

## **Transcript**

**15/08/2013**

### **Energy Drinks**

#### **Catalyst**

#### **NARRATION**

On a wintery night in June 2011, 16-year-old Sara Milosevic and her friend Stephanie were ready to celebrate.

#### **Stephanie Aarsman**

We were heading to an end-of-the-exam party. We were really excited to go. We rocked up about eight o'clock. We started to drink a few drinks.

#### **NARRATION**

Armed with a pack of pre-mixed alcohol energy drinks, the girls were up for a fun night. But after just a few cans, Sara took a turn for the worse.

#### **Stephanie Aarsman**

Sara probably had about three in half an hour. I think she sculled the first couple. Then maybe after a few hours, Sara was starting to feel really ill, like, was in the bathroom for probably the rest of the night, just vomiting constantly. I just thought she had just drank a little bit too much and was just sick from that and I didn't think anything bad of it.

#### **NARRATION**

About 11pm, Sara called her parents to collect her. Four hours later, she was dead. Her father, an analytical chemist, blamed the energy drinks.

#### **Stephanie Aarsman**

I was really upset knowing that I had the same drinks Sara had had, the same amount - I thought that it could have happened to me.

#### **Prof Chris Semsarian**

We need to be very wary of anything that may trigger rhythm problems of the heart. And energy drinks have been shown recently to be one of these potential triggers.

#### **Dr Steve Hambleton**

I don't think people really understand the risk. They don't see the dangers that the medical professionals see.

#### **Geoff Parker**

I think, and the science says, that these drinks are perfectly safe.

#### **NARRATION**

Energy drinks are everywhere these days, marketed and sold alongside soft drinks.

#### **Anja Taylor**

But what exactly is an energy drink? Is it a soft drink? Is it a supplement? Or is it, as some people claim, a potentially lethal cocktail that should be banned? There's nothing on the back of the can that looks particularly worrying. But there's a growing concern among the medical community that these drinks are a recipe for disaster.

#### **NARRATION**

In the US, emergency visits related to energy drinks doubled from 10,000 in 2007 to over 20,000 four years later. Dr Naren Gunja wanted to know if something similar was happening here.

#### **Assoc Prof Naren Gunja**

Over a five-year period, we had a fivefold increase in the number of people who called a poisons centre annually who'd had adverse effects from energy drinks. Primary cause of the toxicity comes from the caffeine and the sugar content. There was a wide range of symptoms. Sometimes just chest pain or mild palpitations and tremor. Bit of anxiety. All the way up to some serious effects such as seizures, heart attacks, cardiac arrhythmias.

#### **NARRATION**

Nearly half of the callers required hospitalisation. Their average age was just 17.

#### **Assoc Prof Naren Gunja**

It is worrying because these people are still developing. They have developing brains as well as their body and

when they have abnormal events like this at a young age, you wonder whether that sets them up for future adverse cardiac events.

#### **NARRATION**

But the Beverages Council says there's no cause for alarm.

#### **Geoff Parker**

Food Standards Australia New Zealand has tested caffeine thoroughly and they've come up with that particular cap of caffeine, at 80mg for the 250ml, as being a perfectly safe level. They're equivalent to a cup of coffee. And that's what I think we need to be keeping to the fore here.

#### **Anja Taylor**

I'm a big fan of a morning coffee. And so far, it's never landed me in the Emergency Department. So if there's no more caffeine in an energy drink than there is in an espresso shot, why all the concern?

#### **NARRATION**

Perhaps because there's more to it than that.

#### **Dr Conrad Woolsey**

Energy drinks have numerous ingredients and each of those have a different action in the body.

#### **NARRATION**

Caffeine is responsible for much of the energy kick, but it's helped along by a hefty serving of sugar - up to 13 teaspoons in one can. Energy drinks also contain a variety of exotic-sounding compounds, like guarana, taurine, ginseng and inositol, among others.

#### **Dr Conrad Woolsey**

They call them a brain chemistry Molotov cocktail. Within the same can, you have stimulants, antidepressants and anti-anxiety agents. If I'm drinking an energy drink, I might not notice that I'm getting anxious and nervous or that I've had too much. Whereas if I'm drinking a cup of coffee, I know when I get a little shaky and I know to stop using it.

#### **NARRATION**

There's a widespread belief that you can perform better on energy drinks. But is that the case?

#### **Dr Conrad Woolsey**

We tested energy drinks on flight performance in pilots. We tested skills such as complex turns and straight and level flight and people's ability to respond in emergency scenarios. Pilots were found to make more errors when they used energy drinks.

#### **NARRATION**

This is one reason why US Navy pilots are banned from consuming energy drinks before flying.

#### **Dr Conrad Woolsey**

Many athletes and coaches use energy drinks because there's been so many studies out there showing that it improves reaction time, power output. Just because something increases reaction time doesn't mean necessarily that it's going to increase performance.

#### **NARRATION**

Another major difference between coffee and energy drinks is the way they are consumed.

#### **Boy on YouTube**

See how fast you can drink a 250ml energy drink.

#### **Anja Taylor**

What's the dangers of downing caffeine that quickly?

#### **Prof Chris Semsarian**

Very dangerous. That's a big shot of energy drink. It could trigger breathing problems in him, could trigger abnormal behaviours in him. It's potentially life-threatening to drink four or five energy drinks all in one go.

#### **NARRATION**

With a team of doctors in attendance, it's unlikely I'm going to die today, but I'm keen to find out just what happens to my body when I slam down two energy drinks in quick succession. Along with two other willing guinea pigs, I'm giving blood to see if energy drinks change the way my platelets stick together.

#### **Dr Scott Willoughby**

Following the energy drink, your stickiness increased twofold.

**Anja Taylor**

Two... Twofold?! So this is a double, essentially, in blood stickiness.

**Dr Scott Willoughby**

It is a measure of twofold increase in blood stickiness, which is about the magnitude that we're seeing in our original study.

**NARRATION**

Increased stickiness of the blood raises your risk of developing a life-threatening clot - a cause of heart attack and stroke.

**Anja Taylor**

And was that the same as Lauren and Laura?

**Dr Scott Willoughby**

Our other two participants showed an even greater increase in their blood stickiness than you. I think Lauren was up to threefold and Laura fourfold.

**Anja Taylor**

Right, so every single person had sticky blood after drinking the energy drink.

**Dr Scott Willoughby**

Yes.

**Anja Taylor**

What do you think it is? Do you know?

**Dr Scott Willoughby**

We don't know for sure. We do know that it's unlikely to be the caffeine in the product, but that doesn't exclude that there is an interaction between caffeine and one of the other major products, either taurine or glucuronolactone.

**NARRATION**

Increased blood stickiness is also a predisposing factor for cardiovascular disease. What adds to this risk is if your blood vessels don't function properly. This next test will tell us just that.

**Anja Taylor**

The blood pressure cuff has cut off circulation to my arm, so essentially my arm is flatlining. When the cuff is released, we'll see how well my blood vessels bounce back.

**Doctor**

You'll see the deflections coming back almost immediately.

**Anja Taylor**

I can feel that blood-flow back.

**NARRATION**

And the results show my blood vessel function has declined.

**Dr Scott Willoughby**

Your overall responsiveness has come down by about 10%. Though you may be more towards the upper end of the normal responsiveness, the energy drink has still had a significant effect on your blood vessel function.

**NARRATION**

But Lauren's decline in function is even more worrying.

**Dr Scott Willoughby**

You can see a dramatic reduction in her blood vessel function. She actually has a profile more like a patient with cardiovascular disease than a normal person now.

**Anja Taylor**

Really? So it's pushed her into a dangerous range.

**Dr Scott Willoughby**

Yes, it's taken her from the lower normal limit into an abnormal limit. So quite dramatic responses within an

hour.

#### **NARRATION**

Today's results reflect what Dr Willoughby found in his original study, and the two risk factors work together. When your blood vessels aren't functioning well, sticky platelets are more likely to adhere and form clots.

#### **Dr Scott Willoughby**

If you have both abnormal blood vessel function and increased stickiness in the coronary arteries - the arteries that run around the heart - that stops the blood flow around the heart, and that leads to a heart attack.

#### **NARRATION**

But that's only route to a heart attack. George Greaves was a big fan of energy drinks, but never consumed more than the recommended amount.

#### **George Greaves**

I used to drink one to two cans a day. I'd have one on the way to work. Yeah, I did feel my heart race, but I just thought that was a normal thing, I thought, 'Well, it's an energy drink.'

#### **NARRATION**

But when he started suffering dizzy spells, he knew something was up.

#### **George Greaves**

I'd been unwell for a couple of days and was drinking the energy drinks to try and perk myself up. Went to a local doctor, so he sent me off to a local hospital, and it was at the local hospital that they told me I was having a heart attack.

#### **NARRATION**

George had an underlying heart condition called Brugada syndrome - a rhythm disorder that can cause the lower chambers of the heart to beat abnormally fast. George's doctor believed the energy drinks had exacerbated the condition.

#### **George Greaves**

Before I had my heart attack, I had no idea that I had an underlying heart fault.

#### **Prof Chris Semsarian**

Taking these energy drinks sometimes will unmask an underlying heart problem. We know of at least 40 different genetic heart conditions that people can have. You're talking about one in a few hundred people, and that's a significant population risk.

#### **George Greaves**

My health has gone downhill rapidly. It's a very cruel irony because I was taking these drinks to be better at work and now I can't work because of my condition.

#### **NARRATION**

An American review found that, even without a heart condition, energy drinks can raise the risk of cardiac arrest in some people by lengthening their QT interval.

#### **Prof Chris Semsarian**

QT interval is a phase of the ECG which is involved in the heart beating and then relaxing and getting ready for the next beat. And if that is prolonged, that can give the opportunity of the heart to have effectively an electrical short circuit, which can then lead to very fast rhythm, which can then lead to collapse.

#### **NARRATION**

Without warning, a fast rhythm can become a deadly arrhythmia called a ventricular fibrillation. Here the ventricles begin to quiver and can no longer pump oxygenated blood around the body. Within seconds, the patient blacks out. Death follows only minutes later. It's the No.1 cause of sudden cardiac arrest. This bears striking resemblance to Sara's story. The final coroner's report deemed Sara's death natural and undetermined - a likely cardiac arrhythmia.

#### **Prof Chris Semsarian**

The difficulty is trying to link between an energy drink and a cardiac arrest and an actual causation - in other words, the energy drink CAUSED the rhythm problem. That's a very difficult thing to prove, but there seems to be more and more numbers of these cases being reported. We're beginning to see an association between young people dying suddenly or having very severe symptoms and the consumption of energy drinks.

#### **Dr Steve Hambleton**

We know it's going to be harmful to some people. So how many people do we need to harm before we start

taking notice of it and changing the regulations to protect them?

### **NARRATION**

While Australia has some of the strictest energy drink regulations in the world, the medical community wants to see more.

#### **Dr Steve Hambleton**

We should restrict the sale of it. Our children can walk into any of these stores and buy the product right now - no-one's gonna stop them. Yet even manufacturers tell us it's not recommended for children.

#### **Geoff Parker**

Absolutely - those products are not suitable for children. Our energy drinks are not suitable for children. We clearly say that they shouldn't be marketed to children. Like any beverage that contains caffeine, they need to be consumed in moderation. Those daily usage amounts that state 'consume no more than two cans per day' on the back of that label of all energy drinks are there for a reason.

#### **Dr Steve Hambleton**

Let's have a look at the warning labels - they're very minor. You'll struggle to find them on the can. Those labels need to be increased in size so people know what they're doing and know what the risks are.

#### **Prof Chris Semsarian**

In a way, this sort of reminds me of what smoking was like 30 years ago. We had a product which is fashionable, good exposure to young people, but we really don't know of its effects both short term and long term, and so it's potentially a similar public health issue as we saw with smoking many years ago.

Topics: [Health](#), [Others](#)

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[Detrimental effects of energy drink consumption on platelet and endothelial function](#)