

1

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

Music

2

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

On this episode of MythBusters, it's all about you, the viewers.

3

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

Is that a clean out the pipes?

4

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

We take four fan-fueled fables and apply the blowtorch of science.

5

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

Run, it's getting exposed!

6

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

First, can the fastest growing plant on the planet penetrate a person?

7

00:00:28,000 --> 00:00:32,000

Cemi is imagining himself to be a plant.

8

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

And will Brandi bring you back from the brink of hypothermia?

9

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

I'm going into delirium.

10

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

Then, if you mix alkaline metals and water, will it blow up your bath pump?

11

00:00:43,000 --> 00:00:49,000

And finally, will burning a baby grand really cause it to explode?

12

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

Go, go, go, go!

13

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

So, sit back, drink up, and count backwards.

14

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

Three, two, one!

15

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

Because we're back to test more of your myths.

16

00:00:59,000 --> 00:01:03,000

Music

17

00:01:03,000 --> 00:01:05,000

Who are the MythBusters?

18

00:01:05,000 --> 00:01:07,000

Music

19

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

Adam Savage

20

00:01:08,000 --> 00:01:09,000

Hey, hey, hey!

21

00:01:09,000 --> 00:01:10,000

You need to bring some more power.

22

00:01:10,000 --> 00:01:12,000

And Jamie Heineman.

23

00:01:12,000 --> 00:01:14,000

I'm not so sure this is a good idea.

24

00:01:14,000 --> 00:01:18,000

Between them more than 30 years of special effects experience.

25

00:01:18,000 --> 00:01:20,000

Music

26

00:01:20,000 --> 00:01:23,000

Joining them, Carrie Byron.

27

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

Whose hairball idea is this?

28

00:01:25,000 --> 00:01:26,000

Grant Imahara.

29

00:01:26,000 --> 00:01:27,000

Watch out!

30

00:01:27,000 --> 00:01:29,000

And Tori Belleggi.

31

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

This is going to be a free tea!

32

00:01:30,000 --> 00:01:32,000

They don't just tell the myths.

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00:01:32,000 --> 00:01:33,000

If you say so, Junior.

34

00:01:33,000 --> 00:01:36,000

They put them to the test.

35

00:01:36,000 --> 00:01:39,000

Music

36

00:01:39,000 --> 00:01:42,000

Music

37

00:01:42,000 --> 00:01:49,000

Music

38

00:01:49,000 --> 00:01:52,000

If you've got a myth for us to test, we'd love to hear about it.

39

00:01:52,000 --> 00:02:02,000

Here, off the icy waters of San Francisco Bay, we have a very rare opportunity to be able to view a very elusive television host in this natural habitat, the Heineman.

40

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

Latin name, Hoosieris Televisualis.

41

00:02:05,000 --> 00:02:10,000

And he seems to be communicating with his viewers, asking them for ideas.

42

00:02:10,000 --> 00:02:11,000

And who knew?

43

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

Not only did you respond to the call, you opened the floodgates and sent us a gazillion myths.

44

00:02:17,000 --> 00:02:20,000

So we selected a few of the best to test.

45

00:02:20,000 --> 00:02:21,000

What's up first?

46

00:02:21,000 --> 00:02:22,000

Bamboo torture.

47

00:02:22,000 --> 00:02:29,000

Music

48

00:02:29,000 --> 00:02:30,000

You had enough yet?

49

00:02:30,000 --> 00:02:32,000

Cause I can keep singing all day long.

50

00:02:32,000 --> 00:02:34,000

I can take whatever you can throw at me.

51

00:02:34,000 --> 00:02:37,000

Alright then, well, how about that wise guy?

52

00:02:37,000 --> 00:02:39,000

A tiny bamboo plant?

53

00:02:39,000 --> 00:02:41,000

What are you going to do to me with that?

54

00:02:41,000 --> 00:02:43,000

I'm going to plant it and then grow it right through you.

55

00:02:43,000 --> 00:02:44,000

Really?

56

00:02:44,000 --> 00:02:45,000

Does that work?

57

00:02:45,000 --> 00:02:46,000

I don't know, but that's the myth.

58

00:02:46,000 --> 00:02:49,000

And I've always wanted to try it.

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00:02:49,000 --> 00:02:50,000

Music

60

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

It's a far-fetched fable straight from the fan site.

61

00:02:53,000 --> 00:03:04,000

During World War II, captured POWs were supposedly stretched above and then penetrated by fast-growing bamboo shoots.

62

00:03:04,000 --> 00:03:07,000

Music

63

00:03:07,000 --> 00:03:09,000

So what's your plan for this one?

64

00:03:09,000 --> 00:03:10,000

It's pretty straightforward, I think.

65

00:03:10,000 --> 00:03:12,000

We get some kind of a human analog.

66

00:03:12,000 --> 00:03:18,000

We get some fast-growing bamboo and we plant the bamboo under the analog and see if it grows through it.

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00:03:18,000 --> 00:03:24,000

Right, now normally I'd say we should use pig, but given the fact that this is going to take a few days, it's going to get way too smelly.

68

00:03:24,000 --> 00:03:32,000

Well, I tell you what, why don't we measure how much force it takes to penetrate pig flesh and then we create a synthetic simulant that won't rot.

69

00:03:32,000 --> 00:03:34,000

And then put the bamboo underneath that?

70

00:03:34,000 --> 00:03:35,000

Exactly.

71

00:03:35,000 --> 00:03:38,000

Music

72

00:03:38,000 --> 00:03:47,000

And so crouching savage, hidden Heinemann, begin their long and arduous search for the legendary torture technique,

73

00:03:47,000 --> 00:03:52,000

in the mystical bamboo groves of Santa Cruz.

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00:03:52,000 --> 00:03:56,000

Luckily enough, we live in California where bamboo grows beautifully.

75

00:03:56,000 --> 00:04:00,000

And the purveyor of these potentially penetrating plants.

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

That's the thing right there. That'll get you talking.

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

Is Larry Gullman.

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

Is a bamboo shoot physically capable of pushing it its way through human flesh?

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00:04:09,000 --> 00:04:14,000

Bamboo shoots in the ground have to push through the dirt around rocks, through rotten logs.

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00:04:14,000 --> 00:04:20,000

I've seen bamboo shoots push up walkway pavers, so yes, they do push very hard when they're in the ground.

81

00:04:20,000 --> 00:04:24,000

If you're strapped down to this, oh, I can already feel it.

82

00:04:24,000 --> 00:04:26,000

So the early signs are promising.

83

00:04:26,000 --> 00:04:28,000

See, that's what we want.

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00:04:28,000 --> 00:04:31,000

And that's due to the unusual way in which bamboo grows.

85

00:04:31,000 --> 00:04:42,000

The canes shoot out from an underground root system, and while underground, the shoot tips are extremely tough and sharp in order to push out through the soil.

86

00:04:42,000 --> 00:04:47,000

So the question is, do they have enough force to push through a human body?

87

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

So let's say somebody owed you money. What kind of bamboo would you use?

88

00:04:51,000 --> 00:04:53,000

I think you should use spectabulous.

89

00:04:53,000 --> 00:04:57,000

It's shooting right now. It's about an inch in diameter and very sharp. Perfect.

90

00:04:57,000 --> 00:05:02,000

With their potentially penetrating plants purchased, there's only one thing left to do.

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00:05:02,000 --> 00:05:06,000

Well, we've got our bamboo. It's time to go back to the shop and torture some dummies.

92

00:05:07,000 --> 00:05:15,000

And now, Carrie Grant and Tori take the mystery out of chemistry.

93

00:05:15,000 --> 00:05:17,000

Okay, so what's our next myth for the viewer special?

94

00:05:17,000 --> 00:05:22,000

We're doing a myth about metal, and not just any metal, but my second favorite metal, alkaline metal.

95

00:05:22,000 --> 00:05:27,000

Oh, you know what, Adam and I did some tests for that when we were doing the MacGyver episode, but why are we doing it again?

96

00:05:27,000 --> 00:05:29,000

Because fans want to see more. They can't get enough.

97

00:05:29,000 --> 00:05:32,000

Three, two, one.

98

00:05:32,000 --> 00:05:40,000

When the team took on MacGyver, they busted the myth that a few grams of sodium in water can blast a hole in a wall.

99

00:05:41,000 --> 00:05:45,000

That was an explosion, but this is not a high explosive.

100

00:05:45,000 --> 00:05:48,000

But you, yes, you want more.

101

00:05:48,000 --> 00:05:50,000

So what exactly did the fans want to see?

102

00:05:50,000 --> 00:05:52,000

They want to see more reactive metals.

103

00:05:52,000 --> 00:05:53,000

Oh, you mean like, rubidium and cesium?

104

00:05:53,000 --> 00:05:58,000

Exactly. There's this internet video floating around where these guys throw cesium rubidium into a bathtub,

105

00:05:58,000 --> 00:06:00,000

and they liken the explosion to a hand grenade.

106

00:06:00,000 --> 00:06:02,000

Fans want to know if that's actually true.

107

00:06:02,000 --> 00:06:06,000

Okay, that's cool. But instead of bathtubs, why don't we do toilets?

108

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

You know, like we used to flush the cherry bombs down in high school.

109

00:06:09,000 --> 00:06:14,000

You know, I wouldn't know anything about that. I was too busy studying chemistry, but, you know, if you want to do that, by all means, let's do it.

110

00:06:14,000 --> 00:06:16,000

Is this opposite land?

111

00:06:16,000 --> 00:06:19,000

And grenades and explosions, you say.

112

00:06:20,000 --> 00:06:27,000

Well, that could only mean a trip to the team's dream location, the Alameda County Sheriff's Bomb Disposal Range.

113

00:06:27,000 --> 00:06:31,000

What are we blowing up today? Toilets, bathtubs.

114

00:06:31,000 --> 00:06:33,000

Everything's got to catch and sink!

115

00:06:33,000 --> 00:06:41,000

And the reason the bathroom furniture is on death row is the fan-fuehrer over a video clip that looks a little bit like this.

116

00:06:41,000 --> 00:06:43,000

Anybody got anything to read?

117

00:06:45,000 --> 00:06:55,000

After demonstrating that the reaction between water and the alkaline metals becomes more violent as you move down the periodic table, they get to rubidium.

118

00:06:55,000 --> 00:07:02,000

And with what looks to be about two grams, they claim to get a hand-grenade-sized explosion.

119

00:07:02,000 --> 00:07:08,000

So to find out if this is film, fakery, or fact, we're going to need a control.

120

00:07:08,000 --> 00:07:13,000

Now, on the internet video, they said that the reaction was equal to a hand-grenade explosion.

121

00:07:13,000 --> 00:07:15,000

This ought to clean out the pipes.

122

00:07:15,000 --> 00:07:21,000

So, we need to see what that looks like in order to have something to compare with. How great is this? We get to start off with the bang.

123

00:07:21,000 --> 00:07:24,000

We're going to blow the crap out of that toilet. Get it?

124

00:07:24,000 --> 00:07:33,000

Sure, but Grant and not Tori will explain how the team are going to safely explode the commode.

125

00:07:33,000 --> 00:07:44,000

This is a grenade, but it's not a live grenade. In a live grenade, you'd have TNT in here, you pull the pin, the clip pops off, and this is what would set off the explosion.

126

00:07:44,000 --> 00:07:50,000

But what we're going to do today is fill this with enough C4 to have the equivalent blasting power of the TNT.

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00:07:50,000 --> 00:07:58,000

Then, we're going to set it off with a blasting cap. That way, we can control exactly when it goes off, and it will be much, much safer.

128

00:07:58,000 --> 00:08:02,000

Alright, well, we have an actual grenade wired, and it's sitting in the toilet, ready to blow.

129

00:08:02,000 --> 00:08:05,000

And once we see that explode, we'll have something to compare the Acolyte metals to.

130

00:08:05,000 --> 00:08:07,000

Okay. Let's blow this thing up.

131

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

Fire in the bowl.

132

00:08:09,000 --> 00:08:12,000

Three, two, one.

133

00:08:16,000 --> 00:08:17,000

The toilet's gone.

134

00:08:17,000 --> 00:08:19,000

Yep, now you see it.

135

00:08:20,000 --> 00:08:21,000

Now you don't.

136

00:08:27,000 --> 00:08:30,000

Oh, we've blown it up real good.

137

00:08:30,000 --> 00:08:31,000

That's nice.

138

00:08:31,000 --> 00:08:34,000

All that's left is the water take.

139

00:08:34,000 --> 00:08:36,000

God, the bowl just shattered.

140

00:08:36,000 --> 00:08:37,000

Yeah.

141

00:08:37,000 --> 00:08:41,000

We destroyed this toilet, and now I know what a real grenade looks like when it goes off.

142

00:08:41,000 --> 00:08:48,000

So now we've got a great reference for what it should look like when we put our Acolyte metals in a toilet, in water.

143

00:08:49,000 --> 00:08:54,000

I just don't think that the Acolyte metals are going to have this kind of reaction, but I hope I'm wrong.

144

00:08:54,000 --> 00:09:04,000

Well, there's only one way to find out, and that's to match the myth by throwing the highly reactive rubidium and cesium down the pan.

145

00:09:04,000 --> 00:09:22,000

Used in water wheels and weapons, construction and the culinary arts, as a raw material, bamboo's versatility is virtually limitless.

146

00:09:22,000 --> 00:09:26,000

In the Philippines, they call this the dance of the bamboo pole.

147

00:09:26,000 --> 00:09:34,000

But fans want to know if this flexible, fast growing grass could have been used as an instrument of torture.

148

00:09:38,000 --> 00:09:43,000

And to find out, Adam and Jamie need a human guinea pig to pierce.

149

00:09:43,000 --> 00:09:45,000

But which one?

150

00:09:47,000 --> 00:09:50,000

So the whole point of this test is to come up with a human analogue.

151

00:09:50,000 --> 00:09:53,000

And we've done this on the show before, but usually with ballistics.

152

00:09:54,000 --> 00:09:57,000

I don't see any subcutaneous damage here.

153

00:09:57,000 --> 00:10:04,000

And this is a very well-explored field, not the slow penetration of something sharp like a bamboo plant.

154

00:10:04,000 --> 00:10:07,000

Nobody's done a lot of figuring on that, so we have to do it ourselves.

155

00:10:07,000 --> 00:10:13,000

We've got to go to the butcher, get a big slab of meat, start pushing spikes into it, come up with readings,

156

00:10:13,000 --> 00:10:17,000

and when we get those readings, it's how much pressure and resistance the meat provides.

157

00:10:17,000 --> 00:10:21,000

We've got to imitate it with synthetic materials.

158

00:10:21,000 --> 00:10:26,000

We have to make a fake torso with accurate flesh-like resistance to a growing bamboo shoot.

159

00:10:26,000 --> 00:10:29,000

This has got to be the most gruesome thing I've ever made.

160

00:10:29,000 --> 00:10:32,000

The guys need to know exactly what that resistance is.

161

00:10:34,000 --> 00:10:41,000

You know, pushing through the meat very slowly, Jamie is imagining himself to be a plant.

162

00:10:41,000 --> 00:10:42,000

What's our peak?

163

00:10:42,000 --> 00:10:43,000

8 max.

164

00:10:43,000 --> 00:10:49,000

Photosynthesizing, yearning for the sun, grabbing nutrients from the earth.

165

00:10:49,000 --> 00:10:53,000

All these things are passing through his mind.

166

00:10:53,000 --> 00:10:58,000

Several tests later, and the guys have a decent sample range.

167

00:10:58,000 --> 00:10:59,000

9.5 total.

168

00:10:59,000 --> 00:11:02,000

And decide to round up for simplicity's sake.

169

00:11:02,000 --> 00:11:06,000

Well, 10 pounds seems to be the magic number with this spike in penetrating flesh.

170

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

So all we've got to do is find and mix materials around here that makes a flesh that doesn't rot and stick.

171

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

Oh, there's some good stuff up here, Jamie.

172

00:11:14,000 --> 00:11:17,000

Because rotting and sticking upsets Jamie.

173

00:11:17,000 --> 00:11:19,000

It's kind of collapsing in on it, so...

174

00:11:19,000 --> 00:11:20,000

Yeah, I know.

175

00:11:20,000 --> 00:11:23,000

But after spending an hour looking for a synthetic flesh analog...

176

00:11:23,000 --> 00:11:25,000

It skins a little too tough.

177

00:11:25,000 --> 00:11:29,000

Jamie has a light bulb moment, and they return to square one.

178

00:11:30,000 --> 00:11:32,000

Our ballistic material.

179

00:11:32,000 --> 00:11:36,000

I think it's perfect. Let me see what the needle says.

180

00:11:36,000 --> 00:11:37,000

10 pounds.

181

00:11:37,000 --> 00:11:38,000

Wow.

182

00:11:38,000 --> 00:11:41,000

That is close enough for my money. I love that.

183

00:11:41,000 --> 00:11:42,000

And it's reusable.

184

00:11:42,000 --> 00:11:46,000

So clear ballistics material is the raw material of choice.

185

00:11:46,000 --> 00:11:49,000

He's on, let's get it.

186

00:11:49,000 --> 00:11:53,000

And Adam goes to work casting a torso to torture.

187

00:11:53,000 --> 00:12:00,000

Dude, this is what a back rub looks like from the inside of your body.

188

00:12:00,000 --> 00:12:01,000

Next.

189

00:12:02,000 --> 00:12:03,000

Hello.

190

00:12:03,000 --> 00:12:09,000

The guys whip up a rooftop greenhouse and then assemble it unsurprisingly...

191

00:12:09,000 --> 00:12:11,000

Rise, my son.

192

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

...on the rooftop.

193

00:12:12,000 --> 00:12:14,000

Dude, touchdown, oh man.

194

00:12:14,000 --> 00:12:20,000

This may look nice and sunny, and it is, but it's also a torture chamber, or it will be soon.

195

00:12:20,000 --> 00:12:26,000

So that's the greenhouse and bamboo in position, which leaves just one component.

196

00:12:28,000 --> 00:12:30,000

Oh, you're mine now.

197

00:12:30,000 --> 00:12:36,000

And the torso is carefully positioned above several shoots that have yet to fully break through the soil surface.

198

00:12:37,000 --> 00:12:41,000

This version of Buster is our final stage of testing in the bamboo.

199

00:12:41,000 --> 00:12:43,000

Will it grow through a person?

200

00:12:43,000 --> 00:12:46,000

And after experimenting with a bunch of different flesh analogs,

201

00:12:46,000 --> 00:12:48,000

ah, look at that. Those are the two growth points. They're beautiful.

202

00:12:48,000 --> 00:12:51,000

This ballistics material is non-water-based. It won't rot.

203

00:12:51,000 --> 00:12:56,000

It's the perfect material in terms of the amount of pressure it takes to push through.

204

00:12:56,000 --> 00:13:03,000

So if the bamboo grows through this chest, we can definitively state that it would grow through you as well.

205

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

Is that it?

206

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

That ought to do it.

207

00:13:06,000 --> 00:13:09,000

All right, well, let's get out of here and come back in a couple of days to see how it did.

208

00:13:09,000 --> 00:13:14,000

The way I see it, if the bamboo shoot works its way two or three inches into the back of the dummy,

209

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

then it's an effective means of torturing. All we've got to do is wait.

210

00:13:18,000 --> 00:13:24,000

And while we wait, let's take time out to find out where this torturous tale came from.

211

00:13:24,000 --> 00:13:28,000

Since this is normally the portion of the show where we give some scientific background to the myth that we're tackling,

212

00:13:28,000 --> 00:13:31,000

what have we got in bamboo as a torture device?

213

00:13:31,000 --> 00:13:33,000

Absolutely nothing.

214

00:13:33,000 --> 00:13:37,000

Nothing? No official reports, no first-hand accounts?

215

00:13:37,000 --> 00:13:38,000

Nothing. Nunca.

216

00:13:38,000 --> 00:13:41,000

Wow. All right.

217

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

With two grams of rubidium or cesium to water, it'll blow up your bathroom furniture.

218

00:14:14,000 --> 00:14:17,000

With a hand grenade-sized explosion.

219

00:14:17,000 --> 00:14:19,000

This ought to clean out the pipes.

220

00:14:19,000 --> 00:14:23,000

To find out if it's actually true, we're doing a direct comparison.

221

00:14:23,000 --> 00:14:26,000

This is the hand grenade.

222

00:14:26,000 --> 00:14:28,000

Bring on the alkali metals.

223

00:14:28,000 --> 00:14:31,000

But first, here's the sciencey bit.

224

00:14:31,000 --> 00:14:33,000

This is cesium, and this is rubidium.

225

00:14:33,000 --> 00:14:37,000

And they're part of a special class of elements called alkali metals.

226

00:14:37,000 --> 00:14:40,000

Now, what makes them special is they have one electron.

227

00:14:40,000 --> 00:14:46,000

Now, normally what they want to do is react with other things and give up that electron.

228

00:14:46,000 --> 00:14:52,000

Now, what happens when the alkali metals react with water is they release a lot of heat,

229

00:14:52,000 --> 00:14:58,000

and the other byproduct is hydrogen gas, and the heat tends to ignite the hydrogen gas.

230

00:14:58,000 --> 00:15:03,000

It's a perfect storm of something that causes an explosion.

231

00:15:03,000 --> 00:15:07,000

And to put these highly reactive metals in contact with water safely,

232

00:15:07,000 --> 00:15:10,000

the team has a couple of safety precautions lined up.

233

00:15:10,000 --> 00:15:12,000

Pretty simple. It's a little guillotine.

234

00:15:12,000 --> 00:15:17,000

Weight drops down onto small glass vials which are holding the metals,

235

00:15:17,000 --> 00:15:19,000

releasing it into the toilet, and we'll see what happens.

236

00:15:19,000 --> 00:15:22,000

Now, normally Grant's a better shot when he's using the toilet.

237

00:15:22,000 --> 00:15:24,000

But what he's doing right now is he's wetting down the ground,

238

00:15:24,000 --> 00:15:27,000

so in case there's any excess alkali metals that fly out of the toilet,

239

00:15:27,000 --> 00:15:31,000

they'll hit the water on the ground and react so we're not leaving any of the metals behind.

240

00:15:31,000 --> 00:15:34,000

And the first metal to be flushed is rubidium.

241

00:15:34,000 --> 00:15:41,000

Rubidium fun fact. This stuff, rubidium compounds are put in fireworks to make the color purple.

242

00:15:41,000 --> 00:15:46,000

In the video, they said they used two grams, and they got an explosion the size of a hand grenade.

243

00:15:46,000 --> 00:15:50,000

Now, we're going to use 25 grams. That's more than 10 times the amount.

244

00:15:50,000 --> 00:15:53,000

So if it's true what they're saying, we're going to have a huge explosion.

245

00:15:53,000 --> 00:15:56,000

It'll be the mayor of rubidium town. Ready?

246

00:15:56,000 --> 00:15:57,000

Yep.

247

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

Three, two, one.

248

00:16:03,000 --> 00:16:06,000

That was quick. Look at that cloud.

249

00:16:06,000 --> 00:16:11,000

Well, it all went according to plan. The string was cut and the guillotine fell.

250

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

The rubidium was released into the water and cue the chemistry.

251

00:16:17,000 --> 00:16:24,000

The sudden release of hydrogen gas and heat combines to give us a satisfying toilet bowl guiser.

252

00:16:24,000 --> 00:16:25,000

Three.

253

00:16:25,000 --> 00:16:31,000

But, and here's the key, it was nothing like the internet video and grenade-sized explosion.

254

00:16:31,000 --> 00:16:34,000

So the chemistry predicts a big reaction.

255

00:16:34,000 --> 00:16:40,000

I guess it's a big reaction on a chemical scale, but not on a grenade scale.

256

00:16:40,000 --> 00:16:48,000

We got a huge cloud and a little spark, a little flash, but no explosion, no shattering of the toilet bowl.

257

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

So, rubidium doesn't do it.

258

00:16:50,000 --> 00:16:54,000

Well, we may not have had hand grenades, but at least we still have good chemistry.

259

00:16:54,000 --> 00:16:56,000

But we haven't given up yet.

260

00:16:56,000 --> 00:17:00,000

Next up in an attempt to blow up the bowl is cesium.

261

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

So this is it. This is cesium.

262

00:17:02,000 --> 00:17:08,000

This is the most reactive alkali metal that we can get our hands on that's not radioactive.

263

00:17:08,000 --> 00:17:15,000

We're going to put this in the toilet bowl and see if it behaves when exposed to water like a grenade.

264

00:17:15,000 --> 00:17:16,000

Okay.

265

00:17:16,000 --> 00:17:20,000

In three, two, one.

266

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

Ah!

267

00:17:23,000 --> 00:17:24,000

Cool.

268

00:17:24,000 --> 00:17:28,000

There was a little bit more reaction, more popping, but it was just a big cloud of gas again.

269

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

More energy, more flame, but definitely no explosion.

270

00:17:33,000 --> 00:17:39,000

Now, I feel like I've been lied to because what I saw on that internet video was an explosion.

271

00:17:39,000 --> 00:17:41,000

What I saw here was a cloud of smoke.

272

00:17:41,000 --> 00:17:47,000

Now, a cloud of smoke is not going to destroy a toilet like a hand grenade will.

273

00:17:47,000 --> 00:17:49,000

So, Cary, what does that mean?

274

00:17:49,000 --> 00:17:51,000

Which means they faked it and this is busted.

275

00:18:03,000 --> 00:18:09,000

After all, they've already confirmed that Chinese water torture can send you around the bend.

276

00:18:09,000 --> 00:18:12,000

I actually don't want to do this test right now.

277

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

But now, at your behest, they're testing the power of botany to bring you to the brink.

278

00:18:18,000 --> 00:18:26,000

Are bamboo shoots sharp, tough and fast growing enough to pierce a human torso?

279

00:18:26,000 --> 00:18:34,000

And with the ballistics material dummy suspended above the soon-to-shoot bamboo, the clock is ticking.

280

00:18:34,000 --> 00:18:38,000

I'd imagine that torture is a pretty results-driven business.

281

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

And so, we're looking for a couple of things here.

282

00:18:40,000 --> 00:18:46,000

We're looking as to whether the shoot can actually grow through this flesh simulant

283

00:18:46,000 --> 00:18:49,000

and also how much time it takes for it to do that.

284

00:18:49,000 --> 00:18:53,000

And they're both really important because if it takes months to do it,

285

00:18:53,000 --> 00:18:56,000

it's not really an effective means of torture.

286

00:18:56,000 --> 00:19:00,000

If it does it in a couple of hours or a couple of days, though,

287

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

that starts to put it in the realm of possibility.

288

00:19:04,000 --> 00:19:12,000

And Jamie's prediction is spot-on because after just three days, our tortured torso is surely ready to talk.

289

00:19:12,000 --> 00:19:17,000

The bamboo shoot specifically evolved to push its way through the soil

290

00:19:17,000 --> 00:19:23,000

and has no problem penetrating the flesh and along.

291

00:19:23,000 --> 00:19:25,000

That looks painful.

292

00:19:25,000 --> 00:19:27,000

I could see it from here, man.

293

00:19:27,000 --> 00:19:30,000

The bamboo is growing into our poor dude.

294

00:19:30,000 --> 00:19:33,000

The experiment could not be going better.

295

00:19:33,000 --> 00:19:37,000

We have already gotten exactly what we came looking for,

296

00:19:37,000 --> 00:19:40,000

which is at the point at which bamboo meets flesh.

297

00:19:40,000 --> 00:19:43,000

Does it make a left-hand turn or does it just keep on going?

298

00:19:43,000 --> 00:19:46,000

And it's pretty clear, but it just keeps on going.

299

00:19:46,000 --> 00:19:52,000

Well, you know, I said earlier that if there was any penetration at all, then that's torture.

300

00:19:52,000 --> 00:19:54,000

So I say this myth is...

301

00:19:54,000 --> 00:19:58,000

Oh! Let's not call it just yet. I want to see how far we can take it.

302

00:19:58,000 --> 00:20:00,000

Let's let it keep on growing.

303

00:20:00,000 --> 00:20:02,000

Okay.

304

00:20:02,000 --> 00:20:05,000

But over two weeks later, the news isn't good.

305

00:20:05,000 --> 00:20:09,000

Despite several other shoots making their way into the dummy,

306

00:20:09,000 --> 00:20:14,000

Adam's wish to see complete penetration comes to naught.

307

00:20:14,000 --> 00:20:19,000

Look at that. They haven't grown an inch in two weeks. Those things are dead.

308

00:20:19,000 --> 00:20:23,000

Yeah, and look at that. The ballistic gel is melted.

309

00:20:23,000 --> 00:20:26,000

Unless it got so hot in here, that's what killed him.

310

00:20:26,000 --> 00:20:31,000

We did prove that you could torture somebody with bamboo if you were determined.

311

00:20:31,000 --> 00:20:34,000

Yeah, but we didn't see the bamboo grow all the way through the guy.

312

00:20:34,000 --> 00:20:37,000

I mean, that was supposed to be the grand finale.

313

00:20:37,000 --> 00:20:40,000

You know, we've got one more dummy. Let's check it up there and see what happens.

314

00:20:40,000 --> 00:20:42,000

Okay.

315

00:20:42,000 --> 00:20:48,000

So a second Ballistics Material torso, this time with attractive wig and facial features,

316

00:20:48,000 --> 00:20:52,000

is taken to the roof, where the team has set up a second growing area,

317

00:20:52,000 --> 00:20:54,000

one that's open to the elements.

318

00:20:54,000 --> 00:20:58,000

Well, our dude is set up, and this is our last chance to see bamboo grow through a person.

319

00:20:58,000 --> 00:21:01,000

It's our last mannequin. It's our last viable bamboo shoot,

320

00:21:01,000 --> 00:21:04,000

and it's pretty much the end of the growing season.

321

00:21:04,000 --> 00:21:07,000

So if it's going to happen, it's got to happen here.

322

00:21:08,000 --> 00:21:12,000

And what do you know? Adam's desperation is well rewarded.

323

00:21:12,000 --> 00:21:18,000

Fast forward a couple of weeks, and this time the results are nothing short of astounding.

324

00:21:20,000 --> 00:21:22,000

That's what I'd call it through and through.

325

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

Ha ha ha ha ha ha!

326

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

We wanted to know if the bamboo would grow all the way through you.

327

00:21:27,000 --> 00:21:31,000

It turns out not only will it, but it actually thrives.

328

00:21:31,000 --> 00:21:35,000

This is 12 feet of bamboo, and it's going right through this guy's chest.

329

00:21:35,000 --> 00:21:37,000

It doesn't get any more definitive than that.

330

00:21:37,000 --> 00:21:41,000

I feel like someone's almost playing an April Fool's joke. That's so perfect.

331

00:21:41,000 --> 00:21:45,000

Obviously, bamboo can grow right through you, like it did over here.

332

00:21:45,000 --> 00:21:51,000

But for this to be a reasonable method of torture, if you can consider a torture reasonable in any sense,

333

00:21:51,000 --> 00:21:53,000

it needs to do it fairly quickly.

334

00:21:53,000 --> 00:22:00,000

And our time lapse shows that this penetrated that body in a matter of a couple of days or so.

335

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

It's possible, as gruesome as it is.

336

00:22:02,000 --> 00:22:07,000

That is awesome. Plausible and awesome. Plausible.

337

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

So what's next in the conveyor belt of myths?

338

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

Well, for this one, I got to paint you a picture.

339

00:22:24,000 --> 00:22:28,000

Imagine yourself on the frozen Arctic tundra.

340

00:22:28,000 --> 00:22:31,000

You're sled dogs of a band and you've run out of all your equipment and food,

341

00:22:31,000 --> 00:22:35,000

and slowly you are dying, your life ebbing away minute by minute.

342

00:22:35,000 --> 00:22:37,000

Yeah, okay, I remember that.

343

00:22:37,000 --> 00:22:44,000

And then, tear-soaked eyes, you see relief, salvation on the horizon in the form of a Saint Bernard,

344

00:22:44,000 --> 00:22:48,000

trotting towards you with a barrel around his neck. That barrel is full of brandy.

345

00:22:48,000 --> 00:22:54,000

You take a couple of snorts of that brandy, it warms you up just enough to keep you alive until the rescue team arrives.

346

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

Or this is like an aperitif before I eat the dog.

347

00:22:57,000 --> 00:22:59,000

You can't say that.

348

00:23:12,000 --> 00:23:20,000

The Saint Bernard and its barrel of life-saving brandy is a famously warm and fuzzy fable that you want answered.

349

00:23:20,000 --> 00:23:25,000

Will the arrival of a keg on legs really keep you alive?

350

00:23:25,000 --> 00:23:29,000

Or is it, when you knew this was coming, just a shaggy dog story?

351

00:23:29,000 --> 00:23:32,000

Say, Junior, are you carrying brandy too?

352

00:23:32,000 --> 00:23:35,000

Heck no, I bring the chaser.

353

00:23:35,000 --> 00:23:41,000

I've actually heard that alcohol has the opposite effect and it cools you down, not warms you up.

354

00:23:41,000 --> 00:23:45,000

It's strange because I swear it has a warming effect when I drink it.

355

00:23:45,000 --> 00:23:47,000

Should be pretty straightforward to try.

356

00:23:47,000 --> 00:23:53,000

I think so. I think all we need to do is find ourselves a nice, big freezer, a way of monitoring our body temperature,

357

00:23:53,000 --> 00:23:56,000

drink a few shots of the heart stuff and see what kind of change occurs.

358

00:23:56,000 --> 00:23:57,000

Works for me.

359

00:23:57,000 --> 00:23:59,000

My ears are starting to sting.

360

00:23:59,000 --> 00:24:03,000

But before the guys get to test this frosty fable in the freezer,

361

00:24:03,000 --> 00:24:07,000

I'm going into the delirium of thinking about what I'll do once I'm warm.

362

00:24:07,000 --> 00:24:12,000

Adam's ensuring accurate info by ingesting a thermometer?

363

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

Since this whole test is about whether or not there's any change in our body temperature from the

drinking of the alcohol,

364

00:24:18,000 --> 00:24:21,000

we need to know exactly what our body temperature is.

365

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

And this isn't a thermometer under the tongue or one in the ear or one on the skin.

366

00:24:25,000 --> 00:24:27,000

We need our core body temperature measured.

367

00:24:27,000 --> 00:24:33,000

We've done this on the show before back when I got painted with gold paint and I had a rectal thermometer.

368

00:24:33,000 --> 00:24:38,000

Oh, so, Jay, we respect me tomorrow.

369

00:24:42,000 --> 00:24:44,000

Neither of us want to do that this time.

370

00:24:44,000 --> 00:24:49,000

We're bringing in a brand new piece of technology called a core body temperature capsule.

371

00:24:49,000 --> 00:24:51,000

There we go.

372

00:24:54,000 --> 00:24:57,000

It's basically a passive radio.

373

00:24:57,000 --> 00:25:00,000

It goes into our stomach, keeps track of our core body temperature,

374

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

and we check in on it with this.

375

00:25:02,000 --> 00:25:06,000

We hold this up to our bodies and boop, it tells us what our core body temperature is.

376

00:25:06,000 --> 00:25:08,000

And a couple days later, we pass it.

377

00:25:08,000 --> 00:25:10,000

They're disposable.

378

00:25:10,000 --> 00:25:13,000

I ate a radio for science.

379

00:25:13,000 --> 00:25:17,000

That super accurate body temperature thermometer is not all they'll be using.

380

00:25:17,000 --> 00:25:20,000

The guys are going for data overload.

381

00:25:20,000 --> 00:25:24,000

We're going to be doing some standardized tests at regular intervals throughout the day.

382

00:25:24,000 --> 00:25:27,000

The first one is the core body temperature.

383

00:25:27,000 --> 00:25:29,000

Go ahead and swallow that puppy.

384

00:25:30,000 --> 00:25:32,000

I know.

385

00:25:32,000 --> 00:25:36,000

The second one is we're going to check in on how we actually feel.

386

00:25:36,000 --> 00:25:42,000

On a coldness scale, one being the coldest and ten being not cold at all, where do you stand?

387

00:25:42,000 --> 00:25:44,000

Eight.

388

00:25:44,000 --> 00:25:46,000

Eight? You're just a little bit cold.

389

00:25:46,000 --> 00:25:53,000

The third one is we're going to be using a thermal imaging camera to check our heat signatures on the exterior of our bodies.

390

00:25:53,000 --> 00:25:55,000

Wow, you look funny.

391

00:25:55,000 --> 00:25:57,000

I can see you breathing.

392

00:25:57,000 --> 00:26:00,000

Basic temperature of your left hand, 94.1.

393

00:26:00,000 --> 00:26:06,000

And so armed with their battery of data gathering equipment and a warm weather baseline.

394

00:26:06,000 --> 00:26:09,000

Tip of the nose, 96 degrees.

395

00:26:09,000 --> 00:26:12,000

The boys are ready for the big freeze.

396

00:26:12,000 --> 00:26:14,000

Alright, that's the baseline. Let's get cold.

397

00:26:18,000 --> 00:26:27,000

Carrie Grant and Tori have already busted the myth that a few grams of cesium or rubidium can cause a hand grenade-sized explosion.

398

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

The internet is lying again.

399

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

So now it's time for the patented mythbusters ramping up.

400

00:26:33,000 --> 00:26:45,000

We're flushing the toilet and to blow up the bathtub, we're stretching the budget and moving into the realm of ridiculous by using a massive two and a half kilograms of sodium.

401

00:26:45,000 --> 00:26:46,000

You ready to do this, Grant?

402

00:26:46,000 --> 00:26:48,000

I'm ready to do it.

403

00:26:48,000 --> 00:26:57,000

And to accommodate the two and a half kilograms of sodium, Carrie has adapted her guillotine.

404

00:26:57,000 --> 00:27:02,000

She's added a sledgehammer, which means there's only one thing left to do.

405

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

Find out for the fans if super-sizing the sodium will blast the bathtub.

406

00:27:07,000 --> 00:27:09,000

Alright, this is sodium.

407

00:27:09,000 --> 00:27:12,000

In three, two, one.

408

00:27:20,000 --> 00:27:21,000

Wait, wait, wait.

409

00:27:21,000 --> 00:27:22,000

Oh my gosh.

410

00:27:22,000 --> 00:27:23,000

The gas.

411

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

Poisonous gas.

412

00:27:27,000 --> 00:27:31,000

While the team holds its breath, let's check out the replay.

413

00:27:32,000 --> 00:27:39,000

That was crazy.

414

00:27:39,000 --> 00:27:42,000

We dropped the sodium into the water and we got a huge explosion.

415

00:27:42,000 --> 00:27:44,000

It actually cracked the bathtub.

416

00:27:44,000 --> 00:27:48,000

The best part about it is two of the blocks didn't even react with the water.

417

00:27:48,000 --> 00:27:49,000

They were thrown out.

418

00:27:49,000 --> 00:27:52,000

That was incredible.

419

00:27:52,000 --> 00:27:55,000

Yep, spectacular.

420

00:27:55,000 --> 00:27:57,000

But it only caused a crack.

421

00:27:57,000 --> 00:27:59,000

The tub didn't disintegrate.

422

00:27:59,000 --> 00:28:02,000

So, how about taking it up a notch?

423

00:28:02,000 --> 00:28:05,000

But Christmas, that was amazing.

424

00:28:05,000 --> 00:28:09,000

But up next is potassium, which is even more reactive.

425

00:28:09,000 --> 00:28:11,000

And yep, same amount.

426

00:28:11,000 --> 00:28:15,000

Uh-huh, two and a half kilograms of potassium.

427

00:28:15,000 --> 00:28:16,000

Take it away.

428

00:28:16,000 --> 00:28:20,000

School lab chemistry like you've never seen it before.

429

00:28:20,000 --> 00:28:21,000

Okay, we're good.

430

00:28:21,000 --> 00:28:22,000

Let's go.

431

00:28:22,000 --> 00:28:27,000

But will it provide the big boom we and you have been waiting for?

432

00:28:27,000 --> 00:28:29,000

Two, one.

433

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

That was like fireworks.

434

00:28:40,000 --> 00:28:43,000

Wow, that was the 4th of July in there.

435

00:28:43,000 --> 00:28:44,000

You know what?

436

00:28:44,000 --> 00:28:45,000

It didn't explode.

437

00:28:45,000 --> 00:28:47,000

Like, it was like a bunch of little pops.

438

00:28:47,000 --> 00:28:49,000

It wasn't one big boom.

439

00:28:52,000 --> 00:28:55,000

Yes, once again, it's an exciting chemical reaction.

440

00:28:55,000 --> 00:28:58,000

But it's still not high explosives.

441

00:29:01,000 --> 00:29:07,000

So, in conclusion, you can use ridiculous amounts of sodium and potassium.

442

00:29:07,000 --> 00:29:11,000

You can use the more reactive elements in the alkali metal family.

443

00:29:11,000 --> 00:29:14,000

But you won't get a hand grenade-sized explosion

444

00:29:14,000 --> 00:29:19,000

and blow up a bathtub unless you use C4, like this.

445

00:29:19,000 --> 00:29:21,000

Fire in the hole!

446

00:29:21,000 --> 00:29:24,000

All right, JD, in three, two, one.

447

00:29:24,000 --> 00:29:25,000

Yeah!

448

00:29:25,000 --> 00:29:28,000

Did you see how high it shot that water?

449

00:29:28,000 --> 00:29:32,000

Yes, the shock wave emanating from a C4 detonation

450

00:29:32,000 --> 00:29:35,000

is approximately 8,000 meters per second,

451

00:29:35,000 --> 00:29:40,000

which is in a different league to alkali metals and water.

452

00:29:40,000 --> 00:29:46,000

Proving that that internet video is nothing but science fiction.

453

00:29:55,000 --> 00:30:01,000

Adam and Jamie are about to chill out to find out if a shot of brandy...

454

00:30:01,000 --> 00:30:02,000

Good boy.

455

00:30:02,000 --> 00:30:05,000

...will actually stave off hypothermia.

456

00:30:05,000 --> 00:30:08,000

Or is it simply a furry fable?

457

00:30:08,000 --> 00:30:11,000

Since we always want to be authentic on MythBusters,

458

00:30:11,000 --> 00:30:15,000

Bob here, a St. Bernard, is going to be delivering the brandy to us.

459

00:30:15,000 --> 00:30:17,000

Isn't that right, Bob?

460

00:30:17,000 --> 00:30:20,000

We are at the very perfect place to test this myth

461

00:30:20,000 --> 00:30:22,000

at a company called Deans Services,

462

00:30:22,000 --> 00:30:27,000

and they've got 125,000 square feet of freezer-cold rooms

463

00:30:27,000 --> 00:30:29,000

at zero degrees Fahrenheit,

464

00:30:29,000 --> 00:30:31,000

which is the temperature we're going to be working at.

465

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

Oh, what's your core body temperature?

466

00:30:33,000 --> 00:30:36,000

Let's get a baseline before we get into the cold.

467

00:30:36,000 --> 00:30:38,000

98.29.

468

00:30:38,000 --> 00:30:40,000

98.24.

469

00:30:40,000 --> 00:30:41,000

Are you ready?

470

00:30:41,000 --> 00:30:43,000

Ready as I'll ever be.

471

00:30:43,000 --> 00:30:45,000

Remember, Adam and Jamie,

472

00:30:45,000 --> 00:30:49,000

with their core body temperature capsules already in their stomachs...

473

00:30:49,000 --> 00:30:50,000

It's cold!

474

00:30:50,000 --> 00:30:51,000

I know!

475

00:30:51,000 --> 00:30:54,000

...are literally walking thermometers.

476

00:30:54,000 --> 00:30:57,000

But they'll also be monitoring their mood,

477

00:30:57,000 --> 00:31:00,000

as well as the surface temperature of their extremities.

478

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

It's weird having a job where our only task today

479

00:31:03,000 --> 00:31:05,000

is to get cold and then drunk.

480

00:31:05,000 --> 00:31:09,000

Yup, stage one of the test is to simulate a situation

481

00:31:09,000 --> 00:31:11,000

in which the guys will need rescuing

482

00:31:11,000 --> 00:31:14,000

by a brandy-carrying St. Bernard.

483

00:31:14,000 --> 00:31:16,000

I'm starting to get uncomfortable.

484

00:31:16,000 --> 00:31:19,000

And that means getting very cold, very fast.

485

00:31:19,000 --> 00:31:21,000

Right now, I don't feel so bad,

486

00:31:21,000 --> 00:31:24,000

but it's changing rapidly.

487

00:31:24,000 --> 00:31:27,000

Stage two, once they've completely chilled out...

488

00:31:27,000 --> 00:31:28,000

Calamari!

489

00:31:28,000 --> 00:31:30,000

Get the brandy!

490

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

...the drinking commences.

491

00:31:33,000 --> 00:31:36,000

But just ten minutes into the test,

492

00:31:36,000 --> 00:31:39,000

and the guys get the first piece of relevant information.

493

00:31:39,000 --> 00:31:41,000

And it's not what you'd expect.

494

00:31:41,000 --> 00:31:43,000

My temperature's been steadily going up.

495

00:31:43,000 --> 00:31:45,000

It's now at 98.56.

496

00:31:45,000 --> 00:31:46,000

What does yours say?

497

00:31:46,000 --> 00:31:47,000

Yeah, I'm going up, too.

498

00:31:47,000 --> 00:31:49,000

I'm at 98.9.

499

00:31:49,000 --> 00:31:51,000

I haven't read up on this,

500

00:31:51,000 --> 00:31:54,000

but the fact that my internal body temperature is rising

501

00:31:54,000 --> 00:31:57,000

while I'm feeling like I'm getting colder

502

00:31:57,000 --> 00:32:00,000

says to me something like my vascular system

503

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

has clamped down on my extremities

504

00:32:03,000 --> 00:32:05,000

and keeping the heat inside.

505

00:32:05,000 --> 00:32:08,000

Check out the big brain on Jamie!

506

00:32:08,000 --> 00:32:11,000

Because he's nailed one of the key responses

507

00:32:11,000 --> 00:32:14,000

of all endothermic animals to the cold.

508

00:32:14,000 --> 00:32:18,000

The superficial blood vessels constrict preventing heat loss

509

00:32:18,000 --> 00:32:22,000

through the skin and directing blood to critical internal organs.

510

00:32:22,000 --> 00:32:26,000

With such amazing evolutionary adaptations,

511

00:32:26,000 --> 00:32:29,000

it could take a while before the guys need rescuing.

512

00:32:29,000 --> 00:32:31,000

So to hurry things along,

513

00:32:31,000 --> 00:32:33,000

they decide on some drastic action.

514

00:32:33,000 --> 00:32:36,000

I don't think we're getting cold enough fast enough.

515

00:32:36,000 --> 00:32:40,000

I think we should take off our hats and unzip our coats.

516

00:32:40,000 --> 00:32:42,000

Really, I have to take my hat off?

517

00:32:42,000 --> 00:32:43,000

Yes, you do.

518

00:32:43,000 --> 00:32:46,000

And with significant heat loss taking place through the head...

519

00:32:46,000 --> 00:32:49,000

This sucks, man.

520

00:32:49,000 --> 00:32:53,000

It's just what you don't want to do when caught out in the cold.

521

00:32:53,000 --> 00:32:57,000

And I feel like I just dunked my head in a bucket of ice water.

522

00:32:57,000 --> 00:33:01,000

I was happy before that.

523

00:33:01,000 --> 00:33:05,000

As they approach the hour mark, my hands are starting to hurt.

524

00:33:05,000 --> 00:33:08,000

The guys finally reach the point where they need rescuing.

525

00:33:08,000 --> 00:33:10,000

They've reached the limits of their endurance,

526

00:33:10,000 --> 00:33:14,000

at least for a voluntary, safely monitored situation like this.

527

00:33:14,000 --> 00:33:15,000

Cold.

528

00:33:15,000 --> 00:33:19,000

So it's time for the crucial round of pre-branding data collection.

529

00:33:19,000 --> 00:33:21,000

I'm 98.49.

530

00:33:21,000 --> 00:33:25,000

Their ingested thermometers are showing stable internal temperatures.

531

00:33:25,000 --> 00:33:27,000

Subjective testing.

532

00:33:27,000 --> 00:33:30,000

Coldness scale, 1 to 10.

533

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

I'm saying I'm at least about a 2.

534

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

Yeah, I agree with that assessment.

535

00:33:36,000 --> 00:33:38,000

Extremities?

536

00:33:38,000 --> 00:33:40,000

Extremities are painful.

537

00:33:40,000 --> 00:33:43,000

My hands are hurting my head, especially.

538

00:33:43,000 --> 00:33:47,000

And the thermal camera, as well as providing Adam with entertainment...

539

00:33:47,000 --> 00:33:48,000

Wow, man.

540

00:33:48,000 --> 00:33:52,000

I gotta tell you, with your hat off, you're looking a Bond villain in this shot.

541

00:33:52,000 --> 00:33:55,000

...seems to confirm Jamie's earlier theory.

542

00:33:55,000 --> 00:33:58,000

Despite their stable core body temperature,

543

00:33:58,000 --> 00:34:02,000

their extremities have plummeted by over 20 degrees.

544

00:34:02,000 --> 00:34:04,000

My fingers hurt.

545

00:34:04,000 --> 00:34:07,000

Okay, your face is 65 degrees.

546

00:34:07,000 --> 00:34:10,000

The number noted is just one thing left to do.

547

00:34:10,000 --> 00:34:12,000

My ears are starting to sting.

548

00:34:12,000 --> 00:34:14,000

Help me, Bob, I'm freezing.

549

00:34:14,000 --> 00:34:16,000

Bring on the brandy.

550

00:34:16,000 --> 00:34:20,000

At this point, I'm in the rare position of hoping that the myth is true.

551

00:34:29,000 --> 00:34:32,000

We've got a really weird myth for the viewer special.

552

00:34:32,000 --> 00:34:35,000

Have you ever heard that a piano can explode in a fire?

553

00:34:35,000 --> 00:34:39,000

No, I have not, but it does make sense because the strings are under a lot of tension.

554

00:34:39,000 --> 00:34:42,000

Who cares if it makes sense? We might get to see a piano explode.

555

00:34:45,000 --> 00:34:49,000

Ah, the humble piano. Tickle its ivories and you get beautiful music.

556

00:34:49,000 --> 00:34:56,000

But in a fire, could it turn from innocent keyboard into an instrument of mass destruction?

557

00:34:58,000 --> 00:35:00,000

Well, this sounds pretty straightforward.

558

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

All we need to do is get a piano, build a fire under it, and see if it explodes.

559

00:35:03,000 --> 00:35:08,000

Well, hang on. I think before we do that, we need to find out how much tension the strings are under.

560

00:35:08,000 --> 00:35:10,000

Actually, I know the perfect people for that.

561

00:35:11,000 --> 00:35:13,000

And that perfect piano place...

562

00:35:13,000 --> 00:35:15,000

Ready to get your tune on...

563

00:35:16,000 --> 00:35:19,000

is owned by John Callahan, the piano man.

564

00:35:22,000 --> 00:35:27,000

So, the myth that we're working on is that if you put a piano in a fire, it will explode.

565

00:35:28,000 --> 00:35:31,000

Wow, I've actually heard people talk about that before.

566

00:35:31,000 --> 00:35:36,000

Having never burned a piano myself, I don't know if that's true, but I'm not sure exactly what's going to happen.

567

00:35:36,000 --> 00:35:42,000

To me, it sounds relatively plausible because, you know, I understand there's a lot of tension on the strings.

568

00:35:42,000 --> 00:35:44,000

Well, there sure is a lot of tension on the strings.

569

00:35:44,000 --> 00:35:53,000

In a piano, the steel wire is stretched across the cast iron plate, and there's about 200 pounds of tension on each wire average.

570

00:35:53,000 --> 00:35:57,000

We have about 230 wires in the piano.

571

00:35:57,000 --> 00:36:01,000

So there's a total of over 20 tons of force trying to collapse the piano.

572

00:36:01,000 --> 00:36:03,000

Now that sounds promising.

573

00:36:03,000 --> 00:36:09,000

The strings stretched across the cast iron plate hold 40,000 pounds of pressure.

574

00:36:09,000 --> 00:36:15,000

And if the flames cause them to fail, hey presto, exploding piano.

575

00:36:16,000 --> 00:36:18,000

Oh, wait a minute. I forgot something. I'll be right back.

576

00:36:28,000 --> 00:36:33,000

Come on, Grant. The jig is up.

577

00:36:35,000 --> 00:36:41,000

Back to work, and that means back to the bomb range for some piano pyromania.

578

00:36:41,000 --> 00:36:45,000

It's always a good day when you started at the bomb range.

579

00:36:45,000 --> 00:36:49,000

Callahans have kindly given the team a baby grand to ignite.

580

00:36:49,000 --> 00:36:54,000

Now all they have to do is get it off the truck.

581

00:36:54,000 --> 00:36:55,000

Only piano sucks.

582

00:36:55,000 --> 00:36:57,000

And into position.

583

00:36:57,000 --> 00:36:59,000

I'm just going to do a little tension music.

584

00:37:01,000 --> 00:37:04,000

Is the piano going to fall at the fork lift?

585

00:37:04,000 --> 00:37:12,000

While Carrie does some, you know, actual work, Torey and Grant serenade her the only way they know how.

586

00:37:12,000 --> 00:37:13,000

Badly.

587

00:37:13,000 --> 00:37:17,000

Here's the organ grinder.

588

00:37:17,000 --> 00:37:21,000

Grinding organ's only a knife.

589

00:37:21,000 --> 00:37:27,000

With the piano standing at its own legs, there's just one thing left to do. Tune it.

590

00:37:27,000 --> 00:37:32,000

All right, John, I know the tuning of piano at a bomb range is probably a pretty strange working condition for you,

591

00:37:32,000 --> 00:37:36,000

but we need to give this myth the best possible chance of working.

592

00:37:36,000 --> 00:37:39,000

So we need to get each one of these strings at the proper tension.

593

00:37:39,000 --> 00:37:41,000

I'll do my best.

594

00:37:41,000 --> 00:37:47,000

And as John brings the piano to a perfect pitch, the guys pitch in to build the bonfire.

595

00:37:47,000 --> 00:37:50,000

So to all the piano aficionados out there, just want to let you know,

596

00:37:50,000 --> 00:37:52,000

we love pianos.

597

00:37:52,000 --> 00:37:54,000

We're not enjoying this in the least.

598

00:37:54,000 --> 00:37:56,000

Let it all fire.

599

00:37:56,000 --> 00:37:59,000

Let it all fire.

600

00:37:59,000 --> 00:38:00,000

Okay, just a little bit.

601

00:38:00,000 --> 00:38:04,000

But this piano was destined for the dump. It's not salvageable.

602

00:38:04,000 --> 00:38:07,000

Unfortunately, it's beyond repair.

603

00:38:07,000 --> 00:38:09,000

So somebody had to do it.

604

00:38:09,000 --> 00:38:10,000

Might as well be us.

605

00:38:10,000 --> 00:38:14,000

Yep, this old piano has no more tickle in its ivories.

606

00:38:14,000 --> 00:38:16,000

But the end can't come soon enough for Carrie.

607

00:38:16,000 --> 00:38:21,000

Now you think I would be sad to have this lovely piano burned into nothing.

608

00:38:21,000 --> 00:38:26,000

But quite honestly, if I have to hear another verse of Tory singing and Grant playing the piano...

609

00:38:26,000 --> 00:38:31,000

Blue milk, blue milk.

610

00:38:31,000 --> 00:38:34,000

I'm going to jump in the fire.

611

00:38:34,000 --> 00:38:37,000

I guess all there is left to do then is throw some kerosene on the wood.

612

00:38:37,000 --> 00:38:39,000

All right, let's light it.

613

00:38:39,000 --> 00:38:43,000

Light it on fire. Find out if we have a bomb fire.

614

00:38:43,000 --> 00:38:46,000

Well, if there's truth to this myth, this thing could explode.

615

00:38:46,000 --> 00:38:48,000

So we better get out of here because this could be very dangerous.

616

00:38:48,000 --> 00:38:51,000

And I'm totally okay with that.

617

00:38:51,000 --> 00:38:54,000

So it's this baby grand's finale.

618

00:38:54,000 --> 00:38:56,000

But will the meltdown be a let down?

619

00:38:56,000 --> 00:38:58,000

Run, it's gonna explode.

620

00:38:58,000 --> 00:39:01,000

Or will it be a musical mushroom cloud?

621

00:39:01,000 --> 00:39:03,000

The piano is definitely on fire.

622

00:39:03,000 --> 00:39:05,000

Wow.

623

00:39:05,000 --> 00:39:07,000

That is a nice fire.

624

00:39:10,000 --> 00:39:12,000

Adam and Jamie are chilling out.

625

00:39:12,000 --> 00:39:13,000

Literally.

626

00:39:13,000 --> 00:39:15,000

My ears are starting to sting.

627

00:39:15,000 --> 00:39:16,000

Yeah.

628

00:39:16,000 --> 00:39:21,000

And at the limit of their cold weather endurance, they need rescuing.

629

00:39:21,000 --> 00:39:23,000

Get the brandy out.

630

00:39:23,000 --> 00:39:26,000

But is the mythical shot of Brandy the right way to go?

631

00:39:26,000 --> 00:39:27,000

There we go.

632

00:39:27,000 --> 00:39:29,000

Seriously.

633

00:39:33,000 --> 00:39:35,000

That's good, Brandy.

634

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

The immediate signs, at least on a subjective level, seem to back up the myth.

635

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

Yeah, the brandy sort of helped a little bit.

636

00:39:41,000 --> 00:39:47,000

There's definitely a feeling, a distinct feeling of a warm glow happening down here.

637

00:39:47,000 --> 00:39:50,000

But really, it's still painfully cold.

638

00:39:50,000 --> 00:39:55,000

But honestly, if you gave me the choice, I'd pour it on my hands and set it on fire at this point.

639

00:39:55,000 --> 00:40:02,000

A few minutes after downing the supposedly life-saving shots, the guys rustle up another set of data.

640

00:40:02,000 --> 00:40:05,000

And although their body temperature remains stable.

641

00:40:05,000 --> 00:40:07,000

99.15.

642

00:40:07,000 --> 00:40:09,000

Mine's 98.6.

643

00:40:09,000 --> 00:40:12,000

The numbers for skin temperature are very interesting.

644

00:40:12,000 --> 00:40:15,000

Face is 74 degrees.

645

00:40:15,000 --> 00:40:20,000

Which is an increase of 9 degrees from their pre-brandly temperatures.

646

00:40:20,000 --> 00:40:22,000

Alright, Jamie, your face.

647

00:40:22,000 --> 00:40:25,000

78 degrees.

648

00:40:25,000 --> 00:40:28,000

But again, the science backs up the numbers.

649

00:40:28,000 --> 00:40:35,000

Alcohol does in fact dilate your blood vessels, leading to flushed cheeks and more blood flow to your skin.

650

00:40:35,000 --> 00:40:36,000

There we go.

651

00:40:36,000 --> 00:40:40,000

And to find out if this effect is really helping fight off the cold.

652

00:40:40,000 --> 00:40:41,000

Cheers!

653

00:40:41,000 --> 00:40:44,000

Another shot is called for and Dooley drunk.

654

00:40:47,000 --> 00:40:49,000

I got a hair.

655

00:40:49,000 --> 00:40:54,000

And once again, the immediate signs are that the alcohol has a positive subjective effect.

656

00:40:54,000 --> 00:41:01,000

I'm picturing big steaming pans of warm food and dunking my hands into them.

657

00:41:01,000 --> 00:41:07,000

I'm going into the delirium of thinking about what I'll do once I'm warm.

658

00:41:07,000 --> 00:41:14,000

But assuming this is a life or death situation, maybe improving your mood isn't a priority.

659

00:41:14,000 --> 00:41:18,000

I can already tell that my mental faculties are impaired.

660

00:41:18,000 --> 00:41:19,000

What we're supposed to do?

661

00:41:19,000 --> 00:41:20,000

Left hand.

662

00:41:20,000 --> 00:41:22,000

Oh, I'm getting them wrong, aren't I?

663

00:41:22,000 --> 00:41:29,000

I don't think, just from a subjective point of view, that I'd want to further impair them with alcohol.

664

00:41:29,000 --> 00:41:33,000

Although, you know, caring less about the cold certainly has its merits.

665

00:41:33,000 --> 00:41:39,000

Yeah, you might do better by trying to, you know, light a small fire or something like that.

666

00:41:39,000 --> 00:41:40,000

Get shelter.

667

00:41:40,000 --> 00:41:44,000

And with that pearl of wisdom, it's time to gather the last set of data.

668

00:41:44,000 --> 00:41:47,000

Okay, face 72 degrees.

669

00:41:47,000 --> 00:41:55,000

Again, the thermal camera shows the guy's skin temperature to be higher than or equal to pre-brandy numbers.

670

00:41:55,000 --> 00:41:59,000

Dude, I just can't get over how funny looking you look on a thermal camera.

671

00:41:59,000 --> 00:42:03,000

But critically, the same can't be said for their core body temperature.

672

00:42:03,000 --> 00:42:06,000

97.37.

673

00:42:06,000 --> 00:42:10,000

Which is a sudden and worrying drop of a whole degree.

674

00:42:10,000 --> 00:42:14,000

Although, by this point, Adam's having too much fun to care.

675

00:42:14,000 --> 00:42:21,000

In a few minutes, I feel like the creature that's running the Jamie engine's going to run away, you know, because it's too cold.

676

00:42:21,000 --> 00:42:23,000

It's got to find a warmer hose.

677

00:42:23,000 --> 00:42:30,000

And with that last observation, it's time to pull the plug, get warm, and draw some conclusions.

678

00:42:30,000 --> 00:42:32,000

Go now.

679

00:42:32,000 --> 00:42:36,000

It turns out that St. Bernard's carrying brandy is a myth.

680

00:42:36,000 --> 00:42:41,000

Now, if these guys actually saved anybody's lives, it'd be due to their body warmth,

681

00:42:41,000 --> 00:42:46,000

because like Bob here, they're big brutes, they're really furry, and he's actually keeping them quite warm.

682

00:42:46,000 --> 00:42:52,000

Yep, a shaggy dog cuddle is the solution to this shaggy dog story.

683

00:42:52,000 --> 00:42:59,000

In summary, alcohol dilates your vascular system, which sends blood to your extremities where it loses its warmth.

684

00:42:59,000 --> 00:43:03,000

And as a result, your core body temperature quickly cools.

685

00:43:03,000 --> 00:43:06,000

You don't mind if I have a little nip, huh?

686

00:43:06,000 --> 00:43:15,000

I gotta tell you, right after that second brandy, I was thinking, I understand what this myth is all about, because I was feeling pretty fine.

687

00:43:15,000 --> 00:43:18,000

It's probably because you just didn't care about the cold so much anymore.

688

00:43:18,000 --> 00:43:25,000

Well, no alcohol also has a diluting effect. My blood was thinning and moving more towards my extremities, making me feel more comfortable.

689

00:43:25,000 --> 00:43:28,000

But right after that, your core body temperature started to drop like a stone.

690

00:43:28,000 --> 00:43:34,000

Right, which is precisely the opposite of what you want to happen in a freezing cold situation.

691

00:43:34,000 --> 00:43:39,000

So, in the short term, it might make you feel good, but ultimately, it's the last thing you want to do.

692

00:43:39,000 --> 00:43:41,000

Absolutely. This one's busted.

693

00:43:41,000 --> 00:43:46,000

Busted. Saved the brandy for when you're curled up in front of the fireplace back in the lodge.

694

00:43:49,000 --> 00:43:54,000

Carrie Grant and Tori love a good explosive bonfire.

695

00:43:57,000 --> 00:44:04,000

In fact, any fiery fable ignites their inner pyromania and Adam's feet.

696

00:44:04,000 --> 00:44:09,000

So when viewers suggested that burning a baby grand might make it explode,

697

00:44:10,000 --> 00:44:15,000

They couldn't wait to fire up and find out if it was true.

698

00:44:15,000 --> 00:44:18,000

Oh my God, that fire is awesome.

699

00:44:18,000 --> 00:44:21,000

Fire department gave me a pyrometer so I can check how hot it is.

700

00:44:21,000 --> 00:44:23,000

Wait, I've got the marmarine here.

701

00:44:23,000 --> 00:44:24,000

Okay, careful.

702

00:44:24,000 --> 00:44:30,000

With the pyrometer maxed out, their instrument, Inferno, is burning at more than a thousand degrees,

703

00:44:30,000 --> 00:44:35,000

which makes short work of the wooden frame, lid, and legs.

704

00:44:35,000 --> 00:44:37,000

Sure, hope we hear boing boing boing.

705

00:44:37,000 --> 00:44:39,000

I want to hear you boing.

706

00:44:41,000 --> 00:44:46,000

Remember, if there's any truth to this myth, the 20 tons of tension in the strings has to be suddenly and explosively released.

707

00:44:46,000 --> 00:44:48,000

Seeing a little caving in.

708

00:44:48,000 --> 00:44:51,000

Maybe it'll collapse on itself.

709

00:44:51,000 --> 00:44:56,000

That's the theory, but as the baby grand slowly but surely burns down to the ground,

710

00:44:56,000 --> 00:44:59,000

the myth of the explosion is still there.

711

00:44:59,000 --> 00:45:01,000

Well, no explosion.

712

00:45:01,000 --> 00:45:08,000

In fact, all we see that's left of the piano is a smoking hole with a skeleton of the cast iron piece.

713

00:45:08,000 --> 00:45:12,000

You can still see some of the strings, which is not what I expected.

714

00:45:12,000 --> 00:45:19,000

I thought in all the heat, strings which are very thin compared to the cast iron, we're going to go boing boing boing boing.

715

00:45:19,000 --> 00:45:22,000

But, I don't know what I'm going to do with the strings.

716

00:45:22,000 --> 00:45:28,000

We see the eight strings which are very thin compared to the cast iron, we're going to go boing boing boing.

717

00:45:28,000 --> 00:45:30,000

But, we didn't hear anything.

718

00:45:30,000 --> 00:45:32,000

There's no way this thing will ever explode.

719

00:45:32,000 --> 00:45:35,000

And I'm so confident that that's why I'm this close to the piano.

720

00:45:35,000 --> 00:45:40,000

No matter how much tension is put on these wires, they're never going to explode and pop.

721

00:45:40,000 --> 00:45:44,000

Because as the wires heat up, the metal is just going to expand.

722

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

It's just going to stretch.

723

00:45:45,000 --> 00:45:50,000

So you're never going to get this boing boing, you know, snapping wires, and you're not going to get the exploding piano.

724

00:45:50,000 --> 00:45:51,000

It's just not physically possible.

725

00:45:51,000 --> 00:45:59,000

And that's the key. Yes, the tension will be released, but it happens slowly as the metal strings expand in the fire.

726

00:45:59,000 --> 00:46:00,000

And so...

727

00:46:00,000 --> 00:46:01,000

This is definitively busted.

728

00:46:01,000 --> 00:46:02,000

Busted.

729

00:46:02,000 --> 00:46:03,000

Busted.

730

00:46:03,000 --> 00:46:05,000

But hold on, aren't they forgetting something?

731

00:46:05,000 --> 00:46:10,000

The myth that a piano will explode in a fire is completely busted.

732

00:46:10,000 --> 00:46:12,000

But now we want to replicate the results.

733

00:46:12,000 --> 00:46:14,000

So we're going to blow a piano up anyway.

734

00:46:14,000 --> 00:46:17,000

So JD, the Rayleigh piano in the fire, kind of sucked.

735

00:46:17,000 --> 00:46:18,000

Didn't explode.

736

00:46:18,000 --> 00:46:22,000

But we do have a backup piano that we can't explode.

737

00:46:22,000 --> 00:46:23,000

What do you have for us?

738

00:46:23,000 --> 00:46:27,000

What I think you need is the Mythbusters Concerto in C4.

739

00:46:27,000 --> 00:46:30,000

Alright JD, this one's for you.

740

00:46:30,000 --> 00:46:35,000

Go JD, go JD, fill this piano with some TNT.

741

00:46:35,000 --> 00:46:38,000

Go JD, go JD.

742

00:46:38,000 --> 00:46:39,000

Everybody now, come on!

743

00:46:39,000 --> 00:46:44,000

Go JD, go JD, fill this piano with some TNT.

744

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

It's a catchy tune.

745

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

And JD hums along as he tunes the piano for the Mythbusters Concerto in C4.

746

00:46:52,000 --> 00:46:53,000

Alright, you guys ready?

747

00:46:53,000 --> 00:46:54,000

I'm ready.

748

00:46:54,000 --> 00:46:55,000

Are you ready?

749

00:46:55,000 --> 00:46:56,000

Ready.

750

00:46:56,000 --> 00:46:57,000

This is it.

751

00:46:57,000 --> 00:46:59,000

In three, two, one...

752

00:46:59,000 --> 00:47:07,000

Invented in Italy in 1698 by Bartolomeo Cristofori, brought to popularity by Mozart and Beethoven

753

00:47:07,000 --> 00:47:13,000

in the 18th century, and now, 2008, exploded by the Mythbusters.

754

00:47:14,000 --> 00:47:21,000

Now that's what I call an exploding piano!

755

00:47:21,000 --> 00:47:22,000

Nice!

756

00:47:33,000 --> 00:47:36,000

Man, when the second it was there, the next second it was gone.

757

00:47:38,000 --> 00:47:40,000

Look at it's all over the place.

758

00:47:40,000 --> 00:47:46,000

And because it's the viewer's special, especially for you, here's the high speed encore of the

759

00:47:46,000 --> 00:47:49,000

Mythbusters Concerto in C4.

760

00:48:01,000 --> 00:48:03,000

Rest in pieces!

761

00:48:03,000 --> 00:48:06,000

Direct that piano!

762

00:48:06,000 --> 00:48:08,000

This is my 80s rock band.

763

00:48:08,000 --> 00:48:11,000

They all had these, and did this move.

764

00:48:11,000 --> 00:48:14,000

Now that was cool, but the Myth is still busted.

765

00:48:14,000 --> 00:48:16,000

If your piano is on fire, it's not going to explode.

766

00:48:16,000 --> 00:48:19,000

If it's filled with C4, well, that's another story.