ADVANCED NUTRITION CONCEPTS

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EMPOWERING PATIENTS FOR INDIVIDUALIZED CARE
CONTROL AND BALANCE

Glucose control
Limit variability
Avoid Hypoglycemia
Intake for needs, not to feed insulin
Calorie balance
Budget and Food Availability
Preferences

Special Circumstances
Growth
Food Allergies and Intolerances
Pregnancy
Other Medical Needs
Gastroparesis
Ageing

Change Behaviors and Management When Using New Technology
Timing of Boluses
Count all carbohydrates
Basal - Bolus Balance
How to treat hypoglycemia
BEYOND CARBOHYDRATES

Protein and fat do have an effect on post meal glucose rise
Glucose rise can be delayed about 90 minutes
Without carbohydrates, at least 65g Protein is needed to produce significant effect
Fat reduces the post meal glucose response 2-3 hours after eating and delays the peak
Glucose response due to delayed gastric emptying.
Additional insulin may be required for high Protein/fat meals
There are marked individual differences in the effect of fat and protein on post meal
Glucose
Further research is needed to identify the impact of fat/protein

(More Math! 🍀)

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KETO DIET

- Tell your Health Care Team
- Be prepared to reduce insulin
- Check Ketones – blood test is best
  - Normal/positive   less than 0.6 mmol/L
  - Small to moderate 0.6 - 1.5 mmol/L
  - High (Large)      1.6 - 3.0 mmol/L
  - Very high         greater than 3.0 mmol/L
- ALWAYS treat low glucose with simple carbs
- Drink LOTS of water (more than 2 quarts per day)
PREGNANCY

Carbohydrate needs increase
Protein needs increase at week 20
Calorie needs may not increase until second trimester and then only slightly
Insulin needs change all through out pregnancy
Nutrient needs increase
Be very aware of sodium and empty calories
Normal Pregnancy Guidelines still apply also

THANKS!!
### INSULIN ADJUSTMENT
**BASED ON TIMING AND DURATION**

<table>
<thead>
<tr>
<th>Activity Within 2 Hours After Meal</th>
<th>Activity Before or Between Meals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short Duration (&lt;90 Minutes)</strong></td>
<td><strong>↓ Mealtime Bolus</strong></td>
</tr>
<tr>
<td>Snack Prior to Activity</td>
<td></td>
</tr>
<tr>
<td><strong>Long Duration (&gt;90 Minutes)</strong></td>
<td><strong>↓ Mealtime Bolus</strong></td>
</tr>
<tr>
<td><strong>↓ Basal Rate</strong></td>
<td><strong>Snack Prior to Activity</strong></td>
</tr>
<tr>
<td>Snack at regular intervals</td>
<td><strong>↓ Basal Rate (if using pump)</strong></td>
</tr>
<tr>
<td>Watch for delayed-onset hypoglycemia</td>
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</tr>
</tbody>
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### GLYCEMIC INDEX (LOAD)

- How quickly glucose absorbed, alters blood sugar and then returns to normal
- Not provided on food labels/not always intuitive
- Glycemic Index vs Load

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**High GI vs Low GI Foods**

- Chips, Fruits, Cakes
- Ice cream, Donuts
- Sweet rice
- Potatoes
- Processed foods
- Watermelon
- White Bread

- Basmati Rice, Vegetables, Lentils, Pasta, Wholegrain Bread, Oats, Oranges

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IMPACT OF PROTEIN AND FAT

- Affect blood glucose to a lesser extent
- Take longer to digest
- Enhance satiety
- Type of fat matters (unsaturated > saturated)
- Emphasize lean protein sources