



## Lecture 47:

# Glycemic Index And Glycemic Load

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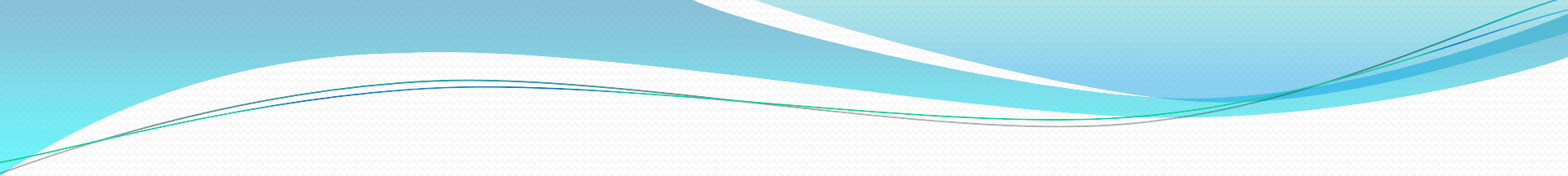
# Glycemic Index (GI):

- Glycemic Index (GI) is a ranking of foods based on their abilities to increase blood sugar level **two hours after ingestion** in comparison to an increase two hours after ingestion of the reference food, pure glucose.
- By definition, **the glycemic index for glucose is 100**, and the other foods are compared to glucose.

- The concept was developed by **Dr. David J. Jenkins** and **Dr Thomas Wolever** in **1981** at the **University of Toronto** in their research to find out which foods were best for people with **diabetes**.



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- The **lower GI** foods produce a slow and sustained increase in blood sugar level, leading to a more stable blood sugar level and **slow release of insulin**.
  - The **higher GI** foods break down faster during digestion and increase blood sugar level quickly yet transient, leading to **rapid release of insulin**.

Classification	Glycemic Index
High	>70
Medium	56 – 69
Low	<55

- High GI foods induce a rapid release of insulin.
- Medium GI foods induce a moderate release of insulin.
- Low GI foods induce a slow release of insulin.

# Lower GI foods:

- **1)** Prevent from fluctuations in blood sugar levels in diabetic people.
- **2)** Help control blood sugar and cholesterol levels easily.
- **3)** Are beneficial in weight management.
- **4)** Reduce risk of developing heart diseases and diabetes type II.
- **5)** Reduce hunger and food cravings.

# Complete list of Glycemic Index:

- Fruits and Vegetables.
- Meats, Eggs and Dairy Products.
- Nuts and Seeds.
- Carbohydrates (Complex).
- Spices and Sauces.





# Glycemic Load (GL):

- The concept of GL was first introduced by researchers from Harvard university.
- It is another method to classify foods based on their effects on blood sugar levels.
- Compared to GI, **GL takes into account the amount of carbohydrates in foods.**

$$\text{Glycemic Load} = \frac{\text{GI} \times \text{Grams of Carbs per Serving}}{100}$$

Classification	Glycemic Load
High	>20
Medium	11 – 19
Low	<10

- GL represents the **quality** and **quantity** of a carbohydrate.
- The greater the GL, the greater the expected increase in blood sugar, the greater the risk of developing diabetes type II and coronary heart disease.



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# Example:

- **Apple (one medium):**
  - **GI: 39**
  - **Carbs: 20 grams**
  - **Glycemic Load =  $39 \times 20/100 = 7.8$**

# Homework:

- 1) Describe the differences between glycemic index and glycemic load.
- 2) Describe how low GI foods could be useful in weight management.



