Glycemic Index Explained
Let’s discuss...

• Glycemic Index
  – What does it mean?
  – Factors that influence the glycemic index rating
  – Factors that influence our body’s glycemic response

• Possible benefits to health

• What to eat!
The Glycemic Index (GI)

- A scale that ranks carbohydrate-rich foods by how much they raise blood glucose levels compared to a standard food.
Lentils

Blood Glucose Levels

White Bread or Glucose
(Standard)
Factors Influencing the Glycemic Index Rating
Factors Influencing GI Rating

- Type of starch
- Cooking
- Food processing
- Fat content of the food
- Acid content of the food
<table>
<thead>
<tr>
<th></th>
<th>Amylose</th>
<th>Amylopectin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molecules form</td>
<td>Molecules form tight clumps</td>
<td>Molecules are more open</td>
</tr>
<tr>
<td></td>
<td>Harder to digest</td>
<td>Easier to digest</td>
</tr>
<tr>
<td>GI Rating</td>
<td>Lower GI Rating</td>
<td>Higher GI Rating</td>
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</tbody>
</table>
Cooking

- Cooking can **increase** the GI rating of a food
- Cooking swells starch molecules and softens foods making it faster to digest

  spaghetti, white
  - Boiled 5 min: $\text{GI} = 34$
  - Boiled 10 – 15 min: $\text{GI} = 40$
Processing

• Highly processed foods are digested faster and tend to have a higher GI rating

  Cornflakes GI = 86

  Porridge (rolled oats) GI = 49
Processing

- For **unprocessed** grains the GI rating is lower because it takes longer to digest the food

  pumpernickel bread GI = 46

  white bread GI = 73
Fat in Foods

• Foods with higher fat content have lower GI ratings. Fat content changes how your body digests foods.
• This shows that Low GI foods are not always the healthiest choice!

Potato chips GI = 75
Baked potato GI = 93
Acid in Foods

• Acids present in foods slow down your body digesting that food. Slower digestion means slower rise in blood glucose.

sourdough breads
Factors Influencing the glycemic response

- Speed of stomach emptying
  - fat and protein
- Mixed meals
Speed of stomach emptying: Fat and Protein

- Fat and protein slow the rate of stomach emptying
- Foods are digested at a slower rate
- Lower glycemic response
Eating foods with a low GI may help to:

- Control blood glucose levels
- Control cholesterol levels
- Control appetite
- Decrease risk of heart disease
- Decrease risk of type 2 diabetes
What Should I Eat?

Remember:

Using the GI is only one part of healthy eating. Follow Canada’s Food Guide when making food choices for overall good health!

Eat at regular times       Limit sugar and sweets
Decrease fat intake        Include high fibre foods

Limit salt, alcohol and caffeine
Tips to include low GI foods

1. **Enjoy** vegetables, fruits and low fat milk with your meals.
2. **Choose** one low GI food per meal
3. **Plan** menus around low GI food choices like lentils, barley and couscous.
4. **Exchange** high GI breads and cereals for lower GI alternatives
# Glycemic Index

<table>
<thead>
<tr>
<th>Lower GI Foods</th>
<th>Higher GI Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raise your blood glucose slower and lower.</td>
<td>Raise your blood glucose faster and higher.</td>
</tr>
<tr>
<td>Choose <strong>more</strong> often.</td>
<td>Choose <strong>less</strong> often.</td>
</tr>
</tbody>
</table>

**Lower GI ideas**
- All Bran (42)
- Bran Buds with psyllium (42)
- Oatmeal (42 to 66)
- Oat Bran (50)

**Higher GI foods**
- Cornflakes (84)
- Branflakes (74)
- Rice Krispies (82)
- Cheerios (74)
## The Glycemic Index

<table>
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<tr>
<th>Lower GI ideas</th>
<th>Higher GI foods</th>
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<tr>
<td>Pasta cooked “al dente” (32-64)</td>
<td>Canned or overcooked spaghetti</td>
</tr>
<tr>
<td>Whole grain pumpernickel (46)</td>
<td>White bread (71-77)</td>
</tr>
</tbody>
</table>

Rice:
- basmati or brown or long grain or parboiled (48-56)
- Instant rice (87)
- Short grain rice (72)
- Barley (25) Bulgar (48)
- Buckwheat (54) Chana dal (8)
The Glycemic Index

**Lower GI ideas**
- Popcorn (55)
- Boiled new potatoes (56)
- Pear (38)
- Plums (39)
- Peach (42)
- Milk (42)
- Yogurt (30 to 40)

**Higher GI foods**
- Pretzels (89)
- Soda crackers (74)
- French fries (75)
- Baked potato (93)
- Watermelon (72)
LUNCH:

Sandwich on whole grain bread
Yogurt on fresh peach slices

OR

Sandwich on white bun
Doughnut
Questions