


[HOME](#)   [ABOUT](#)

## Button Batteries

Posted by [Dr. Rick McClead](#) on February 13, 2012

**Podcast: [Download](#) (Duration: 17:13 — 19.7MB)**

Do you know what a button battery is? With the increasing production of electronic products in the consumer market, more button batteries are found in the home setting. From remote controls and watches to musical greeting cards and toys, these small, shiny objects are the perfect size for a curious child to swallow or even push into their nasal cavity or ear canal. It is important for parents to be aware of the dangers that button batteries pose to young children and the damage that these batteries can cause. Listen in as we talk with [Kris Jatana, MD](#), a pediatric head and neck surgeon here at Nationwide Children's Hospital, about the dangers of these batteries, and just how quickly tissue damage can occur if ingested.

For more information and to listen to the rest of Susan Saudaukas's story, check out our video news release here: <http://www.nationwidechildrens.org/news-room-articles/physicians-at-nationwide-childrens-hospital-warn-consumers-of-the-dangers-of-button-batteries?contentid=97339>

For tips on preventing button battery injuries, check out this website: [www.poison.org/battery/tips.asp](http://www.poison.org/battery/tips.asp).

### Transcript

**[Music]**

**Susan Sadalco:** I never would have thought that he could have gotten this little case off of this battery and ingest something like that. And they are everywhere

**Rick McClead:** That was Susan Sadalco who's son Max ingested a small battery from a remote control device. Each year more than 3500 cases of button battery ingestion's are reported to the poison control centers.

This harmless appearing nickel size batteries can cause terrible damage and can lead to death of not removed within a few hours of ingestion. The dangers of button batteries next on Children's On Quality.

**[Music]**

**Rick McClead:** Welcome to Children's on Quality. This is your host Dr. Rick McClead, Medical Director for Quality at Nationwide Children's Hospital. With me to discuss the problem of button batteries is Dr. Kris Jatana, assistant Professor of Otolaryngology at Ohio State University.

**01:05**

And then Ears, Nose, Throat Specialist here at Nationwide Children's Hospital. Kris, welcome to Children's on Quality.

**Kris Jatana:** Thank you for the opportunity to be here.

**Rick McClead:** I'd like to begin by having you describe what it is that we are talking about when we refer to a button battery.

**Kris Jatana:** So, button batteries are very common today and they were first introduced to the consumer community back in the late 1950s. And since that time they evolved, the batteries if today are much different than the batteries of several decades ago.

And most in the part to improving the technology of them, making them more powerful, more slim, sleek design. They are batteries that typically power watches and calculators, hearing aids, there are musical greeting cards,

Children's On  
**QUALITY**



#### Recent Posts

[PediaCast MashUp](#)  
[Surgical Hypothermia](#)  
[Button Batteries](#)  
[Hand Hygiene at Nationwide Children's Hospital](#)  
[Pastoral Care at Nationwide Children's Hospital](#)

#### Pediatric Health News

[People With Autism May Be Better at Processing Information](#)  
[Too Much Sitting Can Kill You, Study Suggests](#)  
*<b>By Maureen Salamon</b>*  
*<BR/><i>HealthDay Reporter</i>*  
[Does Chocolate Help You Stay Slim?](#)  
*<b>By Randy Dotinga</b>*  
*<BR/><i>HealthDay Reporter</i>*  
['Freezing' Secondary Breast Cancer Tumors Shows Promise](#)  
[Weight-loss surgery cut blood sugar more than drugs](#)  
*Debra Sherman and Ransdell Pierson*

#### Archives

[March 2012](#)  
[February 2012](#)  
[June 2011](#)  
[May 2011](#)  
[April 2011](#)  
[March 2011](#)  
[February 2011](#)  
[January 2011](#)  
[December 2010](#)  
[November 2010](#)  
[October 2010](#)  
[August 2010](#)  
[July 2010](#)  
[June 2010](#)  
[May 2010](#)  
[March 2010](#)  
[February 2010](#)  
[December 2009](#)

toys, games, thermometers, and a lot of electronic devices are now powered by this.

#### 02:04

Given that they're more powerful than they were before, the increase in number of consumer electronic products that were on the market that contains this batteries, this is really a growing problem that we're seeing with kids either placing this inside their bodies, in their ear canal or nose, or swallowing the batteries.

**Rick McClead:** You know I had looked back -the first reports of these batteries being a problem would go back in the late 70s. And yet following the literature along, there seem to be some controversy whether this was or wasn't a problem or not because early batteries are different than the ones today.

They were less powerful, but they also maybe were incorporated mercury, as a component of the battery and that pose some toxic hazards as well. It seems as if the controversy is somewhat abated, this is clearly a problem.

#### 03:00

**Kris Jatana:** Absolutely. This batteries have been a problem for several years, decades of time on fact. And the mercury containing batteries that you're referring to are now off the market as an act in the mid 90s that has banned those types of batteries from the consumer products.

But there's still the concern that number of electronic devices is really rapidly increasing on the consumer market. These are small coin shaped batteries that kids find attractive, they are shiny, kids very commonly will swallow coins. And it's one of those hazards that parents don't think about that's in every home in the country.

**Rick McClead:** Well, tell me about how these batteries can cause a problem if a child ingest them.

**Kris Jatana:** Sure.

**Rick McClead:** How do they work to cause damage?

**Kris Jatana:** So, the biggest problems with these batteries occurs when the batteries get stuck or lodged in a specific location.

#### 04:02

The electric current that generates around the battery causes an alkaline or hydroxide ion to form at the negative poll of the battery. And so, this creates a very rapid tissue burn, tissue injury.

And if you think about a chemical burn with alkaline materials, this is basically a chemical burn that's powered with electricity. And so, it occurs very rapidly and even within two hours of the button battery being placed inside the body, that current can cause severe injury.

**Rick McClead:** Now, this things are pervasive throughout a home, how might I know that a child of mine has actually ingested one of these batteries? What would be the signs and symptoms of an ingestion that a parent should look for?

**Kris Jatana:** And that really highlights the biggest problem we have with this is it's hard to make the diagnosis as a parent, it's hard to make a diagnosis even as a physician seeing a child in the emergency room because the signs and symptoms that go along with the button battery ingestion example being lodged in the esophagus are no different than the symptoms we see with the common cold or viral illness in children.

#### 05:18

So, a lot of them will have fever, will just be more irritable, not eating as much, vomiting, and these symptoms are really hard to distinguish from the common viral illness we see in children.

So, it really presents a challenge for both parents as well as physicians to make this diagnosis. The diagnosis can be made by obtaining both lateral and interior-posterior view x-ray.

And on the x-ray in particular what to look for is on the anterior-posterior view you'll see a ring or halo sign around the battery which differentiate's it from a coin. And on the lateral view you'll usually see a little notch or step off that's consistent with the battery.

#### 06:04

But the challenge that emergency room physicians, pediatricians, and urgent care physicians, we are seeing these children initially is we can't get x-rays on every child with these symptoms. And it's hard to make the diagnosis without getting the x-ray. So, with the rising incidents of consumer products that contain this battery this is really a growing problem that you see in the community.

**Rick McClead:** So, we really have to have high index of suspicion for that.

[October 2009](#)

[September 2009](#)

[August 2009](#)

#### Links

[Nationwide Children's Hospital](#)

[Newsroom](#)

[Quality & Safety](#)

#### RSS Feeds

[All posts](#)

[All comments](#)

#### Meta

[Log in](#)



**Kris Jatana:** Absolutely.

**Rick McClead:** From a parent's perspective besides the symptoms which there could be no symptoms at all, a finding might be a remote control device that's been taken apart, bits and pieces laying around, a musical greeting card that has been opened up.

Any of the thoughts about what a parent could look for that might make them suspicious that the child could have consume something like this.

**07:00**

**Kris Jatana:** Absolutely. There are a number of children that will be completely symptomatic and the clock is ticking from the moment that battery is placed inside the body. And that's why this is just such a huge problem for children is it's hard to make the diagnosis quickly.

Majority of the children that have suffered serious complications or fatal complications from button battery ingestion had a delay in diagnosis. And really prevention is the biggest key that we need to focus on. Certainly if you see any electronic devices that have been disassembled, then you can't find the battery, that would be concerning, do bring your child to the emergency room for evaluation.

However, prevention is really the key. And I think several steps that can be taken within the household setting would include just going through just like when you child proof your home early in life, or electrical outlets and things like that.

Really go through and look at every battery powered device that you have in your home. And make sure that that battery is kept in a secure location.

**08:03**

And something that would be considered more secure is for example a screw back compartment where a child would have to take a screw driver to take the battery out of the device. And make sure that there's no loose battery just laying around on the counter or on the coffee table that are used for these types of devices.

They should be kept in a secure location and treated just like a hazardous chemical in the home. The batteries are really everywhere and something that should be taken into account during that child proofing process.

**Rick McClead:** On our Children's on Quality website we have a link to our brochure with tips for parents to prevent button battery injury. This is from the National Poison Control Center. That link is [www.poisson.org/battery/tips.asp](http://www.poisson.org/battery/tips.asp). I wanted to also touch just briefly in looking at the literature about the button battery ingestion.

**09:04**

There seemed to be some size differentiation, things really became increasingly a problem when they started making the batteries about 20 millimeters which is between the size of a dime and a nickel is that correct? Because that's the size of tins that gets stuck.

**Kris Jatana:** Sure.

**Rick McClead:** But I was also surprised to learn that this little tiny hearing aid batteries can be a problem as well. So, grandma and grandpa they've got a hearing aid, they're taking their batteries out weekly or every 10 days or something like that, and replacing them.

A child could pick one of this up or an adult mistaking this for a pill accidentally ingest. Talk to me a little bit about how these very tiny batteries could pose a hazard to both the child and adult?

**Kris Jatana:** Absolutely. So, the size of the battery really does make a difference. And of the major and fatal outcomes that we're seeing in children and majority of these batteries have been the 20 millimeter lithium batteries.

**10:04**

And they're big enough to get stuck, they're more powerful than some of the other batteries, and so they can cause very rapid tissue injury. The batteries that don't tend to cause as much injury are the smaller batteries because they don't tend to get stuck in the esophagus.

However they can cause serious injury if they're place into the ear canal or the nasal cavity where they can get stuck in those locations. And in particular with children who commonly place objects in their nose and their ear canals, this can cause serious injury within the nasal cavity. This can cause perforation of their nasal septum.

This can cause infection and cellulitis around the eye. And the ear canal, it can cause hearing lose, it can cause eardrum rupture, it can cause facial nerve paralysis. And this have all been reported in children. As far as the

adult population, it is very common given provision to mistaken a battery that is used for the hearing aid device for a pill.

**11:07**

And that's one of the most common causes of button battery ingestion in the United States is older adults who accidentally swallow this batteries. Fortunately these batteries were small, they typically will pass through the gastro intestinal system without any complications, and don't cause a serious injury.

However, grandparents who wear hearing aids who have these batteries around the house definitely poses a risk to grandchildren that come over and could have access to these batteries and particularly placing them in their nasal cavity or ear canal.

**Rick McClead:** You know, I never thought much about what the significance of the identification code on the batteries represent. But in fact there's information that's there that a parent could communicate to the Poison Control Center or to the emergency room physician. Could you explain how those letters and numbers correlate to the problem that we're concern about?

**12:08**

**Kris Jatana:** Absolutely. The first two letters correlate to the type of chemical that the battery contains. The four numbers typically correspond to -the first specifically the two first digits corresponded the diameter of the battery. So, if it says 2032 that means that it's a 20 millimeter diameter battery, and the 32 actually what refers to the thickness or height of the battery in tens of a millimeter.

So, it's a little bit confusing the way that they label because the first two digits is using the unit of millimeters and the second two digits were actually tenths of a millimeter. So, 2032 would mean a 20 millimeter diameter battery with a 3.2 millimeter thickness.

**Rick McClead:** So, a parent who maybe have a number of these batteries around is familiar with what battery is going in to a particular device that a child has ingested.

**13:09**

If they could find a similar battery and just communicate that number to the emergency room staff when they bring the child in for x-ray, that could be pretty valuable.

**Kris Jatana:** It's helpful to know a little bit more information about that and particularly for studies that looked back at the ingestion of these and what children are more commonly swallowing. But really the concern of having battery ingestion no matter what shape of size the battery is, is really an emergency. And so, parents should bring the child to the emergency room immediately if they suspect ingestion of any type of battery.

**Rick McClead:** Well, solution to the button battery problem would appear to be a product or a package we design. You had mentioned the -a ore secure battery compartment. What are the manufacturers of the batteries and the products that use the batteries doing to make these products or these batteries less accessible to children/

**14:07**

**Kris Jatana:** That's a very good point that you brought up. I think that there are a number of devices out there on the consumer market that are not necessarily marketed for young children. And so, those were the devices that are the highest risk for children that get access to them.

And so, if an older sibling or parent has these devices, these are the devices that are not necessarily regulated like a child's toy. And I've been involved with the national advocacy effort, was involved with presenting to the U.S. Consumer Product Safety Commission this past year on this very topic.

And figuring out ways that we can strengthen the product safety standards for devices that contain these batteries . There's an act in Congress that still in sub committee review at this moment, that is entitled "The Button Cell Battery Safety Act of 2011".

**15:03**

And it was introduced in June of 2011 to the Senate subcommittee and is still in review. There have been no updates as far as where that's going to go from there once the discussion is completed.

But that basically allows for the consumer product safety commission to have oversight over products that contain these button cell batteries as well as the companies who manufacture the batteries, and making sure that the packaging is adequate. And that warnings are adequate on both the product and the battery when they're sold in the consumer market.

And these are really measures that I think are really very important because we have a situation where children

are otherwise healthy, these are devices that are in every home. And children are really suffering life long consequences from button battery ingestion, it's not just a one time injury.

**16:06**

And several of these children have had to require feeding tubes to be placed directly into the stomach for nutrition. Tracheostomy tube placed into the airway passages in order to breath. And the complications that we're seeing from these batteries are much more significant than 30-40 years ago, and they're just everywhere.

**Rick McCleod:** Well, that is all the time we have for this edition of Children's on Quality. I thank my guest Dr. Kris Jatana. And I thank you my listeners. Children's on Quality is produced by Kelly Nightingale, our theme music 'Fleeing Moments' was composed by Ryan McCleod.

Next time on Children's on Quality, we shall discuss the problem of hypothermia during surgical procedures. Until then, this is your host Dr. Rick McCleod, wishing you, the best of good health.

**[Music]**

[« Hand Hygiene at Nationwide Children's Hospital](#)

[Surgical Hypothermia »](#)

## Post a Comment

Your email is *never* shared. Required fields are marked \*

Name \*

Email \*

Website

Comment

Post Comment

### **Nationwide Children's Hospital**

700 Children's Drive Columbus, Ohio 43205 614.722.2000

