

*This is general information and not specific medical advice for you, your child, or loved one. Always consult your doctor or other healthcare provider if you have any questions or concerns. Call 911 or go to the nearest Emergency department in case of an urgent concern or emergency.*



# Diabetes Education Train the Trainer Series: Physical Activity

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**Children's**<sup>SM</sup>  
Healthcare of Atlanta  
*Dedicated to All Better*

# Our Diabetes Education Team

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## Children's Healthcare of Atlanta:

- Diabetes Education at Scottish Rite ..... (404) 785-4841
- Diabetes Education at Egleston ..... (404) 785-1724

## Children's Physician Group:

- Endocrinology at Egleston ..... (404) 785-5437  
(Formerly Emory Children's Center)
- Endocrinology at Scottish Rite ..... (404) 785-5437  
(Formerly Pediatric Endocrine Associates)

**Van Meter Endocrinology** ..... (678) 961-2100

**Pediatric Endocrine Specialists of GA**..... (678) 691-5351



# Introduction

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**This education video focuses on the role that physical activity plays in managing the health of children with diabetes.**

**It is intended for school nurses who are responsible for children with type 1 or type 2 diabetes.**



Most children they encounter will be type 1, however, the number of patients with type 2 diabetes is increasing and those children may also be taking insulin.



# Exercise

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Exercise is as important as medication and diet for people with diabetes.



# Objectives

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## This course will:

- Discuss detailed benefits of exercise for children with diabetes
- Provide tips for managing exercise in the school setting



# Benefits of Exercise

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# Benefits of Exercise

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1

Increases Insulin Sensitivity

2

Decreases Weight

3

Improves LDL/Triglycerides

4

Increases HDL

5

Increases Bone Density

6

Improves Feeling of Well-Being

7

Improves Sleep

8

Socialization Skills

9

May Improve Blood Sugar Control (even hours later)





# Caution

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May increase blood sugar due to:

- Inadequate insulin
- Epinephrine/norepinephrine



# Exercise Management at School

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# Tip #1

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## Know the needs of Type 2 vs Type 1 Diabetes

- Oral medications do not cause hypoglycemia
- May not require snack pre-exercise if not on insulin
- Many children with Type 2 are on insulin and will need the same precautions as children with Type 1

**TYPE 2** vs **TYPE 1**  
**Know the Needs**



# Tip #2

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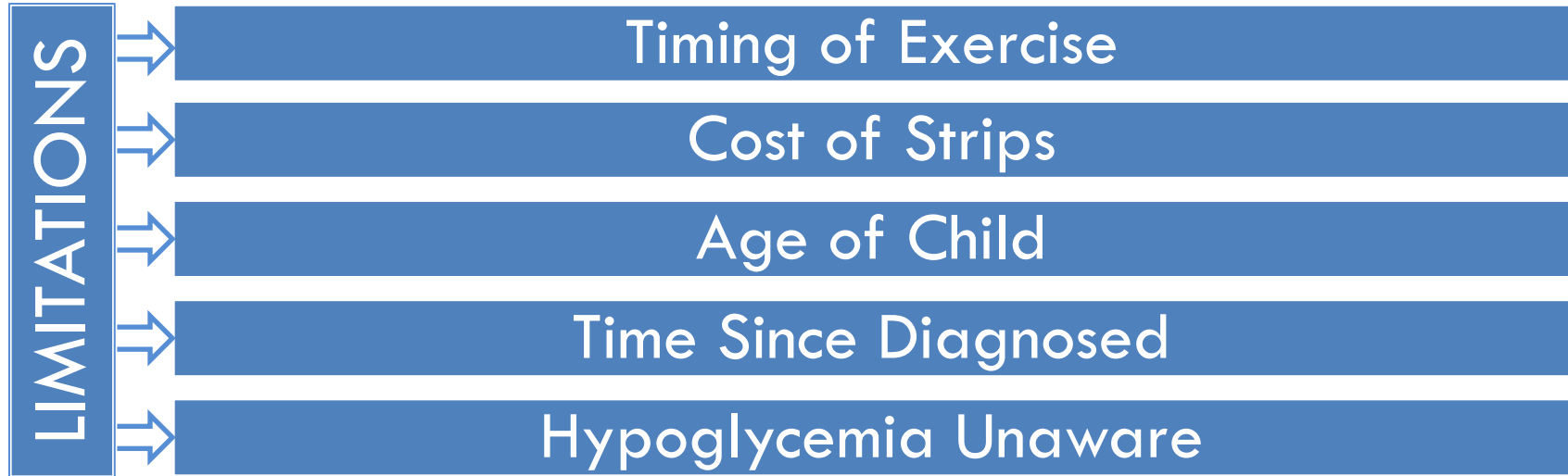
Make sure blood sugar meter and quick acting form of glucose are available at all activity sites.



# Tip #3

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## Check blood sugar before and after exercise



# Tip #4

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Recognize that a change in child's behavior (such as sleepiness or irritability) could be a symptom of low blood sugar



# Tip #5

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Hypoglycemia may occur during or after exercise



**Have quick acting form of glucose available at all exercise areas – gym, practice fields.**



# Tip #6

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## Blood sugar should be $>100$ before exercise

- If blood sugar  $>300$ , check ketones



**Do NOT allow exercise  
if ketones are present!**





# Tip #7

## Guidelines for adjusting food before exercise

- Short duration (<30mins)

- Low-moderate intensity (PE or recess)

| Blood Sugar Level | Amount of Carbohydrate |
|-------------------|------------------------|
| BG < 100          | 10-15gm CHO            |
| BG > 100          | 0gm CHO                |

- Longer duration (30-60mins)

- Moderate intensity (jogging, PE)

| Blood Sugar Level | Amount of Carbohydrate |
|-------------------|------------------------|
| BG < 100          | 25 – 30gm CHO          |
| BG 100 - 150      | 10 – 25gm CHO          |
| BG 150 - 200      | 10 – 15gm CHO          |
| BG > 200          | 0gm CHO                |



# Tip #8

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Dehydration can cause elevated blood sugar.  
Drink plenty of water before, during, and after exercise.



# Tip #9

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Provide information to substitute physical education teachers about signs and symptoms as well as treatment of hypoglycemia.

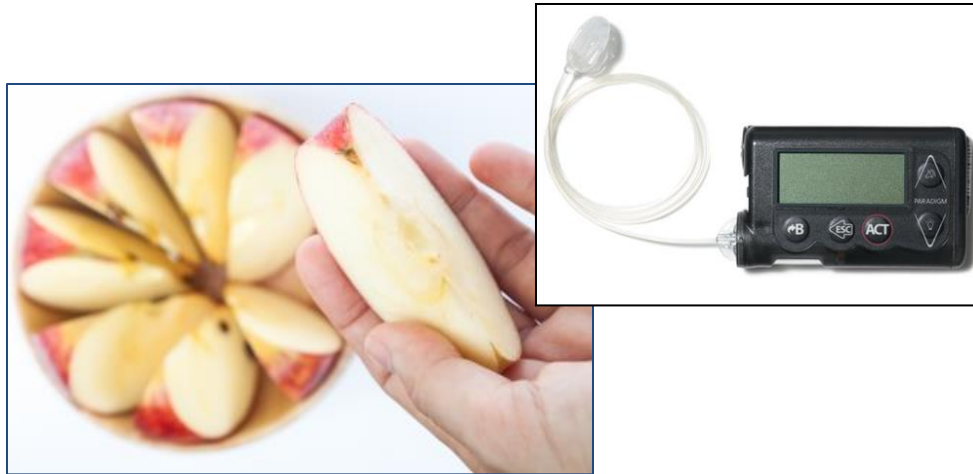
| Early stages of hypoglycemia |                   |
|------------------------------|-------------------|
| • Sweating                   | • Fatigue         |
| • Shakiness                  | • Pale Skin Color |
| • Hunger                     | • Yawning         |
| • Anxiety                    | • Irritability    |



# Tip #10

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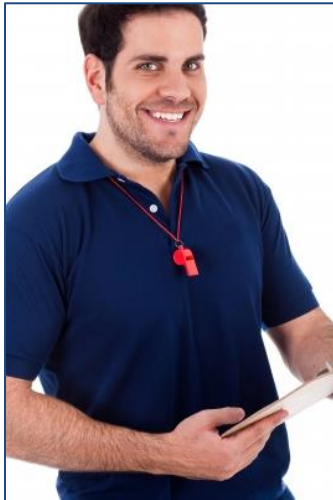
Pumpers should wear the pump if possible and may need an extra snack. Protect the site from displacement.



# After School Sports

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Coaches need to be aware of treatment for hypoglycemia. Fast-acting source of carbs such as sport beverages should be available.



# Untethered Regimen

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Pumpers off the pump for extended periods of exercise

## How it works

- 70-80% of basal insulin given as injection of Lantus/Levemir
- Remaining basal is delivered through the pump
- Pump must be placed in a secure location and protected from temperature extremes



# Diabetes Train the Trainer Series

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*For more information visit:*

[www.choa.org/medical-services/diabetes](http://www.choa.org/medical-services/diabetes)

- Diabetes 101
- Carbohydrate Counting
- Physical Activity
- The Diabetes Medical Management Plan
- Taking Type 1 Diabetes to School



# Resources

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- Community website for tips, chat rooms, etc.: [www.childrenwithdiabetes.com](http://www.childrenwithdiabetes.com)
- Helping students with diabetes succeed: [www.betterdiabetescare.nih.gov](http://www.betterdiabetescare.nih.gov)
- American Diabetes Association tips and tools: [www.diabetes.org](http://www.diabetes.org)





# Terminology

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- **Endorphins** – Chemicals released in the brain which can produce a positive feeling.
- **Glycogen** – The main storage form of glucose in the body.
- **Epinephrine and Norepinephrine** – Hormones released from the adrenal gland in response to stress.
- **Honeymoon phase** – A period of time after diagnosis with type 1 diabetes that usually lasts 6-12 months where the pancreas still makes some insulin and less injected insulin is needed. More frequent low blood glucose can occur during this phase.
- **Pumpers** – Common term applied to individuals with diabetes who wear insulin pumps.

