Clinical Research On Foods & Advantages of Glycemic Index

*In the following interview, **Mr R.B. Mohile**, Managing Director, CLAIMS Pvt Ltd. – a clinical research organisation doing clinical research studies on skin, hair products and now on food products – explains the advantages of Glycemic Index.*

Why does CLAIMS want to enter the clinical trials for food products?
Consumers are increasingly concerned with their health and are taking more responsibility for their own health through their diet. As a result they are seeking more information on the health functionality of foods. In the highly competitive market place for functional foods, there will be foods that have health claims backed up by scientific research that will attract added value. Many food manufacturers are now looking at how they can add value through promotion of health functionality or modify formulations or processes to optimise health benefits and bioavailability.

Clinical trials in humans are thus increasing being considered by the food industry to substantiate certain health claims. We are also making services of Glycemic Research Institute, Washington DC, the USA, available to our Indian clients.

What is Glycemic Index?
The Glycemic Index is technically defined as the *"Incremental area under the blood glucose response curve of a specific portion of a test food expressed as a percent of the response to the same amount of carbohydrate from a standard food taken by the same subject."* In simple terms, foods can be assigned a Glycemic Index Number based on the comparative increases in blood glucose (sugar) levels they produce when that food is consumed.

What kind of foods have a high GI index?
Foods with a high GI are those that are rapidly digested and absorbed and result in marked fluctuations in blood sugar levels. Low-GI foods, by virtue of their slow digestion and absorption, produce gradual rises in blood sugar and insulin levels and have proven benefits for health.

What is the advantage of consuming low Glycemic foods?
The theory behind the Glycemic Index is to minimise insulin-related problems by identifying and avoiding foods that have the greatest effect on blood sugar, especially for those with diabetes.

Low GI diets have been shown to improve both glucose and lipid levels in people with diabetes (type 1 and type 2) and reduce insulin levels and insulin resistance. Low GI diets may also have benefits for weight control because they help control appetite and delay hunger.

clinically analysed In vivo to determine their metabolic fat-storing properties with optional specific focus on insulin-resistance disorders.

Is the classification of foods based on Glycemic Index approved by any authority worldwide?
In 1997, a joint committee of the Food & Agriculture Organization (FAO) and the World Health Organisation (WHO), reviewed the available research evidence regarding the importance of carbohydrates in human nutrition and health. That committee endorsed the use of GI method for classifying carbohydrate rich foods, and recommended that the GI values of foods be used in conjunction with information about food composition to guide food choices (FAO / WHO, 1997).

while doing clinical research to classify a particular food as of low or high GI?
The four major areas that are tracked during Glycemic clinical studies include how the ingested food: (1) raises blood glucose levels, (2) affects insulin secretion, (3) stimulates Lipoprotein Lipase (LPL) and Fat-Storage Mechanisms, and (4) affects the pancreas.

Can all foods and nutraceuticals be categorised based on the Glycemic Index?
Yes. All foods, drinks and nutraceuticals can be categorised as of either high or low Glycemic: (i) high Glycemic foods elevate blood glucose and insulin levels and stimulate fat-storage, and (ii) low Glycemic foods do not overly elevate blood glucose and insulin, and do not stimulate Lipoprotein Lipase (LPL) fat-storing mechanisms.

Can a food product containing a combination of various ingredients alter the GI of it is the main component?
The Glycemic response of a food also reflects the metabolic response to various percentages of protein, fat and carbohydrates present in the food, which alter its Glycemic response. Contrary to popular opinion, pure protein, eaten without carbohydrates, does elicit an insulin response, particularly in diabetics.

Can the fat-storing properties of foods be identified doing this type of clinical research?
In humans, clinical measurements can be taken that identify the fat-storing properties of a food, and its path of metabolism. All foods, drinks and nutraceutical products (including meal replacement drinks) are either burned as energy in the body or shunted into adipose tissue fat cells. Clinical studies can track the metabolic pathway of the food ingested, to discover if it is burned or stored.

Adipose Tissue Fat Studies focus on identification of the proclivity and ability of a "test food" to stimulate fat-storage in fat cells via stimulation of human fat-storing enzymes and mechanisms. During Glycemic clinical studies, "test food" can be

Why is clinical research necessary when some soft-wares classify foods based on GI?
At the Glycemic Research Institute, products are subjected to clinical research as per approved protocols in patient populations needed. For example, the certification for the Low GI seal / mark, may only be used on products that have been clinically proven to be "Low Glycemic with a Low Glycemiv Load when fed to non-diabetic humans."
The in-vitro studies are generally not accepted nor are software derived Glycemic Indices.

What does 'Diabetic Friendly' mark from GRI mean and how does it differ from 'Low Glycemic' mark in terms of product testing?
The Low Glycemic for Diabetics certification seal / mark can only be used on products that have been clinically proven to be "Low Glycemic with a Low Glycemic Load when fed to type II diabetic humans".

What does 'Low Glycemic' kids-friendly mark indicate and how does it differ from 'Low Glycemic' mark in terms of testing?
As a result of the current obesity epidemic in children, the *Glycemic Research Institute* (GRI) has instigated the Kid-Friendly Programme to provide independent clinical verification of foods and beverages that do not stimulate the fat-storage cascade in children. Products that pass the kid-friendly clinical criteria will be allowed by GRI to display the *Glycemic Research Institute* Kid-Friendly Certification seal on their products, menus, websites and marketing material.
To know more about this mark one can refer to http://www.grikidfriendly.com.

When testing at the GRI in the USA, will the trials be carried out on persons of Indian origin?
Yes, if required. GRI has a volunteer base of Indian origin and trials will be carried out on these for food products meant for the Indian market.