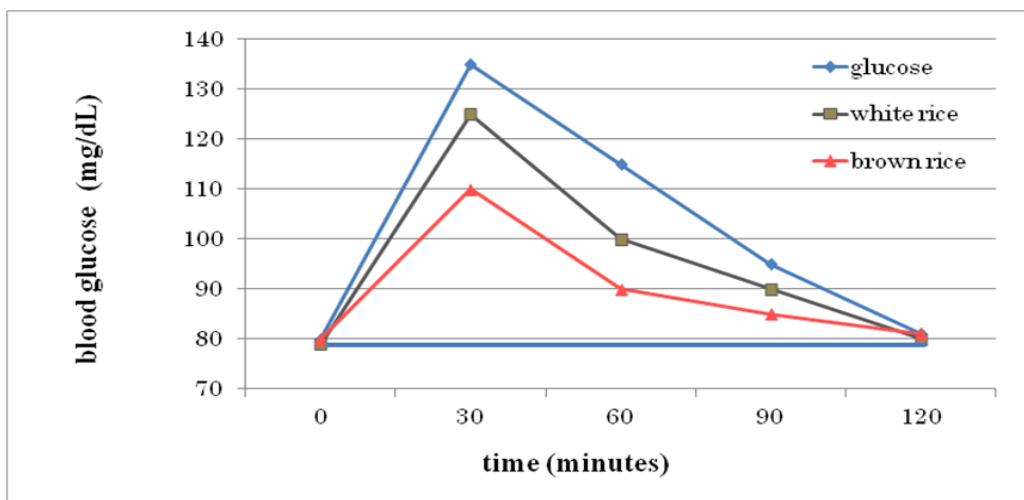# Rice and Health:

2.   Can a high post-meal blood glucose level be a factor for diabetes mellitus?

How to calculate glycemic index

The glycemic index (GI) was first established in 1981 by Jenkins and his colleagues as a way of improving glucose control in diabetics.   Following a 12-hour fast, subjects were administered foods contained 50 g of carbohydrate and the blood glucose responses were observed for 2 hours.
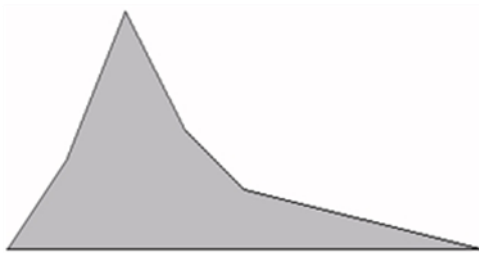
AUC of white rice

AUC of brown rice

The incremental areas under the glucose response curve (AUC) were measured.   GI is the AUC of the test food divided by that of glucose and multiplied by 100 (%).

A GI shows only how rapidly a food carbohydrate increases blood glucose. It doesn't tell how much of it was eaten.   Glycemic load (GL) was developed to describe the quality (GI) and quantity (GL) of carbohydrate in a food.   The calculation is as follows;   [GL = GI / 100   x carbohydrate in a portion of food (g)]

As can be seen in table below, even the foods with a high GI can have a low GL depending upon the quantity consumed.   **WHITE RICE HAS HIGH GI AND GL.**

Glycemic Index and Glycemic Load

FOOD	Glycemic index (glucose = 100)	Serving size (g)	Glycemic load per serving
White rice	64±7	150	23
Brown rice	55±5	150	18
White wheat flour bread	70±0	30	10
Whole wheat bread	71± 2	30	9
Cornflakes	81±3	30	21
Potato chips	54±3	50	11
Sweet potato	61±7	150	17
Yam	37±8	150	13
Cornflakes	81±3	30	21
Potato chips	54±3	50	11
Sweet potato	61±7	150	17
Yam	37±8	150	13
Coca Cola	58±5	250	15

"International tables of glycemic index and glycemic load values: 2002," by Kaye Foster-Powell, Susanna H.A. Holt, and Janette C. Brand-Miller in the July 2002 American Journal of Clinical Nutrition, Vol. 62, pages 5–56.