Let's Excel Together

CANADIAN ACADEMY OF SPORTS NUTRITION

## 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 |

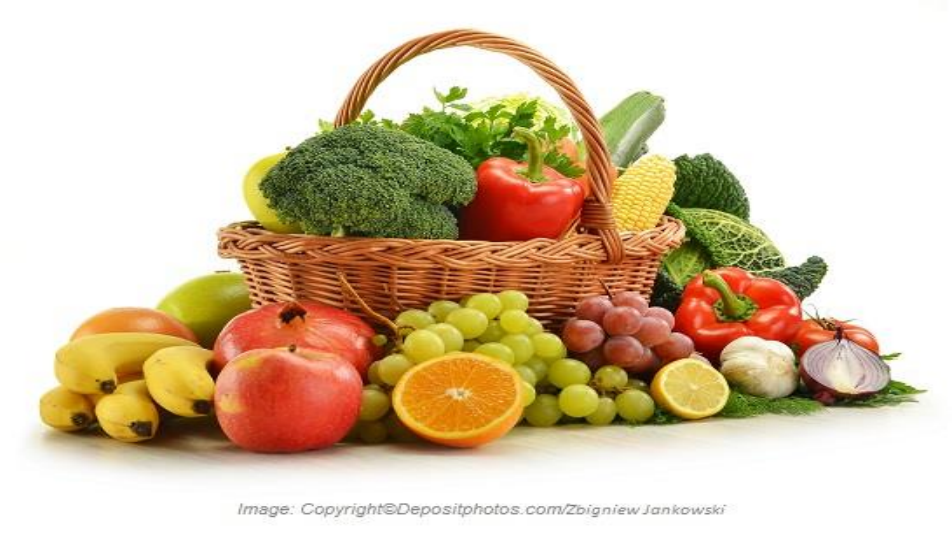
- High GI foods induce a rapid release of insulin.
- Medium GI foods induce a moderate release of insulin.
- Low GI foods induce a slow release of insulin.

# 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.**

# Example:

- **Apple (one medium):**

- **GI: 39**
- **Carbs: 20 grams**

- **Glycemic Load = 39 X 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.