Nutrition management for children with type 1 diabetes

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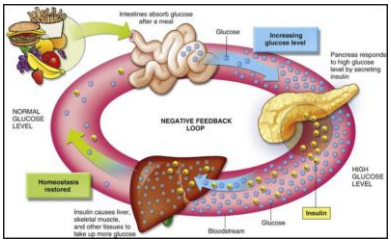
Disclosures

- I have no financial relationships with commercial interests that pertain to the content presented in this program.

Objectives

- Review guidelines and goals for carbohydrate counting as an effective tool for managing T1D
- Discuss recommended carbohydrate intake for children and adolescents based on established USDA Dietary Reference Intakes (DRI)
- Review goals for nutrition management for children with T2D
- Discuss common myths and misconceptions surrounding diet management for T1D
- Provide nutrition resources to help health care providers support the needs of their patients

Carbohydrate Metabolism



http://www.okclipart.com/Metabolism-Basal-Rate-Clip-Art30igazidbe/

Guidelines for Carbohydrate Counting

- Scheduled meal times (3 meals per day)
- Do not cut out all carbohydrates
- Low carbohydrate snacks in between meals
- Fluid intake should be milk, water or sugar free liquids
- Estimate grams of carbohydrates at each meal
- Use Insulin to Carbohydrate ratio to determine short acting insulin coverage required at each meal

1 unit :15 grams

1 unit :10 grams

Goals for Meal Planning

- Flexibility and freedom for child to select desired foods at meals
- Eat a variety of healthy carbohydrates
- Limit carbohydrates with low nutritional value
- Eat a protein and non-starchy vegetable along with carbohydrates at each meal
- 2-3 servings of low fat milk or milk alternative daily

How Many Carbohydrates Do Children Need?

*Based on 2015 US Dietary Reference Intakes

Age	Sex	Carbohydrates (per meal)
2-3 years	Male	30-45 grams
	Female	30-45 grams
4-8 years	Male	45-60 grams
	Female	45-60 grams
9-13 years	Male	45-75 grams
	Female	45-60 grams
14-18 years	Male	60-90 grams
	Female	45-75 grams

Foods to Carb Count…

- Bread, grains
- Cereal, oatmeal
- Rice, pasta
- Beans, lentils
- Starchy vegetables
- Fruit
- Milk

Foods Not to Carb Count…

- Most non-starchy vegetables
- Meat, poultry, seafood
- Eggs
- Peanut butter
- Cheese
- Fats
- Sugar free liquids
- Most condiments

How to Use a Food Label

- Serving Size
- Total Carbohydrate

Example #1
Insulin to Carb Ratio 1:15

Breakfast	Carb amount (g)
2 Eggo waffles	27 g
2 tsp butter	0
1 scrambled egg	0
½ cup blueberries	11 g
1 cup skim milk	12 g
	50 g (Total) **50 ÷ 15 = 3.3 units**

Example #2
Insulin to Carb Ratio 1:12

Lunch	Carb amount (g)
2 slices of bread	30 g
2 oz sliced turkey	0
1 oz cheese	0
1 piece of lettuce	0
1 slice of tomato	0
1 tbsp mayonnaise	0
1 apple	15
1 individual size bag of potato chips	15
1 chocolate chip granola bar	17
	77 g (Total) **77 ÷ 12 = 6.4 units**

Type 2 Diabetes Nutrition Management

- Carbohydrate counting
- Encourage carbohydrates in moderation
- Review plate method
- Portion sizes for calorie control
- Recommend skim/low fat milk, water or sugar free liquids
- Lean protein sources
- Healthy fats → mono- and polyunsaturated vs saturated
- Daily exercise
- Importance of adequate sleep

https://www.choosemyplate.gov/kids

Myths and Misconceptions

If I have diabetes, I should cut carbohydrates out of my diet…

- It is not recommended to cut out whole food groups
- Eat carbohydrates in moderation
- Carbohydrates are significant source of energy
- They provide other health benefits as well – high in fiber, B vitamins, antioxidants, minerals (calcium, potassium), Vitamin D
- Recommend intake ~50% total calorie intake
- Increased intake of protein and fat in place of carbohydrates can lead to further insulin resistance

Dietary carbohydrate intake and mortality: a prospective cohort study and meta-analysis

Sara B Seidelmann, Brian Claggett, Susan Cheng, Mir Henglin, Amil Shah, Lyn M Steffen, Aaron R Folsom, Eric B Rimm, Walter C Willett, Scott D Solomon

"Our findings suggest a negative long-term association between life expectancy and both low carbohydrate and high carbohydrate diets when food sources are not taken into account. These data also provide further evidence that animal-based low carbohydrate diets should be discouraged. Alternatively, when restricting carbohydrate intake, replacement of carbohydrates with predominantly plant-based fats and proteins could be considered as a long-term approach to promote healthy ageing."

My child with T1D is not allowed to have candy on Halloween…

- Children with diabetes can enjoy sweet treats/desserts just like anyone else
- Encourage on occasion
- Moderation
- Use package to carb count

Food item	Serving Size	Carbs
Hershey's Kiss	1 piece	3 g
Smarties	1 roll	6 g
Three Musketeers Mini	1 piece	6.4 g
M&Ms Peanut Fun Size	1 package	11 g
Candy Corn	1 oz	25.6 g

If a food label says "No Sugar Added", it does not need to be included in my carb counts …

Natural Vanilla = 14 g per ½ cup
Sugar Free Vanilla = 13 g per ½ cup

https://www.breyers.com/

Natural sweeteners are better for you because they don't raise your blood sugar compared to regular sugar

- Examples: maple syrup, molasses, rice syrups, honey, agave nectar, coconut sugar
- Less processed
- Some contain trace vitamins and minerals
- But…still have sugar and must be carb counted if used
- Not considered free foods

Honey	Raw Agave Nectar	Granulated White Sugar
1 tablespoon	1 tablespoon	1 tablespoon
17 grams CHO	16 grams CHO	12 grams CHO

Tips for Everyday Success for Kids With Diabetes:

- Eat 3 meals and 1-3 snacks each day
- Eat meals with your family
- Choose a variety of whole grains, vegetables, fruits, lean proteins and low fat dairy products
- Drink plenty of water
- Be active for 60 minutes or more each day
- Check your blood glucose at planned times
- Take your medications at the correct time
- Limit TV and computer/phone time to 2 hours or less
- Get adequate sleep

Resources

- Calorie King – iPhone
- Calorieking.com
- Go Meals – Android
- My Fitness Pal
- Cronometer
- Carb Manager
- Carbmanager.com
- Choosemyplate.gov
- Diabetesfoodhub.org

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