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00:00:00,000 --> 00:00:07,000

In this episode, the mythbusters are going far beyond their comfort zones.

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00:00:07,000 --> 00:00:09,000

Did I tell you I was afraid of heights?

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00:00:09,000 --> 00:00:14,000

Could you survive falling 200 feet into water by throwing a hammer in first?

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00:00:14,000 --> 00:00:18,000

And multiple myths for soft drinks.

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00:00:18,000 --> 00:00:21,000

Does cola have miraculous power?

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00:00:21,000 --> 00:00:22,000

Your side sucks.

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00:00:22,000 --> 00:00:27,000

You might bust a myth from the other side if you could survive the burial.

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00:00:27,000 --> 00:00:29,000

I can feel it coming in.

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00:00:29,000 --> 00:00:32,000

Roger that, we're going to get you out.

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00:00:32,000 --> 00:00:34,000

Who are the mythbusters?

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00:00:34,000 --> 00:00:37,000

Am I missing an eyebrow?

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00:00:37,000 --> 00:00:38,000

Adam Savage.

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00:00:38,000 --> 00:00:41,000

I always enjoyed seeing Adam in pain.

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00:00:41,000 --> 00:00:42,000

Oh!

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00:00:42,000 --> 00:00:43,000

And Jamie Heidemann.

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00:00:43,000 --> 00:00:47,000

Jamie wants a big bone.

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00:00:47,000 --> 00:00:50,000

More than 30 years special effects experience.

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00:00:50,000 --> 00:00:51,000

You'll kind of sexy.

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00:00:51,000 --> 00:00:54,000

They don't just tell the myths.

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00:00:54,000 --> 00:00:57,000

They put them to the test.

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00:01:04,000 --> 00:01:05,000

Are you ready?

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00:01:05,000 --> 00:01:06,000

It's been nice knowing you.

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00:01:06,000 --> 00:01:07,000

See you later.

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00:01:07,000 --> 00:01:08,000

Okay.

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00:01:14,000 --> 00:01:16,000

She thinks I look great in an Audi pine.

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00:01:16,000 --> 00:01:17,000

What do you think?

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00:01:17,000 --> 00:01:23,000

How long could a human survive in the confines of a coffin six feet under?

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00:01:23,000 --> 00:01:25,000

Fair well, cruel world.

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00:01:25,000 --> 00:01:28,000

Adam's plan is to bury Jamie alive.

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00:01:28,000 --> 00:01:29,000

Are you doing good, boy?

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00:01:29,000 --> 00:01:30,000

Are you okay in that?

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00:01:30,000 --> 00:01:34,000

This experiment is risky, asphyxiation a real possibility.

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00:01:34,000 --> 00:01:37,000

I don't know if I'm going to like this too much.

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00:01:41,000 --> 00:01:45,000

Well, we're going to bring our science to a really old one this time, Jamie.

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00:01:45,000 --> 00:01:49,000

And the idea is that someone could be mistakenly declared dead,

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00:01:49,000 --> 00:01:53,000

put in a coffin, and then put into a grave and buried while still alive.

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00:01:53,000 --> 00:01:57,000

Well, it seems like that would be possible, but I don't think they'd last very long.

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00:02:00,000 --> 00:02:03,000

There are multiple legends about being buried alive,

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00:02:03,000 --> 00:02:07,000

because apparently there have been stories about this since the ancient times.

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00:02:07,000 --> 00:02:10,000

Heather Joseph Witham, resident folklorist.

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00:02:10,000 --> 00:02:13,000

Social myths are her specialty.

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00:02:13,000 --> 00:02:18,000

One version of the narrative is that your friend's great-great-grandma

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00:02:18,000 --> 00:02:22,000

was very ill, and in fact, she was lying in a coma for several days,

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00:02:22,000 --> 00:02:23,000

at which point she died.

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00:02:23,000 --> 00:02:28,000

Now, when the doctor pronounced her dead, her husband came and was looking at the body and said,

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00:02:28,000 --> 00:02:29,000

she's not dead, she's not dead.

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00:02:29,000 --> 00:02:31,000

We've been married for over 50 years.

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00:02:31,000 --> 00:02:33,000

I can feel her innermost thoughts.

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00:02:33,000 --> 00:02:34,000

I know everything about her.

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00:02:34,000 --> 00:02:35,000

She's not dead.

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00:02:35,000 --> 00:02:39,000

Now, every night this man is having a recurring nightmare.

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00:02:39,000 --> 00:02:44,000

He wakes up, he sees his wife crying at the coffin, screaming,

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00:02:44,000 --> 00:02:46,000

I'm alive, help me, help me.

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00:02:46,000 --> 00:02:47,000

He has this dream every night.

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00:02:47,000 --> 00:02:50,000

So finally, after a week of these hysterical calls,

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00:02:50,000 --> 00:02:53,000

the doctor, together with the local authorities,

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00:02:53,000 --> 00:02:54,000

digs the woman up.

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00:02:54,000 --> 00:02:58,000

And when they open the coffin, what they find is all her nails are bent back,

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00:02:58,000 --> 00:03:03,000

and there are very clear scratches all along the inside of the coffin lid.

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00:03:07,000 --> 00:03:11,000

First of all, I don't think anyone has ever been put into a closed casket

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00:03:11,000 --> 00:03:13,000

unintentionally and alive.

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00:03:13,000 --> 00:03:17,000

I think that is fiction from overheated Gothic writers.

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00:03:19,000 --> 00:03:22,000

At Mission Dolores, San Francisco's oldest church,

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00:03:22,000 --> 00:03:26,000

Brother Gwair Cleary takes a very skeptical view.

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00:03:26,000 --> 00:03:31,000

Well, I've heard stories that some people would insist on perhaps having bells,

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00:03:31,000 --> 00:03:36,000

ropes going to bells from the coffin, so if they woke up underground,

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00:03:36,000 --> 00:03:41,000

they could ring it, or perhaps they would have their veins drained of blood

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00:03:41,000 --> 00:03:43,000

to make sure they were genuinely dead.

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00:03:43,000 --> 00:03:46,000

So if they weren't dead of natural causes, they'd like...

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00:03:46,000 --> 00:03:48,000

They were dead from their undertaker.

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00:03:48,000 --> 00:03:49,000

Yeah.

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00:03:49,000 --> 00:03:55,000

It makes you wonder also, was this a myth that was encouraged by people who produce

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00:03:55,000 --> 00:03:57,000

and were selling such products?

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00:03:57,000 --> 00:04:01,000

You know, the great American skill is not satisfying needs,

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00:04:01,000 --> 00:04:03,000

it's creating needs.

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00:04:05,000 --> 00:04:09,000

Burying Jamie alive is a dangerous experiment.

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00:04:09,000 --> 00:04:15,000

It requires an above-ground chamber and a casket strong enough to withstand the load of dirt.

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00:04:15,000 --> 00:04:19,000

Meters will monitor his pulse and blood oxygen levels

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00:04:19,000 --> 00:04:24,000

and the amount of potentially deadly CO2 building up inside the casket.

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00:04:24,000 --> 00:04:29,000

And for safety, a night vision camera and emergency oxygen.

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00:04:29,000 --> 00:04:34,000

You know, the CO2 level is going to build up really quickly in the volume and size of a casket.

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00:04:34,000 --> 00:04:36,000

How long do you think the average person might last?

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00:04:36,000 --> 00:04:39,000

I'm guessing around maybe three hours tops.

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00:04:39,000 --> 00:04:41,000

How long do you think you're going to last?

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00:04:41,000 --> 00:04:44,000

Well, three hours is like on the verge of death,

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00:04:44,000 --> 00:04:47,000

and I don't think I'm willing to go quite that far.

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00:04:47,000 --> 00:04:51,000

So, you know, maybe an hour and a half, I don't know, maybe two.

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00:04:51,000 --> 00:04:55,000

It sort of depends on how I can control my breathing, I believe.

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00:05:02,000 --> 00:05:03,000

Kind of like that, you know?

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00:05:03,000 --> 00:05:04,000

You like the cash drawer?

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00:05:04,000 --> 00:05:05,000

Yeah.

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00:05:05,000 --> 00:05:08,000

I keep my wallet and valuables in there.

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00:05:08,000 --> 00:05:11,000

The first item required is Jamie's coffin.

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00:05:11,000 --> 00:05:15,000

His concerns are size, strength and comfort.

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00:05:15,000 --> 00:05:20,000

This is a 18-gauge steel casket and velvet interior.

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00:05:20,000 --> 00:05:26,000

Kelly Gillespie works closely with the bereaved at the Arthur Sullivan Funeral Home.

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00:05:26,000 --> 00:05:29,000

This is the pillow, so you'll feel how soft that is.

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00:05:29,000 --> 00:05:30,000

Oh, that feels nice.

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00:05:30,000 --> 00:05:31,000

All right.

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00:05:31,000 --> 00:05:32,000

Is that going to be comfy for you?

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00:05:32,000 --> 00:05:33,000

Yeah.

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00:05:33,000 --> 00:05:37,000

There's the spring bed mattress underneath, which does rise up and down,

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00:05:37,000 --> 00:05:42,000

and then these notches up here go right into the hole, and then you can lock it.

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00:05:42,000 --> 00:05:46,000

So, if you were inside here and once it's closed, you're not getting out by yourself, right?

105

00:05:46,000 --> 00:05:49,000

I don't see any way of getting out from the inside.

106

00:05:49,000 --> 00:05:50,000

Pumper.

107

00:05:50,000 --> 00:05:54,000

You're going to have to trust us.

108

00:05:54,000 --> 00:05:55,000

Not very comfy.

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00:05:55,000 --> 00:05:57,000

It actually feels kind of lumpy.

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00:05:57,000 --> 00:06:01,000

It's a press board that's covered in fabric.

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00:06:01,000 --> 00:06:03,000

I'm kind of concerned about getting crushed.

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00:06:03,000 --> 00:06:05,000

I don't know about a couple tons of dirt on there.

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00:06:05,000 --> 00:06:06,000

It seems sturdy enough.

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00:06:06,000 --> 00:06:08,000

It's 20-gauge steel.

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00:06:08,000 --> 00:06:13,000

Maybe to make sure that I do come back intact, and we should buy the Astrol Phoenix.

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00:06:13,000 --> 00:06:17,000

Well, then what do you think about this one, Jamie?

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00:06:17,000 --> 00:06:20,000

I think I'd be okay with 20-gauge.

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00:06:20,000 --> 00:06:24,000

I would feel a little bit more comfortable with, you know, loading all that dirt on it.

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00:06:24,000 --> 00:06:27,000

Your comfort, Jamie, is our first priority.

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00:06:27,000 --> 00:06:29,000

I need to be able to rest in peace.

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00:06:29,000 --> 00:06:30,000

Exactly.

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00:06:31,000 --> 00:06:32,000

The choice is made.

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00:06:32,000 --> 00:06:35,000

A preference for steel over wood.

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00:06:35,000 --> 00:06:39,000

You know, there's something vaguely disturbing about this, and I'm not sure what it is.

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00:06:39,000 --> 00:06:42,000

You want to ride back in the back and I'll drive?

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00:06:42,000 --> 00:06:43,000

Sure.

127

00:06:53,000 --> 00:06:55,000

This is the carbon dioxide and oxygen meter.

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00:06:55,000 --> 00:06:58,000

This is the pulse oximeter.

129

00:06:58,000 --> 00:07:01,000

This is the night-shot camera.

130

00:07:01,000 --> 00:07:04,000

And this is our emergency supply of oxygen.

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00:07:04,000 --> 00:07:09,000

Basically, we have to get all of this in here, with Jamie included,

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00:07:09,000 --> 00:07:11,000

so that all the systems are up and running.

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00:07:11,000 --> 00:07:12,000

We can monitor him.

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00:07:12,000 --> 00:07:13,000

We can know if he's okay.

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00:07:13,000 --> 00:07:14,000

We can give him oxygen if he needs it.

136

00:07:14,000 --> 00:07:16,000

Make sure he's going to be safe.

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00:07:18,000 --> 00:07:22,000

The casket will be buried inside a chamber.

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00:07:22,000 --> 00:07:27,000

It's constructed to come apart easily for quick access to Jamie in an emergency.

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00:07:35,000 --> 00:07:43,000

Safety is the first priority, so the casket is prepared for a trial run at the workshop with Jamie inside.

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00:07:43,000 --> 00:07:45,000

The casket is sealed.

141

00:07:45,000 --> 00:07:48,000

Two emergency medics will be on hand at all times.

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00:07:48,000 --> 00:07:51,000

Jamie's survival may depend on their skills.

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00:07:51,000 --> 00:07:52,000

Both of us.

144

00:07:52,000 --> 00:07:56,000

He has 81 and his blood oxygen level is 98.

145

00:07:56,000 --> 00:07:59,000

Hey Jamie, you want to run through how you're feeling in there?

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00:07:59,000 --> 00:08:04,000

Any change in the state of your head, i.e. light-headed, dizziness, seeing lights or anything?

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00:08:04,000 --> 00:08:07,000

No, I don't think so. Everything seems fine.

148

00:08:07,000 --> 00:08:10,000

I'm just kind of thinking about sex a lot.

149

00:08:10,000 --> 00:08:14,000

Okay, that's only interesting if it's change in state.

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00:08:15,000 --> 00:08:19,000

The medical profession is doubtful anyone could survive a burial.

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00:08:19,000 --> 00:08:26,000

Dr. William Miller, medical director at St. Luke's Hospital, believes no one would live to tell the tale.

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00:08:26,000 --> 00:08:36,000

Well, I think that when I was a Boy Scout, we used to sit around telling each other stories around the campfire about bodies that had been dug up and scratch marks on the inside of a coffin.

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00:08:36,000 --> 00:08:42,000

But when I became older and a physician, I have never given any of those stories any credence.

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00:08:42,000 --> 00:08:45,000

Do you think it would have been any more likely in the past?

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00:08:45,000 --> 00:08:49,000

I mean, given that the technology was a lot different then.

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00:08:49,000 --> 00:08:57,000

I think certainly that in the 1800s, for example, at that time we did not have an agreed upon set of criteria.

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00:08:57,000 --> 00:09:04,000

And so you might have a physician whose idea of death was, for example, very flimsy and not very solid.

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00:09:04,000 --> 00:09:11,000

And they themselves might pronounce somebody dead who by today's criteria we would not say was dead.

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00:09:12,000 --> 00:09:22,000

Most of the macabre stories belong to the dark days of medicine when pronouncing someone dead was a hit or miss kind of science.

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00:09:22,000 --> 00:09:31,000

So you have the story in the 17th century, Marjorie Elphinstone of Scotland gets actually buried a few hours later at night time.

161

00:09:31,000 --> 00:09:37,000

Robbers come, they dig her up and they are going to take the jewelry off her when she groans.

162

00:09:37,000 --> 00:09:43,000

And they all go running off into the night in terror and she sits up, walks home and outlives her husband.

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00:09:44,000 --> 00:09:52,000

Modern medicine avoids uncertainties of the old days by using five different factors to pronounce someone officially dead.

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00:09:52,000 --> 00:10:00,000

Well, the first thing that we would do is to induce some significant stimuli to see if there is any neurological response.

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00:10:00,000 --> 00:10:10,000

And the way many of us do that is we take something scientific like a car key and we push very hard on the thumb to induce pain.

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00:10:10,000 --> 00:10:17,000

Then we check for a pupillary response, usually using a pen light and see if the pupils react.

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00:10:17,000 --> 00:10:22,000

Then we would take our stethoscope and we would listen for a heartbeat.

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00:10:22,000 --> 00:10:25,000

And usually while listening we also check for a pulse.

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00:10:25,000 --> 00:10:33,000

And we use the carotid artery and then finally we would listen over both sides of the chest for any respirations.

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00:10:33,000 --> 00:10:42,000

So if a patient is not breathing and there is no pulse and there is evidence that the brain is not functioning, then that is the determination of death.

171

00:10:43,000 --> 00:10:46,000

Are you okay for another seven minutes there, Heneman?

172

00:10:46,000 --> 00:10:52,000

I feel perfectly fine. It's really hot. That is the only thing I don't like.

173

00:10:53,000 --> 00:10:59,000

Back at the workshop, Jamie's test run in the sealed casket has lasted nearly 50 minutes.

174

00:10:59,000 --> 00:11:08,000

His blood level of carbon dioxide peaked at 3%. 4% is getting dangerous. 10% is lethal.

175

00:11:08,000 --> 00:11:14,000

Waking up in a coffin, you know, surprise, I think it would be pretty scary experience.

176

00:11:14,000 --> 00:11:19,000

This stuff is like what gets you. You know, it's all, being in a box is one thing,

177

00:11:19,000 --> 00:11:26,000

but you got all the stuff that's supposed to make it real nice and pleasant and it's actually really kind of creepy, I think.

178

00:11:28,000 --> 00:11:38,000

Many of these stories are relatively recent. You have a man in South Africa in 1993 who is pronounced dead after a car accident.

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00:11:38,000 --> 00:11:46,000

He spends two days in some kind of metal casket above ground, at which point he wakes up.

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00:11:46,000 --> 00:11:54,000

And unfortunately, he's not very happy apparently because his fiance won't take him back believing

that he's a zombie come back to get her.

181

00:11:57,000 --> 00:12:04,000

So the next step is to load this up on our forklift, lower it down into our makeshift above ground grave, fill it with earth,

182

00:12:04,000 --> 00:12:08,000

and monitor Jamie until he begs for mercy.

183

00:12:18,000 --> 00:12:24,000

The mythbusters are about to defy nature in an attempt to bury Jamie alive.

184

00:12:24,000 --> 00:12:27,000

How you doing? Hey, what the hell are we supposed to do with all this dirt?

185

00:12:27,000 --> 00:12:29,000

So buried alive, huh?

186

00:12:29,000 --> 00:12:32,000

Buried alive. You ever heard about anyone being buried alive?

187

00:12:32,000 --> 00:12:37,000

Well, I've heard of them. You know, I've seen movies, but I've never really actually seen it happen.

188

00:12:37,000 --> 00:12:38,000

Yeah.

189

00:12:42,000 --> 00:12:48,000

I'm a little apprehensive at the moment. I'm hoping that the box won't collapse, but I think it'll be alright.

190

00:12:50,000 --> 00:12:59,000

His dry run lasted 50 minutes, but now, under real conditions, Jamie will be feeling stress, producing more CO₂,

191

00:12:59,000 --> 00:13:02,000

reducing his survival time.

192

00:13:02,000 --> 00:13:03,000

Are you comfy?

193

00:13:03,000 --> 00:13:04,000

Yes.

194

00:13:04,000 --> 00:13:05,000

You can deal?

195

00:13:05,000 --> 00:13:06,000

Yeah.

196

00:13:06,000 --> 00:13:11,000

Okay, so you've got your walkie, you've got your mic on, that's your emergency oxygen, you have your pulse oxygen meter here,

197

00:13:11,000 --> 00:13:14,000

camera, thermometer, humidity sensor.

198

00:13:14,000 --> 00:13:15,000

You ready, Jamie?

199

00:13:15,000 --> 00:13:17,000

Farewell, cruel world.

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00:13:17,000 --> 00:13:19,000

Bye-bye, honey man.

201

00:13:19,000 --> 00:13:21,000

The next day

202

00:13:25,000 --> 00:13:30,000

With Jamie laid out in his casket, Adam gently lowers him into the chamber.

203

00:13:30,000 --> 00:13:32,000

Watch yourself, it's going to go down.

204

00:13:32,000 --> 00:13:38,000

He's about to undergo a rare ordeal. He will be buried alive.

205

00:13:39,000 --> 00:13:51,000

To match a burial as closely as possible, Jamie's temporary grave will be covered with several tons of earth.

206

00:13:54,000 --> 00:13:59,000

I got a fair amount of dirt in here and actually crushed the container a little bit.

207

00:13:59,000 --> 00:14:01,000

Roger that, are you nervous about it? Over.

208

00:14:01,000 --> 00:14:06,000

No, I think I'm fine. It definitely had an effect on the casket though.

209

00:14:07,000 --> 00:14:13,000

Loading earth on the steel casket is a calculated risk. It's up to Jamie to make the call.

210

00:14:13,000 --> 00:14:22,000

Well, all I got to say is be gentle on those dumps because I'm worried about the lid slipping off of its sides or something like that.

211

00:14:22,000 --> 00:14:25,000

Jamie, would you like me to come in and check the lid out? Over.

212

00:14:25,000 --> 00:14:30,000

You're not going to be able to tell anything more than I can at this point.

213

00:14:30,000 --> 00:14:34,000

I'd say just keep going. I wish I had a light in here.

214

00:14:34,000 --> 00:14:36,000

He's a trooper man, I'll tell you.

215

00:14:38,000 --> 00:14:40,000

Oxygen levels? Oxygen, he's at 98%.

216

00:14:40,000 --> 00:14:48,000

The medics are watching his vital signs closely. Any indication of acute stress and he will be exhumed.

217

00:14:48,000 --> 00:14:52,000

I imagine my heart's beating a little faster than it was on the test, over.

218

00:14:52,000 --> 00:14:56,000

You'd be correct about that. It's at 95 right now, buddy.

219

00:14:58,000 --> 00:15:01,000

You are almost officially completely covered now, Jamie.

220

00:15:02,000 --> 00:15:08,000

The casket is getting so warped from the pressure that it's popped up the corners a little bit.

221

00:15:08,000 --> 00:15:16,000

Suddenly, the major worry is the very real possibility of Jamie being crushed inside the metal box.

222

00:15:16,000 --> 00:15:22,000

This thing's really starting to creak and it's feeling like it's changing, it's cheap.

223

00:15:22,000 --> 00:15:29,000

They decide to halt the bobcat. They hope the casket can withstand the force pressing from above.

224

00:15:29,000 --> 00:15:32,000

It's buckling and changing shape on him. Truly.

225

00:15:33,000 --> 00:15:35,000

That's the last one we're doing.

226

00:15:38,000 --> 00:15:40,000

Roger that, we're going to get you out.

227

00:15:49,000 --> 00:15:50,000

Oh wow.

228

00:15:50,000 --> 00:15:51,000

It will?

229

00:15:51,000 --> 00:15:52,000

Yeah, it buckled.

230

00:15:52,000 --> 00:15:53,000

Here you go.

231

00:15:53,000 --> 00:15:54,000

Just ahead.

232

00:15:54,000 --> 00:15:55,000

Hey, Jamie.

233

00:15:55,000 --> 00:15:56,000

Hey!

234

00:15:57,000 --> 00:16:00,000

And he's still alive!

235

00:16:00,000 --> 00:16:03,000

Did it do anything or is that all my imagination?

236

00:16:03,000 --> 00:16:05,000

No, it definitely was coming out.

237

00:16:05,000 --> 00:16:07,000

Oh, he definitely was crushing it in.

238

00:16:07,000 --> 00:16:09,000

It's just sitting there, Gordon.

239

00:16:14,000 --> 00:16:15,000

Yeah!

240

00:16:15,000 --> 00:16:22,000

Jamie persisted inside the casket for 30 humid minutes, breathing only the available air.

241

00:16:22,000 --> 00:16:27,000

I started to panic a little bit there at the end. It's pretty scary.

242

00:16:27,000 --> 00:16:35,000

I don't have any particular fear of enclosed spaces at all and feeling those walls starting to cave in,

243

00:16:35,000 --> 00:16:42,000

it really gets you going as I'm sure my pulse rate will testify.

244

00:16:42,000 --> 00:16:44,000

This is where your pulse started.

245

00:16:44,000 --> 00:16:48,000

And with the point you asked us to get you out, you were off my chart.

246

00:16:48,000 --> 00:16:50,000

Your pulse was about 115.

247

00:16:50,000 --> 00:16:51,000

Okay.

248

00:16:51,000 --> 00:16:55,000

Which shows, I mean, because of your pulse, you were using up a lot more oxygen.

249

00:16:55,000 --> 00:16:59,000

So what are the chances of surviving six feet under?

250

00:16:59,000 --> 00:17:02,000

I think that it is sufficiently busted.

251

00:17:02,000 --> 00:17:11,000

I don't think it's possible for someone to survive a couple of hours in the panicked state of being buried with their coffin crushing

252

00:17:11,000 --> 00:17:16,000

and all of that stuff, let alone a couple of days until they're exhumed and found to be alive.

253

00:17:16,000 --> 00:17:18,000

That's just patently ridiculous to me.

254

00:17:18,000 --> 00:17:20,000

Well, there you go. Myth busted.

255

00:17:28,000 --> 00:17:33,000

America's favorite drink has always attracted its own share of popular myths.

256

00:17:33,000 --> 00:17:40,000

Some of them true, most of them baloney, but all of them challenges for the myth busters.

257

00:17:41,000 --> 00:17:43,000

Jamie, how many things can we do with cola?

258

00:17:43,000 --> 00:17:44,000

Lots.

259

00:17:44,000 --> 00:17:45,000

We can clean up blood.

260

00:17:45,000 --> 00:17:47,000

You can dissolve a T-bone steak.

261

00:17:47,000 --> 00:17:48,000

You can clean chrome.

262

00:17:48,000 --> 00:17:49,000

Clean corroded contacts on your battery.

263

00:17:49,000 --> 00:17:50,000

You can free a rusted bolt.

264

00:17:50,000 --> 00:17:52,000

You can clean your greasy laundry.

265

00:17:52,000 --> 00:17:53,000

Car paint work.

266

00:17:53,000 --> 00:17:54,000

Dissolve a tooth.

267

00:17:54,000 --> 00:17:55,000

You can clean your car engine.

268

00:17:55,000 --> 00:17:58,000

And it also might be an effective spermicide.

269

00:17:59,000 --> 00:18:00,000

That should be fun.

270

00:18:00,000 --> 00:18:05,000

Some of these sound actually like they're pretty reasonable to me, and some of them just sound absolutely ridiculous.

271

00:18:05,000 --> 00:18:06,000

So it would seem.

272

00:18:06,000 --> 00:18:12,000

Well, let's go get some blood and steaks and chrome and rusty bolts and get started.

273

00:18:12,000 --> 00:18:13,000

Yeah.

274

00:18:13,000 --> 00:18:14,000

Okay.

275

00:18:14,000 --> 00:18:19,000

We'll cola shift those hard to remove blood stains from the myth busters crime scene.

276

00:18:20,000 --> 00:18:21,000

Why still?

277

00:18:21,000 --> 00:18:22,000

I'm not going to hurt you.

278

00:18:22,000 --> 00:18:23,000

I don't trust you.

279

00:18:23,000 --> 00:18:24,000

Well?

280

00:18:24,000 --> 00:18:27,000

You realize that this white line thing is all a myth.

281

00:18:27,000 --> 00:18:29,000

They don't actually do that.

282

00:18:29,000 --> 00:18:30,000

No, you're kidding me.

283

00:18:30,000 --> 00:18:31,000

Yeah, that's it.

284

00:18:31,000 --> 00:18:33,000

It would contaminate the site.

285

00:18:33,000 --> 00:18:34,000

When did the myth start?

286

00:18:34,000 --> 00:18:36,000

Was it ever used?

287

00:18:36,000 --> 00:18:37,000

You know, I don't know.

288

00:18:37,000 --> 00:18:38,000

I think it just looks good.

289

00:18:38,000 --> 00:18:40,000

It definitely looks good.

290

00:18:40,000 --> 00:18:45,000

Oh, yeah.

291

00:18:48,000 --> 00:18:52,000

You know, everything's giving it's the cranberry sauce that makes it special.

292

00:18:55,000 --> 00:18:59,000

Animal blood was used to keep the test as authentic as possible.

293

00:18:59,000 --> 00:19:01,000

Okay, so how long do we have to wait?

294

00:19:01,000 --> 00:19:05,000

Is it like the amount of time that it would normally take for an ambulance to get here?

295

00:19:05,000 --> 00:19:09,000

For the realism and effectiveness, we always strive for...

296

00:19:11,000 --> 00:19:12,000

There we go.

297

00:19:17,000 --> 00:19:24,000

After two hours in the California sun, only Jamie's crime scene outline gets the cola treatment.

298

00:19:24,000 --> 00:19:27,000

It's kind of rejuvenating the blood, isn't it?

299

00:19:27,000 --> 00:19:29,000

Isn't that what they advertise it to do?

300

00:19:35,000 --> 00:19:37,000

That was a lot of blood.

301

00:19:37,000 --> 00:19:39,000

Check the truck out.

302

00:19:39,000 --> 00:19:41,000

It really dissolved it on that.

303

00:19:41,000 --> 00:19:44,000

Yeah, took it right off the truck.

304

00:19:44,000 --> 00:19:48,000

Well, most of the blood is washed away.

305

00:19:48,000 --> 00:19:49,000

What do you think?

306

00:19:49,000 --> 00:19:50,000

Was the final verdict on this?

307

00:19:50,000 --> 00:19:51,000

The cola helped.

308

00:19:51,000 --> 00:19:53,000

Not by a whole lot, but it did help.

309

00:19:53,000 --> 00:19:57,000

This area is cleaner than that one, and this is the one with the cola on it.

310

00:19:57,000 --> 00:20:01,000

Yeah, I still see a blood streak on mine after all the washing we did, and it took it right up the bumper.

311

00:20:01,000 --> 00:20:03,000

Well, it works.

312

00:20:03,000 --> 00:20:04,000

Alright, cool.

313

00:20:12,000 --> 00:20:17,000

No one was willing to volunteer their car for the cola cleaning and rust test,

314

00:20:17,000 --> 00:20:23,000

so Jamie rolled in a junker to see if it could take all that cola could throw at it.

315

00:20:23,000 --> 00:20:24,000

That was good.

316

00:20:24,000 --> 00:20:26,000

I didn't know it had brakes until you stopped.

317

00:20:26,000 --> 00:20:27,000

I didn't either.

318

00:20:27,000 --> 00:20:29,000

It's hurt.

319

00:20:30,000 --> 00:20:34,000

Will cola and aluminum foil shine the chrome on your car?

320

00:20:34,000 --> 00:20:39,000

We'll compare the cola against the leading brand of chrome cleaner.

321

00:20:45,000 --> 00:20:49,000

I'm not sure exactly what the aluminum foil does with this.

322

00:20:49,000 --> 00:20:54,000

Well, I think it ionizes the cola particles and brings a rust to the surface.

323

00:20:59,000 --> 00:21:01,000

I think the cola is doing a great job.

324

00:21:01,000 --> 00:21:02,000

The rust is all gone.

325

00:21:02,000 --> 00:21:07,000

It kind of has like a foaming, you know, scrubbing bubble kind of thing going on there.

326

00:21:07,000 --> 00:21:10,000

Even a sticky mess, but that'll wash off.

327

00:21:11,000 --> 00:21:13,000

Man, I mean, this is some spots.

328

00:21:13,000 --> 00:21:15,000

Yeah, I know, I know. There we go.

329

00:21:15,000 --> 00:21:17,000

Your side sucks.

330

00:21:17,000 --> 00:21:19,000

My side sucks?

331

00:21:19,000 --> 00:21:22,000

I gotta say, if you ask me, cola is a fantastic bumper cleaner.

332

00:21:22,000 --> 00:21:24,000

I agree.

333

00:21:24,000 --> 00:21:27,000

High marks for shining the chrome.

334

00:21:27,000 --> 00:21:30,000

But what about freeing a rusty bolt?

335

00:21:31,000 --> 00:21:34,000

The myth is that it's a cola-soaked rag.

336

00:21:34,000 --> 00:21:39,000

But could cola's low phosphoric acid content be effective against rust?

337

00:21:39,000 --> 00:21:41,000

All right, why don't we give it five minutes?

338

00:21:41,000 --> 00:21:44,000

Okay, let's go drink some cola.

339

00:21:46,000 --> 00:21:49,000

I don't see any real way that that's going to do anything.

340

00:21:49,000 --> 00:21:51,000

Oh!

341

00:21:51,000 --> 00:21:54,000

You want to give it a shot? It ain't moving.

342

00:21:56,000 --> 00:21:57,000

I got it, Adam.

343

00:21:57,000 --> 00:21:58,000

You got it?

344

00:21:58,000 --> 00:21:59,000

Yeah.

345

00:21:59,000 --> 00:22:00,000

Was it hard?

346

00:22:00,000 --> 00:22:01,000

Yeah.

347

00:22:01,000 --> 00:22:04,000

I don't think it really penetrated that well.

348

00:22:04,000 --> 00:22:07,000

Well, I think this one was a total failure in that regard.

349

00:22:07,000 --> 00:22:08,000

Well, I'd agree.

350

00:22:08,000 --> 00:22:10,000

Maybe it removed a little surface rust on it.

351

00:22:10,000 --> 00:22:11,000

It's about it.

352

00:22:11,000 --> 00:22:13,000

So, what's next?

353

00:22:13,000 --> 00:22:17,000

Everyone's heard about cola's so-called corrosive qualities.

354

00:22:17,000 --> 00:22:21,000

Time to test the myths with two pennies and some teeth.

355

00:22:21,000 --> 00:22:22,000

And one more.

356

00:22:22,000 --> 00:22:26,000

Can cola dissolve a T-bone steak?

357

00:22:28,000 --> 00:22:33,000

In this test, the cola will be compared to pure phosphoric acid,

358

00:22:33,000 --> 00:22:37,000

an active ingredient in cola that gives the drink its sharp taste.

359

00:22:37,000 --> 00:22:40,000

Most food contains naturally occurring acid,

360

00:22:40,000 --> 00:22:42,000

much of it stronger than phosphoric.

361

00:22:42,000 --> 00:22:46,000

So, how will the cola react with the chosen test items?

362

00:22:46,000 --> 00:22:48,000

That looks yummy.

363

00:22:48,000 --> 00:22:50,000

Oh, now that's a marinade.

364

00:22:50,000 --> 00:22:51,000

I'll have to try it.

365

00:22:51,000 --> 00:22:52,000

And you know what?

366

00:22:52,000 --> 00:22:54,000

It might actually be really, really tasty.

367

00:22:54,000 --> 00:22:57,000

Jamie, I think we've got something really important here.

368

00:22:57,000 --> 00:23:01,000

I notice that the steak tends to float in the acid,

369

00:23:01,000 --> 00:23:02,000

but not the cola.

370

00:23:02,000 --> 00:23:03,000

That's amazing.

371

00:23:03,000 --> 00:23:06,000

I would have guessed the other way around.

372

00:23:10,000 --> 00:23:12,000

Penny, cola.

373

00:23:13,000 --> 00:23:15,000

Penny, phosphoric acid.

374

00:23:15,000 --> 00:23:17,000

Tooth, phosphoric acid.

375

00:23:18,000 --> 00:23:20,000

Tooth, cola.

376

00:23:21,000 --> 00:23:24,000

The teeth and the pennies will soak for 24 hours.

377

00:23:24,000 --> 00:23:27,000

The steak will stay for 48.

378

00:23:27,000 --> 00:23:30,000

We'll be back later for the cola results.

379

00:23:35,000 --> 00:23:37,000

Did I tell you I was afraid of heights?

380

00:23:38,000 --> 00:23:43,000

Busting the hammer-jump myth involves G-forces, terminal velocity,

381

00:23:43,000 --> 00:23:47,000

surface tension, and a helpful crash test dummy named Buster.

382

00:23:48,000 --> 00:23:50,000

Oh, no.

383

00:23:50,000 --> 00:23:52,000

Poor guy.

384

00:23:58,000 --> 00:24:01,000

Well, there's this myth that if you fall off a high structure

385

00:24:01,000 --> 00:24:04,000

like a bridge or a crane or something over water

386

00:24:04,000 --> 00:24:06,000

and you throw a hammer in front of you,

387

00:24:06,000 --> 00:24:09,000

that it'll save your life because it'll break the surface tension of the water.

388

00:24:09,000 --> 00:24:10,000

No way.

389

00:24:10,000 --> 00:24:13,000

This story has been told about the Sydney Harbor Bridge

390

00:24:13,000 --> 00:24:17,000

and also about the Golden Gate Bridge in San Francisco, California.

391

00:24:17,000 --> 00:24:22,000

The story is told among people who work on bridges, construction workers,

392

00:24:22,000 --> 00:24:25,000

people who might fall off of a bridge

393

00:24:25,000 --> 00:24:28,000

and like to have the idea, at least subconsciously,

394

00:24:28,000 --> 00:24:30,000

that there's something they can do about it,

395

00:24:30,000 --> 00:24:32,000

that there's some way to save themselves.

396

00:24:32,000 --> 00:24:36,000

I guess this is based on the idea that if you fall from a really large height,

397

00:24:36,000 --> 00:24:38,000

hitting water is pretty much like hitting concrete.

398

00:24:38,000 --> 00:24:40,000

I mean, it doesn't move out of the way like we expected to.

399

00:24:40,000 --> 00:24:43,000

It actually resists impact at that speed.

400

00:24:43,000 --> 00:24:45,000

Yeah, and so by throwing a weight in front of you,

401

00:24:45,000 --> 00:24:47,000

that you're going to break the surface tension

402

00:24:47,000 --> 00:24:52,000

or possibly simply aerate the water to where it slows your deceleration down.

403

00:24:52,000 --> 00:24:57,000

You don't stop so quickly because that stop is what kills you.

404

00:24:57,000 --> 00:24:58,000

Right.

405

00:24:58,000 --> 00:25:02,000

This is where you incur all that G-force that like makes your organs go crazy.

406

00:25:02,000 --> 00:25:03,000

Yeah.

407

00:25:05,000 --> 00:25:09,000

Surface tension is what keeps water-striding insects afloat.

408

00:25:09,000 --> 00:25:13,000

It allows them to make indentations without getting wet.

409

00:25:13,000 --> 00:25:18,000

The apparently invisible skin is formed by water molecules

410

00:25:18,000 --> 00:25:21,000

creating even greater tension at the surface.

411

00:25:21,000 --> 00:25:24,000

And that's why belly flops hurt.

412

00:25:24,000 --> 00:25:28,000

In consideration of the myth, I would think it'd be very reassuring to believe

413

00:25:28,000 --> 00:25:30,000

that if you're working high steel, you miss step.

414

00:25:30,000 --> 00:25:34,000

It would be nice if your tool belt went first, broke the fall, and you survived.

415

00:25:34,000 --> 00:25:37,000

According to author Stephen Cassidy,

416

00:25:37,000 --> 00:25:41,000

the hammer myth may have originated during construction of the Golden Gate Bridge.

417

00:25:41,000 --> 00:25:47,000

In 1937, 12 men fell when a bridge section crashed into their safety net.

418

00:25:47,000 --> 00:25:49,000

Only one man survived.

419

00:25:49,000 --> 00:25:52,000

Did his hammer break the fall?

420

00:25:52,000 --> 00:25:56,000

The tool belt that those guys used had, among other things, spanners and hammers.

421

00:25:56,000 --> 00:25:59,000

So they might have 100 pounds of tools around a tool belt.

422

00:25:59,000 --> 00:26:03,000

Certainly enough heavy metal at their disposal in the form of tools

423

00:26:03,000 --> 00:26:07,000

to equate to a hammer or mini-hammers.

424

00:26:07,000 --> 00:26:12,000

At 220 feet above water, the Golden Gate Bridge would be ideal

425

00:26:12,000 --> 00:26:16,000

to test the myth of a hammer breaking an accidental fall.

426

00:26:16,000 --> 00:26:21,000

These days, for security reasons, the massive structure is off limits.

427

00:26:21,000 --> 00:26:27,000

So to bust the hammer-jump myth, Jamie and Adam need a way to get some serious height.

428

00:26:27,000 --> 00:26:29,000

That's what the crane's for.

429

00:26:29,000 --> 00:26:33,000

So we'll take the dummy to the top of this crane and drop him into the water a bunch of times?

430

00:26:33,000 --> 00:26:36,000

That's it. The dummy's going to get it go swimming.

431

00:26:36,000 --> 00:26:38,000

Oh, I love this job.

432

00:26:41,000 --> 00:26:47,000

The myth busters are at Mayor Island, the former naval shipyard just north of San Francisco,

433

00:26:47,000 --> 00:26:50,000

where the Pacific Fleet used to put in for maintenance.

434

00:26:51,000 --> 00:26:58,000

Mayor is the home of the Whirly, a huge crane that can turn through 360 degrees.

435

00:26:58,000 --> 00:27:02,000

At full extension, it reaches up around 150 feet.

436

00:27:02,000 --> 00:27:07,000

The height Jamie and Adam need to drop the hapless dummy buster.

437

00:27:09,000 --> 00:27:13,000

Well, we'll always have a rigger with you, and a rigger will signal the operator.

438

00:27:13,000 --> 00:27:15,000

The operator can't hear you.

439

00:27:15,000 --> 00:27:21,000

Cooper manages the massive crane and is supervising safety aspects of the experiment.

440

00:27:21,000 --> 00:27:23,000

He's a little dubious about the story.

441

00:27:23,000 --> 00:27:27,000

I hadn't heard it. I thought it was kind of different.

442

00:27:27,000 --> 00:27:30,000

But two of the guys in my office were very familiar with it.

443

00:27:30,000 --> 00:27:34,000

One of our fellows has got an advanced degree from Stanford in construction management,

444

00:27:34,000 --> 00:27:36,000

and he definitely hadn't heard it.

445

00:27:36,000 --> 00:27:41,000

So it seems like it's something within the industry of his common knowledge.

446

00:27:42,000 --> 00:27:48,000

When the experiment is underway, Jamie will have the job of rigging buster, the dummy, and the hammer,

447

00:27:48,000 --> 00:27:52,000

all while working hundreds of feet above water.

448

00:27:53,000 --> 00:27:56,000

My gosh! Wow!

449

00:27:56,000 --> 00:27:59,000

Snug is a bug in a rug up here.

450

00:28:00,000 --> 00:28:04,000

This thing ain't exactly flimsy, you know?

451

00:28:04,000 --> 00:28:06,000

The view up here is incredible.

452

00:28:07,000 --> 00:28:10,000

You know, the simple fact is that when he hits the water,

453

00:28:10,000 --> 00:28:13,000

the margin between life and death is going to be very small.

454

00:28:13,000 --> 00:28:20,000

Yeah, it's only a tiny fraction of the second, and I suppose this hammer thing actually could make that difference.

455

00:28:24,000 --> 00:28:28,000

The critical science requires calculating the force at impact.

456

00:28:28,000 --> 00:28:34,000

Adam will fit buster with an accelerometer, the same type used by courier companies,

457

00:28:34,000 --> 00:28:37,000

to see if your packages are being treated gently.

458

00:28:37,000 --> 00:28:41,000

It measures the energy generated by sudden stops.

459

00:28:41,000 --> 00:28:45,000

We've got to put this in his head, or in his torso, wherever it will fit.

460

00:28:45,000 --> 00:28:49,000

This is an accelerometer, this will measure the g-force when he hits the water.

461

00:28:49,000 --> 00:28:53,000

Oh! Look at that!

462

00:28:53,000 --> 00:28:55,000

That's really pretty.

463

00:28:55,000 --> 00:28:57,000

All right, let's see.

464

00:28:57,000 --> 00:29:00,000

Do you want to get hit in the head?

465

00:29:00,000 --> 00:29:02,000

Keep going to anyway.

466

00:29:05,000 --> 00:29:10,000

Buster's cavities are designed to hold smaller instruments for auto industry research.

467

00:29:10,000 --> 00:29:12,000

He's a crash test dummy after all.

468

00:29:12,000 --> 00:29:19,000

Adam's task is to make room inside the dummy to accommodate a larger accelerometer.

469

00:29:19,000 --> 00:29:23,000

I like this. I'm quite pleased with this.

470

00:29:23,000 --> 00:29:26,000

I'm going to get your chest back on.

471

00:29:35,000 --> 00:29:41,000

I'm sure there's a crash test dummy expert out there who's watching me do this and going.

472

00:29:41,000 --> 00:29:44,000

No, that's not how you do it, you idiot.

473

00:29:44,000 --> 00:29:46,000

Ah! Fuck!

474

00:29:46,000 --> 00:29:48,000

Yeah.

475

00:29:48,000 --> 00:29:50,000

You think you're better than me?

476

00:29:50,000 --> 00:29:53,000

Hey, this guy's almost ready to throw off the roof.

477

00:29:56,000 --> 00:29:58,000

Come on there, buddy.

478

00:29:58,000 --> 00:30:00,000

That's it.

479

00:30:00,000 --> 00:30:03,000

I get to drop him the next time you know.

480

00:30:03,000 --> 00:30:06,000

Before dropping the dummy from towering heights,

481

00:30:06,000 --> 00:30:09,000

they need to test the accelerometer from a little lower down.

482

00:30:09,000 --> 00:30:11,000

All right, go ahead.

483

00:30:11,000 --> 00:30:14,000

Three, two, one.

484

00:30:19,000 --> 00:30:21,000

That's really horrifying to watch.

485

00:30:21,000 --> 00:30:24,000

Three, two, one.

486

00:30:27,000 --> 00:30:30,000

That was perfect.

487

00:30:30,000 --> 00:30:33,000

Dude, we've cracked his entire head in.

488

00:30:33,000 --> 00:30:35,000

No, we can't go again.

489

00:30:35,000 --> 00:30:37,000

I guess we weakened it a little bit by.

490

00:30:37,000 --> 00:30:41,000

Yeah, I mean, just some big old welds along here should be fine,

491

00:30:41,000 --> 00:30:48,000

but you know, our accelerometer, we should take it out and just read the events.

492

00:30:50,000 --> 00:30:52,000

Despite the mishap,

493

00:30:52,000 --> 00:30:56,000

Adam found the accelerometer was still functioning effectively.

494

00:30:56,000 --> 00:30:58,000

So, download.

495

00:31:01,000 --> 00:31:04,000

In addition to the head repair,

496

00:31:04,000 --> 00:31:08,000

Jamie needs to modify Buster before the big fall.

497

00:31:09,000 --> 00:31:13,000

The other thing that we've got to do to him is that we have to rig some sort of a slide

498

00:31:13,000 --> 00:31:19,000

that will allow him to travel along a cable so we can guide him precisely where we need to.

499

00:31:23,000 --> 00:31:28,000

To predict exactly where and when Buster and the hammer will hit the water,

500

00:31:28,000 --> 00:31:33,000

Jamie is rigging a quick release cable and guide wires for the descent.

501

00:31:37,000 --> 00:31:39,000

All right.

502

00:31:40,000 --> 00:31:43,000

So, let's say it's from six feet.

503

00:31:44,000 --> 00:31:50,000

Buster's in for more pavement punishment while the quick release mechanism is tested.

504

00:31:50,000 --> 00:31:51,000

Ready?

505

00:31:51,000 --> 00:31:53,000

Two, put.

506

00:31:53,000 --> 00:31:55,000

Oh, man.

507

00:31:55,000 --> 00:31:58,000

In three, two, one.

508

00:31:59,000 --> 00:32:02,000

These quick releases work great, Jamie.

509

00:32:02,000 --> 00:32:03,000

Yeah.

510

00:32:03,000 --> 00:32:04,000

Let's go for another one.

511

00:32:04,000 --> 00:32:05,000

Okay.

512

00:32:05,000 --> 00:32:06,000

Not too daisy.

513

00:32:06,000 --> 00:32:10,000

But the dummy is not designed for this type of rough handling.

514

00:32:10,000 --> 00:32:12,000

Something's wrong.

515

00:32:13,000 --> 00:32:14,000

Uh-oh.

516

00:32:14,000 --> 00:32:15,000

Not again.

517

00:32:15,000 --> 00:32:17,000

Oh, well.

518

00:32:17,000 --> 00:32:20,000

All right, well, let's lift him by his head and get him back on the operating table.

519

00:32:20,000 --> 00:32:21,000

Okay.

520

00:32:21,000 --> 00:32:22,000

And get to work on him again.

521

00:32:22,000 --> 00:32:24,000

I can get the data out and see what the drops were like.

522

00:32:24,000 --> 00:32:25,000

Okay.

523

00:32:25,000 --> 00:32:27,000

This is our last intern.

524

00:32:34,000 --> 00:32:38,000

Back at the Mayor Island dogs, all is ready for Buster's big day out.

525

00:32:38,000 --> 00:32:44,000

Will his dramatic drop prove that a hammer could break a fall and save a life?

526

00:32:44,000 --> 00:32:48,000

I just tested all the systems of the accelerometer and they're all a go.

527

00:32:48,000 --> 00:32:51,000

So it's now recording events.

528

00:32:51,000 --> 00:32:55,000

It's probably recorded more than a few jostles on the way out here.

529

00:32:55,000 --> 00:33:02,000

But we should be able to see which ones are the events we really care about because there'll be lots of Gs.

530

00:33:04,000 --> 00:33:09,000

With the dummy's accelerometer on board, it's time to drop.

531

00:33:09,000 --> 00:33:13,000

The massive crane is rolled into position.

532

00:33:14,000 --> 00:33:19,000

It's a strange combination of like sheer terror and delight.

533

00:33:19,000 --> 00:33:20,000

I'm not sure.

534

00:33:20,000 --> 00:33:25,000

Looking at the ground a couple hundred feet away and I don't know, it's really cool.

535

00:33:25,000 --> 00:33:29,000

I think my fascination is overriding my terror.

536

00:33:29,000 --> 00:33:30,000

He looks good.

537

00:33:30,000 --> 00:33:31,000

Take him all the way up.

538

00:33:35,000 --> 00:33:38,000

The crane is raised to 180 feet.

539

00:33:38,000 --> 00:33:41,000

A guide wire will keep the dummy on target.

540

00:33:41,000 --> 00:33:44,000

A high speed camera will record the moment of impact.

541

00:33:44,000 --> 00:33:45,000

Okay, I'm ready.

542

00:33:45,000 --> 00:33:49,000

Three, two, one, go.

543

00:33:53,000 --> 00:33:57,000

Oh, no. Poor guy.

544

00:33:59,000 --> 00:34:00,000

I think it was a backflop.

545

00:34:00,000 --> 00:34:03,000

I was looking for a belly flop, but this was a backflop.

546

00:34:03,000 --> 00:34:07,000

You probably experienced the full G-force that's possible from this height.

547

00:34:07,000 --> 00:34:11,000

Oh, no, no, no.

548

00:34:11,000 --> 00:34:15,000

Somebody didn't remember to clip him into the cable.

549

00:34:15,000 --> 00:34:20,000

You know, there's a lot going on though and we just forgot or somebody forgot.

550

00:34:20,000 --> 00:34:22,000

We didn't forget to hook the legs on.

551

00:34:22,000 --> 00:34:25,000

In fact, Jamie forgot to hook the leg on.

552

00:34:25,000 --> 00:34:29,000

I said, by the way, I put a pin in the knee, but because the threading is stripped out,

553

00:34:29,000 --> 00:34:30,000

there's nothing there.

554

00:34:30,000 --> 00:34:33,000

You're going to need to take a long bolt and put it all the way through that to make sure

555

00:34:33,000 --> 00:34:34,000

the leg is in place.

556

00:34:34,000 --> 00:34:38,000

Never got taken care of. Not my fault.

557

00:34:38,000 --> 00:34:40,000

There's only one answer.

558

00:34:40,000 --> 00:34:43,000

Someone's going to get wet.

559

00:34:46,000 --> 00:34:51,000

I don't know if you'll use any excuse to run around in the Zundies, I think.

560

00:34:51,000 --> 00:34:55,000

Oh, God.

561

00:34:55,000 --> 00:35:00,000

Probably like five feet down in the mud.

562

00:35:00,000 --> 00:35:03,000

I had absolutely no success finding the leg. I'm really disappointed about that.

563

00:35:03,000 --> 00:35:06,000

I really wanted to come up holding the leg.

564

00:35:06,000 --> 00:35:07,000

That would have been beautiful.

565

00:35:07,000 --> 00:35:09,000

We would have been able to keep on going.

566

00:35:09,000 --> 00:35:12,000

I did a good effort, but it's gone.

567

00:35:12,000 --> 00:35:16,000

Despite the setback, they hope Buster's remains are still in place.

568

00:35:16,000 --> 00:35:19,000

I'm going to go back to the Zundies.

569

00:35:19,000 --> 00:35:22,000

I'm going to go back to the Zundies.

570

00:35:22,000 --> 00:35:28,000

Despite the setback, they hope Buster's remaining limbs will survive more drops.

571

00:35:28,000 --> 00:35:31,000

We are all good to go. Release at your leisure.

572

00:35:31,000 --> 00:35:34,000

Three, two, one, go.

573

00:35:41,000 --> 00:35:42,000

No.

574

00:35:45,000 --> 00:35:47,000

Whoa.

575

00:35:47,000 --> 00:35:51,000

He's completely, completely trashed.

576

00:35:51,000 --> 00:35:57,000

The cast aluminum of his thigh bone right here absolutely just shattered and contacted with the water.

577

00:35:57,000 --> 00:36:02,000

It's pretty obvious that from that height, you're completely screwed.

578

00:36:04,000 --> 00:36:08,000

Jamie, atop the crane, is coping with a personal fear.

579

00:36:08,000 --> 00:36:12,000

Right now, he would prefer being on Terra firmer.

580

00:36:12,000 --> 00:36:14,000

It's kind of an intense rig up there.

581

00:36:14,000 --> 00:36:17,000

I mean, reaching out and hooking up the dummy to the quick release.

582

00:36:17,000 --> 00:36:22,000

You know, seems pretty simple, you're just a couple feet away, but when you're in a 4-degree pitch, 160 feet in the air.

583

00:36:22,000 --> 00:36:25,000

It's less than pleasurable.

584

00:36:25,000 --> 00:36:32,000

When I'm up there on that height, I'm over and over seeing myself like, ah, that's all there is to it.

585

00:36:32,000 --> 00:36:36,000

And so, you know, I can do it. I don't have to like it though.

586

00:36:36,000 --> 00:36:40,000

Buster has been falling an average of 60 miles an hour.

587

00:36:40,000 --> 00:36:46,000

Because of the missing legs, to get consistent data, they decide to start again.

588

00:36:46,000 --> 00:36:51,000

We'll do a test, we'll do a control without legs, and without a hammer, and then we'll do another one with the hammer.

589

00:36:51,000 --> 00:36:54,000

All cameras are rolling. It's a go.

590

00:36:54,000 --> 00:36:58,000

Three, two, one, go!

591

00:37:04,000 --> 00:37:08,000

That's so radically, radically hardcore.

592

00:37:09,000 --> 00:37:21,000

So hardcore, the accelerometer registered a force of 287 Gs, a devastating impact, considering an average car crash rates around 70 Gs.

593

00:37:25,000 --> 00:37:31,000

Time to attach the hammer. Will it break the surface tension and help prove the myth?

594

00:37:31,000 --> 00:37:33,000

We're ready on your count.

595

00:37:33,000 --> 00:37:37,000

Three, two, one, go!

596

00:37:39,000 --> 00:37:52,000

Even with the hammer falling first, the dummy still registered a shattering impact of 239 Gs.

597

00:37:52,000 --> 00:37:57,000

Take a look and see the little yellow pieces of foam over there. The force is so great.

598

00:37:57,000 --> 00:38:02,000

It's yanking foam out of his butt and like rendering it all over the place.

599

00:38:02,000 --> 00:38:05,000

We're seeing little scraps every time he falls.

600

00:38:06,000 --> 00:38:09,000

Three, two, one, go!

601

00:38:14,000 --> 00:38:18,000

You know, if I was a crashless dummy, I think that would have hurt more than any of the other falls.

602

00:38:18,000 --> 00:38:19,000

Go!

603

00:38:24,000 --> 00:38:25,000

Woo!

604

00:38:25,000 --> 00:38:26,000

Go!

605

00:38:27,000 --> 00:38:31,000

I'm enjoying this more every time.

606

00:38:31,000 --> 00:38:35,000

You know, I think Jamie's getting a little sick up there.

607

00:38:35,000 --> 00:38:37,000

Oh!

608

00:38:37,000 --> 00:38:39,000

Oh!

609

00:38:42,000 --> 00:38:44,000

I'd say that's a good day's work.

610

00:38:44,000 --> 00:38:47,000

I want to get the hell off this crane.

611

00:38:49,000 --> 00:38:50,000

Alright.

612

00:38:51,000 --> 00:38:53,000

I don't know what to do.

613

00:38:53,000 --> 00:38:54,000

Alright.

614

00:38:55,000 --> 00:38:58,000

I don't think that losing the leg affected our results.

615

00:38:58,000 --> 00:39:02,000

We got a good control of three drops without the hammer and three drops with the hammer.

616

00:39:02,000 --> 00:39:08,000

That's a reasonable data set to make an assessment as to whether or not the hammer helped or didn't do anything.

617

00:39:08,000 --> 00:39:15,000

My gut feeling about this is that the hammer is probably having somewhat of an effect on the impact that the dummy receives.

618

00:39:15,000 --> 00:39:20,000

I don't think it's all that much. I don't think it would save your life, personally.

619

00:39:23,000 --> 00:39:24,000

Oh!

620

00:39:27,000 --> 00:39:29,000

That's our first one with a hammer.

621

00:39:29,000 --> 00:39:31,000

Did a face plant at a slight angle but first.

622

00:39:31,000 --> 00:39:38,000

Back at the workshop, Adam and Jamie are comparing the different impact curves downloaded from the accelerometer.

623

00:39:38,000 --> 00:39:45,000

There's effectively no difference in the length of that curve just between 200 and 300 genes.

624

00:39:45,000 --> 00:39:51,000

Even if the hammer helped a little bit, when he hits the water he's going 60 miles per hour plus,

625

00:39:51,000 --> 00:39:54,000

which is like twice the speed that they test auto crashes.

626

00:39:54,000 --> 00:40:02,000

You know, the thought that jumping off something and hitting water is going to like literally rip your limbs off your body is surprising.

627

00:40:02,000 --> 00:40:03,000

I never would have thought that.

628

00:40:03,000 --> 00:40:04,000

It blew my mind, actually.

629

00:40:04,000 --> 00:40:05,000

Yeah.

630

00:40:05,000 --> 00:40:10,000

And then bottom line, our data doesn't show any effect of the hammer at all.

631

00:40:10,000 --> 00:40:11,000

No, it doesn't.

632

00:40:11,000 --> 00:40:14,000

I would say that this myth is busted.

633

00:40:14,000 --> 00:40:15,000

I agree.

634

00:40:21,000 --> 00:40:24,000

There are plenty of legends associated with cola.

635

00:40:24,000 --> 00:40:26,000

Some of them sound feasible.

636

00:40:26,000 --> 00:40:29,000

For instance, can it clean battery terminals?

637

00:40:30,000 --> 00:40:32,000

That is a pretty corroded battery.

638

00:40:32,000 --> 00:40:34,000

That is a very corroded battery.

639

00:40:34,000 --> 00:40:37,000

So, let's try out the cola on it.

640

00:40:37,000 --> 00:40:41,000

Well, let's try cola on this one and baking soda and toothbrush on that one.

641

00:40:41,000 --> 00:40:42,000

Cheers.

642

00:40:45,000 --> 00:40:53,000

So, should we line them up and take a look, see?

643

00:40:53,000 --> 00:40:54,000

Sure.

644

00:40:54,000 --> 00:40:58,000

Personally, I don't really see any major difference between them.

645

00:40:58,000 --> 00:41:00,000

Yeah, but the cola actually does work.

646

00:41:00,000 --> 00:41:01,000

Let me see something here.

647

00:41:01,000 --> 00:41:04,000

I'm going to actually just try straight water on this one.

648

00:41:04,000 --> 00:41:10,000

See, given what the water does, it might just be that the cola is simply a liquid.

649

00:41:10,000 --> 00:41:16,000

Not that it has any special properties, because the water without anything just cleaned up that

terminal pretty fine.

650

00:41:16,000 --> 00:41:17,000

That's true.

651

00:41:18,000 --> 00:41:22,000

Is cola the great grease stain remover?

652

00:41:22,000 --> 00:41:28,000

So, I kind of figured before we cleaned the engine, I should sort of like...

653

00:41:30,000 --> 00:41:35,000

If there's an easier way to dirty a pair of coveralls, this is not it.

654

00:41:35,000 --> 00:41:36,000

Wow.

655

00:41:36,000 --> 00:41:38,000

I must say it's kind of exciting.

656

00:41:39,000 --> 00:41:41,000

Oh, there we go.

657

00:41:43,000 --> 00:41:45,000

It's only going to hurt a little bit.

658

00:41:48,000 --> 00:41:49,000

There you go.

659

00:41:50,000 --> 00:41:55,000

So, one sample in cola and the other in a leading brand of detergent.

660

00:41:55,000 --> 00:41:58,000

Both left to soak for four days.

661

00:41:58,000 --> 00:42:07,000

So, well, we've rinsed these and, I don't know, for my money, the unagitated laundry detergent didn't really do squat.

662

00:42:07,000 --> 00:42:13,000

Cola turned the material brown, but it didn't do anything at all to the grease.

663

00:42:13,000 --> 00:42:16,000

So, strike another one off the list.

664

00:42:16,000 --> 00:42:17,000

Okay.

665

00:42:18,000 --> 00:42:23,000

A real cola cleaning challenge. An old greasy engine.

666

00:42:23,000 --> 00:42:25,000

So, we have the cola on the left side, right?

667

00:42:25,000 --> 00:42:26,000

Yeah.

668

00:42:27,000 --> 00:42:28,000

There you go.

669

00:42:28,000 --> 00:42:33,000

I'll tell you right now, I wouldn't do this to my car.

670

00:42:36,000 --> 00:42:39,000

Why don't we let it sit like ten minutes or so and then come back?

671

00:42:39,000 --> 00:42:40,000

Yeah.

672

00:42:43,000 --> 00:42:45,000

So, it's the last time.

673

00:42:50,000 --> 00:42:52,000

What do you recommend? Knit or not?

674

00:42:53,000 --> 00:42:59,000

It cleaned off a lot of the dirt, but the grease was all still there, same as the cola as the water.

675

00:42:59,000 --> 00:43:05,000

Yeah, I think it removes a little bit of corrosion here and there on the aluminum or certain metals, but not a whole lot.

676

00:43:05,000 --> 00:43:09,000

So, I'd say that as an engine degreaser, it's busted. No way.

677

00:43:10,000 --> 00:43:15,000

Will spilled cola damage car paint if it's not cleaned off in 24 hours?

678

00:43:16,000 --> 00:43:22,000

Once again, the cola is competing against the concentrated power of phosphoric acid.

679

00:43:22,000 --> 00:43:24,000

Wow, look at what it's doing to this Sharpie.

680

00:43:24,000 --> 00:43:25,000

Yeah.

681

00:43:27,000 --> 00:43:31,000

24 hours later, what's the verdict?

682

00:43:31,000 --> 00:43:33,000

What's going on there?

683

00:43:34,000 --> 00:43:35,000

Try the phosphoric.

684

00:43:38,000 --> 00:43:42,000

The first time I've seen a car that's been cleaned off, I've been looking at it.

685

00:43:42,000 --> 00:43:49,000

The phosphoric acid's bright and white. It's actually like I might use it on my car.

686

00:43:49,000 --> 00:43:52,000

I think it actually changed the color of the truck though.

687

00:43:52,000 --> 00:44:00,000

Yeah, I mean it definitely ate through the paint, the phosphoric acid, but as an ingredient in

cola, it's definitely not effective in ruining anybody's paint job.

688

00:44:00,000 --> 00:44:01,000

No.

689

00:44:01,000 --> 00:44:02,000

Another one busted.

690

00:44:03,000 --> 00:44:04,000

Yes, indeed.

691

00:44:05,000 --> 00:44:07,000

Alright, let's get that penny out of there.

692

00:44:08,000 --> 00:44:15,000

Back at the lab for the cola soap test. What happened to the teeth, pennies and the T-bone steak?

693

00:44:15,000 --> 00:44:17,000

Well, I see something interesting here, Jamie.

694

00:44:17,000 --> 00:44:24,000

I know for a fact when I looked at it that this penny, which was in the cola, this is the side that was down and there was an air bubble right here.

695

00:44:24,000 --> 00:44:30,000

So we can see where there was air, it didn't clean, but where there was cola, it did.

696

00:44:30,000 --> 00:44:31,000

Wow, that's neat.

697

00:44:31,000 --> 00:44:35,000

Clearly see the difference that it actually did brighten up this penny.

698

00:44:35,000 --> 00:44:38,000

The cola did a better job than the phosphoric acid did.

699

00:44:38,000 --> 00:44:43,000

Yeah, I'd say it did a much better job actually. I mean, it doesn't look like the phosphoric did very much at all.

700

00:44:43,000 --> 00:44:44,000

That surprises me.

701

00:44:44,000 --> 00:44:48,000

Well, you know to me, it looks like the myth's true. Cola cleaned this penny really well.

702

00:44:50,000 --> 00:44:54,000

Now the teeth. Will they still be there after an overnight soaking?

703

00:44:54,000 --> 00:44:56,000

I still hear it rattling around in there.

704

00:44:56,000 --> 00:44:58,000

It made it a yucky brown.

705

00:44:59,000 --> 00:45:02,000

That's just disgusting.

706

00:45:02,000 --> 00:45:07,000

That's one sat in the phosphoric acid and did effectively nothing to it.

707

00:45:07,000 --> 00:45:11,000

Actually, Adam, there's a lot less of that other tooth than there was to begin with.

708

00:45:11,000 --> 00:45:12,000

Really?

709

00:45:12,000 --> 00:45:14,000

Yeah, it ate maybe half of it away.

710

00:45:14,000 --> 00:45:17,000

Wow, no, I didn't have any idea about that.

711

00:45:17,000 --> 00:45:21,000

Looks nice and white in comparison, but it's mostly gone.

712

00:45:21,000 --> 00:45:24,000

I don't think I'd want to put either of them in my mouth based on that.

713

00:45:24,000 --> 00:45:28,000

Yeah, in a 24 hour period, I'd say Cola could never dissolve a tooth.

714

00:45:28,000 --> 00:45:29,000

Yeah.

715

00:45:29,000 --> 00:45:30,000

Oh, that one's busted.

716

00:45:30,000 --> 00:45:31,000

Yep.

717

00:45:31,000 --> 00:45:32,000

Okay.

718

00:45:32,000 --> 00:45:33,000

What's next?

719

00:45:33,000 --> 00:45:38,000

This is the myth that Cola will dissolve a steak in 48 hours.

720

00:45:38,000 --> 00:45:41,000

Well, it's done something in 48 hours.

721

00:45:41,000 --> 00:45:46,000

Oh, man. I mean, we've given it a little bit longer than that.

722

00:45:46,000 --> 00:45:48,000

And you've put the steak in just phosphoric acid.

723

00:45:48,000 --> 00:45:50,000

Ooh, did you see that?

724

00:45:50,000 --> 00:45:52,000

Yeah, this kind of fell apart.

725

00:45:52,000 --> 00:45:54,000

It's totally breaking it down.

726

00:45:54,000 --> 00:45:55,000

Ooh.

727

00:45:55,000 --> 00:45:59,000

It's funny, it didn't look like it did anything to it, but it did.

728

00:45:59,000 --> 00:46:05,000

This is the Cola steak with our fine glaze of mold.

729

00:46:05,000 --> 00:46:08,000

Well, there's nothing remotely dissolved about it.

730

00:46:08,000 --> 00:46:12,000

I'm trying to speak through my mouth so I don't have to smell this.

731

00:46:12,000 --> 00:46:16,000

It doesn't smell bad at all. It smells kind of good.

732

00:46:17,000 --> 00:46:21,000

It might have tenderized it a little bit, but you know,

733

00:46:21,000 --> 00:46:24,000

because I don't know that I could do that with that if it was fresh.

734

00:46:24,000 --> 00:46:25,000

Yeah.

735

00:46:25,000 --> 00:46:29,000

And I don't smell anything bad at all. It smells...

736

00:46:31,000 --> 00:46:34,000

It smells okay. It smells like food.

737

00:46:34,000 --> 00:46:36,000

Nah. I wouldn't eat it.

738

00:46:36,000 --> 00:46:37,000

I wouldn't either, but...

739

00:46:37,000 --> 00:46:40,000

Ah, so, after all your talk, you wouldn't eat it?

740

00:46:40,000 --> 00:46:41,000

It's true.

741

00:46:41,000 --> 00:46:43,000

So, the myth busted.

742

00:46:43,000 --> 00:46:44,000

Myth busted.

743

00:46:44,000 --> 00:46:46,000

Plus, Cola did nothing to a steak.

744

00:46:47,000 --> 00:46:51,000

Next myth. Could Cola be an effective spermicide?

745

00:46:54,000 --> 00:46:57,000

They will combine one small sample of sperm with Cola

746

00:46:57,000 --> 00:47:00,000

and another sample with a control substance.

747

00:47:00,000 --> 00:47:05,000

Under the microscope, they will estimate the score between alive and dead.

748

00:47:06,000 --> 00:47:07,000

Let's try the Cola.

749

00:47:07,000 --> 00:47:08,000

Okay.

750

00:47:10,000 --> 00:47:11,000

Oh, yeah.

751

00:47:11,000 --> 00:47:12,000

Look at that.

752

00:47:12,000 --> 00:47:14,000

Wow. I mean, this is really exciting.

753

00:47:14,000 --> 00:47:16,000

This is like those films in high school.

754

00:47:16,000 --> 00:47:18,000

Maybe they like the caffeine.

755

00:47:18,000 --> 00:47:19,000

Whoa!

756

00:47:19,000 --> 00:47:20,000

What do you think?

757

00:47:20,000 --> 00:47:21,000

That's amazing.

758

00:47:22,000 --> 00:47:24,000

What are we going to use for our control?

759

00:47:24,000 --> 00:47:27,000

Well, I have some saline solution here.

760

00:47:27,000 --> 00:47:31,000

I think that ought to be kind of easy on the sperm.

761

00:47:31,000 --> 00:47:32,000

Okay.

762

00:47:32,000 --> 00:47:33,000

There we go.

763

00:47:33,000 --> 00:47:35,000

Okay. Two drops of saline.

764

00:47:36,000 --> 00:47:37,000

There it is.

765

00:47:37,000 --> 00:47:39,000

Certainly look very lively to me.

766

00:47:39,000 --> 00:47:40,000

Yeah, they look great.

767

00:47:40,000 --> 00:47:44,000

And three, two, one, count.

768

00:47:46,000 --> 00:47:50,000

For 60 seconds, Jamie will count live sperm in the saline.

769

00:47:51,000 --> 00:47:53,000

And stop. We're done.

770

00:47:53,000 --> 00:47:55,000

How many live ones did you see?

771

00:47:55,000 --> 00:47:56,000

53.

772

00:47:56,000 --> 00:47:58,000

53 live ones in a minute.

773

00:47:58,000 --> 00:47:59,000

Okay.

774

00:47:59,000 --> 00:48:00,000

And go.

775

00:48:00,000 --> 00:48:03,000

And now a 60-second Cola count.

776

00:48:04,000 --> 00:48:05,000

And stop.

777

00:48:06,000 --> 00:48:07,000

85.

778

00:48:07,000 --> 00:48:08,000

No way.

779

00:48:08,000 --> 00:48:09,000

Nope.

780

00:48:09,000 --> 00:48:10,000

85.

781

00:48:12,000 --> 00:48:16,000

This is an occasion when Jamie and Adam bow to superior knowledge.

782

00:48:16,000 --> 00:48:21,000

Dr. Paul Turek is a male reproductive specialist at UCSF.

783

00:48:21,000 --> 00:48:24,000

He's heard hundreds of similar claims.

784

00:48:24,000 --> 00:48:26,000

I think it's a great myth.

785

00:48:26,000 --> 00:48:29,000

To summarize, I think the experiment kind of shows what I thought would happen,

786

00:48:29,000 --> 00:48:34,000

which is Cola will serve as a dilly and will dilute the sperm,

787

00:48:34,000 --> 00:48:36,000

but it won't be necessarily toxic to it.

788

00:48:36,000 --> 00:48:38,000

And a spermicide is different.

789

00:48:38,000 --> 00:48:41,000

A spermicide actually stays in there, so it doesn't really dilute anything.

790

00:48:41,000 --> 00:48:43,000

It just kills the sperm on contact.

791

00:48:43,000 --> 00:48:46,000

Three, two, one, and done.

792

00:48:47,000 --> 00:48:48,000

96.

793

00:48:48,000 --> 00:48:49,000

96.

794

00:48:50,000 --> 00:48:53,000

Clearly, Cola is not an effective spermicide.

795

00:48:53,000 --> 00:48:54,000

It's just not.

796

00:48:54,000 --> 00:48:56,000

So I'd say this myth is busted too.

797

00:48:56,000 --> 00:48:57,000

Absolutely.

798

00:48:57,000 --> 00:48:58,000

Cola's going down.

799

00:48:58,000 --> 00:49:03,000

So Jamie, we've been testing Cola for a week.

800

00:49:03,000 --> 00:49:04,000

What did we end up with?

801

00:49:04,000 --> 00:49:05,000

Not a hell of a lot.

802

00:49:05,000 --> 00:49:09,000

Well, the only thing that it really did well was it did a great job of cleaning chrome.

803

00:49:09,000 --> 00:49:10,000

I agree.

804

00:49:10,000 --> 00:49:12,000

That's the best thing it did of anything.

805

00:49:12,000 --> 00:49:13,000

Yeah.

806

00:49:13,000 --> 00:49:14,000

Otherwise, it kind of sort of cleans up blood.

807

00:49:14,000 --> 00:49:18,000

It cleaned up a penny kind of okay, but nothing really spectacular.

808

00:49:18,000 --> 00:49:20,000

The cleaning chrome was great.

809

00:49:20,000 --> 00:49:21,000

And that's it.

810

00:49:21,000 --> 00:49:24,000

I mean, none of these others were really effective in any way.

811

00:49:24,000 --> 00:49:25,000

No.