



*A health series to educate families on well-being issues with their children*

A collaborative effort of Children's Hospital of Pittsburgh of UPMC and The Pennsylvania Child Welfare Resource Center



UPMC

## What is Diabetes?

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### What is Diabetes?

- Diabetes is a disease that is a disruption of the way your body uses sugar.
- We eat food that our body breaks down to sugar (glucose).
- Glucose floats around in our blood and enters our cells.
- Insulin must be there to “unlock” the door for glucose to enter the cell.
- Every cell in your body needs glucose (energy) to work properly.
- When your body cells (including your brain) do not have proper fuel (glucose) – they do not work correctly and you can get very sick very quickly.
- Diabetes has two types:
  - Type 1 – your pancreas (an organ in your abdomen) cannot make insulin, so your body lacks insulin to utilize the sugar. More common in children than adults.
  - Type 2 – your pancreas doesn't make enough insulin or your body cells don't respond to insulin to let glucose in, so your body can't use the sugar that is floating around. Much common in adults than children.

### How is Diabetes type I treated?

- Diabetes Type I is treated with insulin.
- A diabetic must measure his/her level of sugar in the blood and give him/herself a measured injection of insulin, usually 4 times a day.
- Many diabetics use “long acting” insulin that provides some glucose control over many hours (12 – 18 hours), usually given in the morning or at night time.
- In addition, a diabetic will use “short acting” insulin to deal with the glucose at each meal.
- DKA can occur when the body lacks insulin for a prolonged time. The body gets imbalanced and cannot regain control.
- Managing glucose and insulin levels takes lots and lots of care and effort. It can be difficult.
- The doctor specializing in diabetes (an endocrinologist) will make a plan with you for what is the right range of glucose and how much insulin should be given.





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### What happens if your glucose level goes too low?

- A diabetic that takes too much insulin and doesn't have enough food to provide glucose can become very ill. This is called hypoglycemia (hypo - low; glycemia - glucose)
- This can be a life threatening emergency.
- Symptoms include:
  - Confusion, dizziness - Your brain doesn't have enough fuel.
  - Hunger
  - Headache and irritability

### What happens if your glucose level goes too high?

- Extremely high glucose can lead to diabetic ketoacidosis, which is a life threatening emergency.
- When glucose is running high in your body, your body may not show any signs.
- Over time, hyperglycemia (hyper- high; glycemia - glucose) can cause severe damage.
- Frequent hyperglycemia is called "poor diabetes control."

### What is Diabetic Ketoacidosis (DKA)?

- Diabetic Ketoacidosis is a life threatening medical emergency. It can occur in Type 1 or 2.
- *Diabetic* - due to diabetes and lack of insulin to provide glucose breakdown for fuel.
- *Keto* - the body begins to breakdown fats and proteins to fuel cells. (and that makes ketones)
- *Acidosis* - the ketones build up and knock all of the acid balance off. Your body gets acidotic and very unbalanced. Your body can't function.
- Symptoms include:
  - Confusion (altered mental status) - your brain isn't getting the fuel it needs.
  - Fast shallow breathing - Your lungs are trying to help you get rid of acid.
  - Nausea, vomiting, abdominal pain - your GI system isn't working.
  - Extreme thirst and urination - all the unused sugar is making your body lose water and you get very thirsty to try to balance.





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### What are the long term effects of poor diabetes control?

- A lot of the poor health consequences will not show up for years. This makes it really hard for children to understand.
- Long periods of time with high glucose and poor control causes damage in the tiniest vessels of your body.
- Eyes – the high levels of glucose damage the vessels of your retina, which can lead to diabetic retinopathy (retino – retina; pathy – disease). This can lead to blindness.
- Kidneys – the high levels of glucose damage the vessels in your kidneys, which can lead to kidney disease. Some diabetics have kidney failure and have to receive dialysis for the rest of their lives.
- Nerves – the high glucose levels damage the tiny vessels that support your nerves. Diabetics may get nerve damage and have numbness, tingling, and long term pain in their feet and legs.

### What are the important steps to staying healthy with diabetes?

- Children with diabetes should have regular appointments (every 3 – 6 months) with their diabetes doctor (an Endocrinologist).
- Children with diabetes should also see their regular doctor, at least every year.
- A diabetic should have a clear plan for insulin management at home and at school.
- A diabetic should always have their supplies for checking glucose.
- A diabetic should have an organized notebook to write down the glucose level every day.
- A diabetic and family members MUST KNOW
  - The warning signs hypoglycemia
  - The warning signs of hyperglycemia
  - How to respond to these emergencies
  - When to seek medical care/emergency room.

### Content Sources:

American Academy of Pediatrics: [www.healthychildren.org](http://www.healthychildren.org)

Center for Disease Control: [www.cdc.gov](http://www.cdc.gov)

KidsHealth, Nemours Center for Children's Health Media: [www.kidshealth.org](http://www.kidshealth.org)

National Center for Environmental Health: [www.cdc.gov/nceh](http://www.cdc.gov/nceh)

Up To Date: [www.uptodate.com](http://www.uptodate.com)

U.S. National Library of Medicine: [www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

