Nutrition for children with diabetes

1. Healthy eating habits is a key component for healthy children, with or without diabetes

**American Diabetes Association Recommendation:**

For youth with type 1 diabetes - provide adequate energy to ensure normal growth and development, integrate insulin regimens into usual eating and physical activity habits. Children and adolescents should adopt healthy eating habits that ensure an adequate intake of essential vitamins and minerals.

Consistency between siblings! – A family approach to healthy eating

2. Consideration of a child’s appetite and preferences must be given when determining energy requirements. Adequacy of energy intake can be evaluated by following weight gain and growth patterns on a regular basis. Blood pressure and lipids / blood fats will also be monitored by the healthcare team

3. Consultation with a registered dietitian with experience in pediatric nutrition and diabetes is recommended. Meal plans must be individualized to accommodate food preferences and appetites, cultural influences, physical activity patterns, and family eating patterns and schedules.

4. Healthy food options – fresh produce, often located around the outside perimeter of the supermarket. Avoid going up and down the aisles as much as possible – less packaged foods:
   - Fresh fruit
   - Vegetables
   - Lean meat
   - Dairy products – milk, yogurt and cheese
   - High fiber breads and cereals

5. As for everyone, less than 10% of energy intake should be derived from saturated fats
6. Glycemic index – A numerical index given to a carbohydrate-rich food that is based on the average increase in blood glucose levels occurring after the food is eaten. High GI = High impact and Low GI = Low impact – has overall not been a significant factor for food recommendations. Research suggesting the carbohydrate amount, rather than the carbohydrate type, is more important.

7. The pre-meal insulin doses should be adjusted for the carbohydrate content of the meal. For individuals receiving fixed doses of insulin, day-to-day consistency in the amount of carbohydrate is important. Insulin timing – optimize opportunity for success. Best BG response if insulin is administered pre-meal – safety with young children a key consideration and so bolusing after meals may be recommended when the carb content is known. For pumpers - Utilize pump features, both in terms of splitting the bolus and in terms of available bolus types.

8. Blood glucose numbers provide information about responses to foods eaten and ideas for optimal insulin delivery to reduce blood glucose swings – BG numbers however often become the focus, rather than the story teller helping to give you future strategy information.

9. Healthy relationship with food is essential – flexibility, not restriction, is the key ingredient. Get even with challenging foods – don’t avoid them. Involve children in carb counting as early as possible – don’t do all the work for them if they have the ability to participate. Problem solve with children – they may be more open to incorporating the solution.

10. Be mindful of disordered eating – elevated A1c in a knowledgeable patient, DKA frequency, anxiety about being weighed. Key is to negotiate realistic glucose levels, weight and behavioral goals and encourage positive communication (verbal and non-verbal!) – avoid perfectionism!

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1. Exercise is an important part of every child’s day – associated with many health, psychological and social benefits. Specific benefits for children with diabetes include lower blood glucose levels, less insulin requirements and can allow greater food intake. The impact of exercise can sometimes be experienced for up to 24 or so hours after the exercise and so the challenge can be hours after the activity rather than at the time of the exercise. Weight management can also be an important consideration for some children – especially with the increase of overweight children and those with Type 2 diabetes.

2. Key is to get children moving.

The American Academy of Sports Medicine recommendation:

A minimum of 30–60 min of moderate physical activity daily

- Participation in activities they enjoy
- Team sports so that they see they are just like kids without diabetes
- It’s a family affair – the whole family should be moving!

3. Blood glucose values around exercise can help to identify the best food / insulin approach before, during and after the exercise. It is a very individual response! At the onset of a new sports season, frequent blood glucose monitoring during the 12 hr post-exercise period should be undertaken to guide insulin dose adjustments. Optimizing performance may be the greatest motivator for a competitive child, reluctant to monitor.

4. As you can expect different blood glucose responses for different types of exercise, at different times of the day and under different circumstances (training versus competition). Because of this, pack a bag of supplies and keep it close by. Include snacks in case of hypoglycemia as well as snacks to prevent hypoglycemia.

5. Notifying and educating teammates, coaches, or other persons with whom the child is exercising with the signs to look for in case of hypoglycemia and required treatment is essential.
6. Decreasing insulin dose for planned exercise, rather than increasing calories, should be considered as part of appropriate weight management for all children with diabetes, although this strategy may be difficult in the very young child whose physical activity is more sporadic than planned.

Pumpers – Utilizing the temp basal feature or removing the pump (and therefore insulin) can significantly management strategies for exercise and improve blood glucose profiles / hypo risk during and after exercise.

7. Continuous glucose monitors - Can also help to provide a DVD picture of glucose responses with exercise and therefore provide important insights into food and insulin management needs with exercise.

8. Don’t exercise if ketones are present – you should really check for ketones (with unexpired ketone strips!) if the BG is above 250mg/dl and you are wanting to exercise.

Key:

Get children (and families) moving and monitor BG responses – utilize the health care team in assisting with management strategies

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