1

00:00:00,000 --> 00:00:17,700

On this electrifying episode of Mythbusters, Adam and Jamie take a humble water pistol

2

00:00:17,700 --> 00:00:20,180

to stunning heights.

3

00:00:20,180 --> 00:00:24,740

Can a water-powered stun gun really paralyze a perpetrator?

4

00:00:24,740 --> 00:00:29,720

Meanwhile, Carrie, Tori and Grant tow two myths over the coals.

5

00:00:29,720 --> 00:00:34,960

First, fire walking, mythical mysticism, or scientific certainty.

6

00:00:34,960 --> 00:00:40,260

Then flinging a fire extinguisher onto flames.

7

00:00:40,260 --> 00:00:44,180

Can it really snuff out a fire?

8

00:00:51,680 --> 00:00:53,180

Who are the Mythbusters?

9

00:00:54,140 --> 00:00:55,140

Adam Savage

10

00:00:55,140 --> 00:00:57,340

Get to the top of it!

11

00:00:57,340 --> 00:00:58,340

And Jamie Heinemann

12

00:00:58,340 --> 00:01:01,620

One in doubt, C4.

13

00:01:01,620 --> 00:01:05,300

Between them more than 30 years of special effects experience.

14

00:01:05,300 --> 00:01:06,300

That was it.

15

00:01:06,300 --> 00:01:07,300

Ha ha!

16

00:01:07,300 --> 00:01:09,660

Joining them, Tori Bellachy

17

00:01:09,660 --> 00:01:12,540

Who's gonna lose their teeth today?

18

00:01:12,540 --> 00:01:13,540

Grant Imahara

19

00:01:13,540 --> 00:01:16,380

There's one giant leap for myth kind.

20

00:01:16,380 --> 00:01:17,380

And Carrie Byron

21

00:01:17,380 --> 00:01:21,460

I went from totally optimistic to a little sketchy.

22

00:01:21,460 --> 00:01:28,460

They don't just tell the myths, they put them to the test.

23

00:01:28,460 --> 00:01:40,060

First up, something truly shocking.

24

00:01:40,060 --> 00:01:43,220

You know, I'm one of the few people in the world that knows right now that you're smiling.

25

00:01:43,220 --> 00:01:44,220

What's a smile about?

26

00:01:44,220 --> 00:01:46,860

I've got a new myth and I'm excited about it.

27

00:01:46,860 --> 00:01:48,660

Don't hold back, what is it?

28

00:01:48,660 --> 00:01:54,420

Okay, well rumor has it that secret agencies from countries around the world are developing

29

00:01:54,420 --> 00:01:56,780

a water-based stun gun.

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00:01:56,780 --> 00:01:59,500

A water-based stun gun?

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00:01:59,500 --> 00:02:00,500

Exactly.

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00:02:00,500 --> 00:02:03,540

And it's our job to determine whether it's feasible or not.

33

00:02:03,540 --> 00:02:04,700

That is cool!

34

00:02:04,700 --> 00:02:05,860

You know what I'm talking about.

35

00:02:05,860 --> 00:02:06,860

I do!

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00:02:06,860 --> 00:02:11,700

Stun guns are stunningly effective, but hard to reload.

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00:02:11,700 --> 00:02:14,980

So that's where the mythical water stun gun comes in.

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00:02:14,980 --> 00:02:19,620

But is this watery weapon really the favorite gadget of spies around the world?

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00:02:19,620 --> 00:02:21,900

So you're the one that loves the myth.

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00:02:21,900 --> 00:02:22,900

What's your plan?

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00:02:22,900 --> 00:02:26,780

Well, the first thing we need to do is get a commercially available stun gun.

42

00:02:26,780 --> 00:02:28,500

And see what we can learn from it.

43

00:02:28,500 --> 00:02:29,500

Exactly.

44

00:02:29,500 --> 00:02:33,460

And then we'll make a water shooting gun and hook up an electrical source to it and see

45

00:02:33,460 --> 00:02:35,860

if we can shock the heck out of somebody.

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00:02:35,860 --> 00:02:38,780

As long as that someone isn't me, I love this plan.

47

00:02:38,780 --> 00:02:40,420

And then we'll go from there.

48

00:02:40,420 --> 00:02:42,420

Perfect, let's do it.

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00:02:42,420 --> 00:02:47,060

So first up, they're going to assess the non-water-using real deal.

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00:02:47,060 --> 00:02:50,540

And before you can say, don't stun gun me, bro.

51

00:02:50,540 --> 00:02:51,540

Wow!

52

00:02:51,540 --> 00:02:53,260

I don't like the look of that.

53

00:02:53,260 --> 00:02:55,020

That looks like it would hurt.

54

00:02:55,020 --> 00:02:59,500

Because it looks so hurtful, Adam's taking no chances.

55

00:02:59,500 --> 00:03:02,020

We're obviously no strangers to being shocked on this show.

56

00:03:02,020 --> 00:03:03,420

Literally and figuratively.

57

00:03:03,420 --> 00:03:08,180

During your production of Baghdad, Paddy, Tori got shocked.

58

00:03:08,180 --> 00:03:10,180

Scotty got shocked.

59

00:03:11,180 --> 00:03:12,700

Oh my God!

60

00:03:12,700 --> 00:03:16,180

And I unwittingly got seriously shocked.

61

00:03:18,180 --> 00:03:22,660

So with this stun gun, honestly, none of us feel comfortable either getting shot by

62

00:03:22,660 --> 00:03:25,940

it or seeing anybody else get shot by it.

63

00:03:25,940 --> 00:03:30,060

So in this case, this dude here is our stand in target.

64

00:03:30,060 --> 00:03:32,060

Three, two, one.

65

00:03:34,060 --> 00:03:38,500

Dude, that is harsh.

66

00:03:38,500 --> 00:03:40,500

I hit him in the face.

67

00:03:40,500 --> 00:03:45,740

It turns out that a regular electric stun gun has wires that deliver a massive 50,000

68

00:03:45,740 --> 00:03:48,700

volts through two of these barbed spikes.

69

00:03:48,700 --> 00:03:56,420

On contact with a bad guy, the volts instantly drop down to 5,000 causing neuromuscular incapacitation.

70

00:03:56,420 --> 00:03:58,100

And that simply means...

71

00:03:58,100 --> 00:04:02,220

When you get hit by one of these things, you lose all physical control.

72

00:04:02,220 --> 00:04:07,660

Your muscles, the nervous system and everything just go haywire and you can't deal with it.

73

00:04:07,820 --> 00:04:11,500

Here at the Mythbusters Electrolysis Clinic, we use the latest techniques to make sure

74

00:04:11,500 --> 00:04:14,500

those pesky hairs never come back.

75

00:04:14,500 --> 00:04:17,740

So that's what the commercial stun gun can do.

76

00:04:17,740 --> 00:04:19,780

It's got a range of 15 feet.

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00:04:19,780 --> 00:04:26,460

It puts out an initial charge of 50,000 volts, which drops to 5,000 volts on contact, causing

78

00:04:26,460 --> 00:04:28,460

neuromuscular incapacitation.

79

00:04:28,460 --> 00:04:33,060

But can an electrified water stream trump this trilogy?

80

00:04:33,060 --> 00:04:36,380

Well, just in time, a delivery's arrived by mail.

81

00:04:37,100 --> 00:04:39,100

Can a toy become a weapon?

82

00:04:39,100 --> 00:04:44,380

See, the thing here is that in order for the electricity to be communicated to our victim

83

00:04:44,380 --> 00:04:50,220

via water, the water stream has to be continuous, i.e. laminar for you engineers out there.

84

00:04:50,220 --> 00:04:52,980

So I've got an arm full of all the latest water shooting toys.

85

00:04:52,980 --> 00:04:57,740

We're going to shoot them on high-speed camera and see which ones give us the flow we like.

86

00:04:57,740 --> 00:05:00,260

First up, Adam sees red.

87

00:05:00,260 --> 00:05:05,620

By adding this dye, the water stream should be easier to analyze on the high-speed camera.

88

00:05:05,620 --> 00:05:10,420

This is the hard-earned man at his most vulnerable working with red food coloring.

89

00:05:10,420 --> 00:05:15,500

His white shirt could be desecrated at any moment.

90

00:05:15,500 --> 00:05:20,660

With these spotless scientists still intact, the water pistol testing can begin.

91

00:05:20,660 --> 00:05:22,660

From the football, coming up.

92

00:05:22,660 --> 00:05:24,660

One, two, three.

93

00:05:26,660 --> 00:05:30,460

You know, it looks like it's breaking up after just a couple feet or so.

94

00:05:30,460 --> 00:05:33,380

And that's something the high-speed clearly shows.

95

00:05:33,380 --> 00:05:38,140

The moment it's out the barrel, the water breaks up into hundreds of distinct droplets.

96

00:05:38,140 --> 00:05:41,820

A 15-foot continuous laminar stream, this ain't.

97

00:05:41,820 --> 00:05:44,540

Cue the two-chamber deluxe edition.

98

00:05:44,540 --> 00:05:47,380

I've got high hopes for this one, but we'll see.

99

00:05:51,140 --> 00:05:53,140

But that breaks up too.

100

00:05:53,140 --> 00:05:55,460

They pull a different pistol.

101

00:05:55,460 --> 00:05:56,740

And another.

102

00:05:56,740 --> 00:05:57,940

And another.

103

00:05:57,940 --> 00:05:59,660

But they all break up.

104

00:05:59,660 --> 00:06:03,420

Meaning there's no path for any charge to travel through.

105

00:06:03,420 --> 00:06:04,420

What's next?

106

00:06:04,420 --> 00:06:06,220

It's the last one.

107

00:06:06,220 --> 00:06:07,220

It doesn't get any simpler than that.

108

00:06:07,220 --> 00:06:08,740

It's just a big two.

109

00:06:08,740 --> 00:06:09,740

Yeah.

110

00:06:09,740 --> 00:06:10,740

Alright.

111

00:06:10,740 --> 00:06:11,740

Let's see what it does.

112

00:06:11,740 --> 00:06:15,900

With only one potential pistol to go, it's the myth's last throw of the dice.

113

00:06:15,900 --> 00:06:16,900

Alright, I'm ready.

114

00:06:16,900 --> 00:06:21,380

Like the others, this fun gun sure is a super soaker.

115

00:06:21,380 --> 00:06:22,380

But is it laminar?

116

00:06:22,380 --> 00:06:26,220

That is by far the best one we've tried yet.

117

00:06:27,180 --> 00:06:30,420

At last, the high speed gives it the thumbs up.

118

00:06:30,420 --> 00:06:33,820

A 15-foot totally continuous laminar flow.

119

00:06:33,820 --> 00:06:37,180

Now the question is, can we get electricity into this stream?

120

00:06:37,180 --> 00:06:38,700

Can we get it to a person?

121

00:06:38,700 --> 00:06:41,180

And when we do, is it a reasonable stun gun?

122

00:06:50,140 --> 00:06:52,740

Okay you guys, Adam and Jamie are doing a water myth.

123

00:06:52,740 --> 00:06:55,460

I think it's only appropriate that we do a fire myth.

124

00:06:55,460 --> 00:06:56,460

Yes!

125

00:06:56,460 --> 00:06:57,460

Time to let out the inner pyro.

126

00:06:57,460 --> 00:06:58,460

Fire!

127

00:06:58,460 --> 00:07:00,740

We've got two myths you can unleash it on.

128

00:07:00,740 --> 00:07:05,340

First, if you throw fire extinguisher into the fire, will it explode and extinguish the

129

00:07:05,340 --> 00:07:06,340

fire?

130

00:07:06,340 --> 00:07:07,340

Oh, that sounds dangerous.

131

00:07:07,340 --> 00:07:12,140

And second, we're going to be looking at walking on hot coals from a scientific perspective.

132

00:07:12,140 --> 00:07:13,140

Kick ass!

133

00:07:13,140 --> 00:07:14,940

I've always wanted to walk on fire.

134

00:07:14,940 --> 00:07:15,940

Alright.

135

00:07:15,940 --> 00:07:21,740

Hold your horses, Tori, because first up, it's fire meets fire extinguisher.

136

00:07:21,740 --> 00:07:24,740

According to our fans, the myth goes like this.

137

00:07:24,740 --> 00:07:30,060

If you fling a fire extinguisher into a fire, the heat builds up pressure in the tank, till

138

00:07:30,060 --> 00:07:31,060

it ruptures.

139

00:07:31,060 --> 00:07:36,540

Then, all the retardant spills out and douses the fire.

140

00:07:36,540 --> 00:07:37,540

Or does it?

141

00:07:37,540 --> 00:07:39,220

Okay, so how are we going to test this one?

142

00:07:39,220 --> 00:07:40,340

Well this one's pretty straightforward.

143

00:07:40,340 --> 00:07:44,020

I say we just build a giant fire, put the fire extinguisher in, see what happens.

144

00:07:44,020 --> 00:07:46,740

You know, there's not a lot of specifics to this myth, so let's take the three most

145

00:07:46,740 --> 00:07:48,420

common fire extinguishers with us.

146

00:07:48,420 --> 00:07:51,220

So that would be water, chemical foam, and carbon dioxide.

147

00:07:51,220 --> 00:07:53,100

It did your homework.

148

00:07:53,100 --> 00:07:54,600

Always do.

149

00:07:54,600 --> 00:08:04,620

And before the team further fan the flames of their pyromania, Tori of all people coordinates

150

00:08:04,620 --> 00:08:06,540

the experiment's safety features.

151

00:08:06,540 --> 00:08:11,100

What's going to happen is, I'm going to stick my fire extinguisher up here like this, so

152

00:08:11,100 --> 00:08:17,020

I hit the quick release, and the fire extinguisher goes in the fire.

153

00:08:17,020 --> 00:08:27,700

Now my next trick, I will vanish, and in there, I wave the magic wand.

154

00:08:27,700 --> 00:08:31,820

And apricada bra, they've arrived at their home away from home.

155

00:08:31,820 --> 00:08:35,980

We're here at the Alameda bomb range, and we're going to test the myth that if you throw a

156

00:08:35,980 --> 00:08:41,380

fire extinguisher into a fire, that will explode and extinguish the fire.

157

00:08:41,780 --> 00:08:48,180

Yep, the guys intend to put the blow torch on three everyday types of fire extinguisher.

158

00:08:48,180 --> 00:08:52,380

The myth that a fire extinguisher can fall into a fire and extinguish the entire fire

159

00:08:52,380 --> 00:08:53,380

is sort of general.

160

00:08:53,380 --> 00:08:58,140

It doesn't tell what kind of fire extinguisher, so we went and got every single kind we could.

161

00:08:58,140 --> 00:09:01,700

We have water, we have carbon dioxide, and we have chemical foam.

162

00:09:01,700 --> 00:09:03,460

One of these might work.

163

00:09:03,460 --> 00:09:08,740

First up for the slide ride into the fire is the most common type of fire extinguisher,

164

00:09:08,740 --> 00:09:09,740

CO2.

165

00:09:10,740 --> 00:09:18,900

And to understand why carbon dioxide is used as a fire retardant, here's fire physics 101.

166

00:09:18,900 --> 00:09:21,380

Fire needs three things in order to burn.

167

00:09:21,380 --> 00:09:23,780

Oxygen, fuel, and heat.

168

00:09:23,780 --> 00:09:27,220

Remove one and the chain reaction fizzles out.

169

00:09:27,220 --> 00:09:29,900

Which is exactly how CO2 works.

170

00:09:29,900 --> 00:09:35,540

Being heavier than air, it blankets the flames, replaces the oxygen, and the fire triangle

171

00:09:35,540 --> 00:09:36,540

collapses.

172

00:09:37,540 --> 00:09:44,060

But if you chuck a high pressure CO2 canister onto a fire, will it actually blow up and

173

00:09:44,060 --> 00:09:45,460

put the fire out?

174

00:09:45,460 --> 00:09:49,820

Now this one is under the most pressure, 800 psi, but it's probably the least likely to

175

00:09:49,820 --> 00:09:55,180

explode because it has a pressure release valve, and this prevents it from exploding.

176

00:09:55,180 --> 00:09:58,260

And carries cocksure, it'll be a fizzer.

177

00:09:58,260 --> 00:10:03,780

There is no way a fire extinguisher is going to fail so catastrophically that it explodes

178

00:10:03,780 --> 00:10:05,580

and then extinguishers the fire.

179

00:10:05,620 --> 00:10:11,140

Despite everyone's conviction, she and Grant hunker in the bunker, while Tori, with his

180

00:10:11,140 --> 00:10:14,580

pre-flight check complete, launches the CO2 tank.

181

00:10:14,580 --> 00:10:15,580

Ready?

182

00:10:15,580 --> 00:10:16,580

Ready?

183

00:10:18,580 --> 00:10:19,580

Run Tori!

184

00:10:20,580 --> 00:10:22,580

And then beats a hasty retreat.

185

00:10:24,580 --> 00:10:28,580

Down the hill, Tori only just has time to get his breath back.

186

00:10:29,580 --> 00:10:31,580

It sounds like something's hissing.

187

00:10:31,580 --> 00:10:33,580

Yeah, the safety valve released.

188

00:10:33,580 --> 00:10:39,580

Before the experiment fizzles out, as the pressure relief valve does its job.

189

00:10:39,580 --> 00:10:42,580

And 15 minutes later, it's empty.

190

00:10:42,580 --> 00:10:46,580

It's a good testament to the safety feature that's built in there.

191

00:10:46,580 --> 00:10:52,580

It's designed in an over-pressure situation such as raising temperature to vent all the

192

00:10:52,580 --> 00:10:53,580

CO2 safely.

193

00:10:53,580 --> 00:10:57,580

As far as the smith goes, it's busted for the CO2.

194

00:10:57,580 --> 00:10:59,580

Hold your flamin' horses, Grant.

195

00:10:59,580 --> 00:11:03,580

There are still two other types of extinguisher to test.

196

00:11:03,580 --> 00:11:04,580

Water and foam.

197

00:11:04,580 --> 00:11:09,580

And unlike the CO2, neither have the safety valve.

198

00:11:12,580 --> 00:11:18,580

Will flinging a fire extinguisher into a fire make it explode and put said fire out?

199

00:11:18,580 --> 00:11:23,580

Carrie, Grant and Tori have tried a CO2 canister, but it was a fizzer.

200

00:11:23,580 --> 00:11:25,580

So, how about a water extinguisher?

201

00:11:25,580 --> 00:11:27,580

It's a relatively simple system.

202

00:11:27,580 --> 00:11:32,580

This is a pressurized tank, and it's meant to have both liquid and gas in it.

203

00:11:32,580 --> 00:11:37,580

Put this in the fire, heats up the water, creates steam, increasing the pressure,

204

00:11:37,580 --> 00:11:40,580

and hopefully rupturing the tank.

205

00:11:41,580 --> 00:11:49,580

Unlike the CO2 tank that's stored at 800 psi, the water extinguisher is only under 100 psi.

206

00:11:49,580 --> 00:11:52,580

But it has no safety valve.

207

00:11:52,580 --> 00:11:56,580

And we know what happens when you add heat to a sealed water container.

208

00:11:59,580 --> 00:12:05,580

When Jamie and Adam did exploding water heater, they found that by having less water in their

pressure vessel,

209

00:12:05,580 --> 00:12:09,580

they could generate more steam and thus a bigger explosion.

210

00:12:09,580 --> 00:12:12,580

But what we're after here is actually putting out the fire.

211

00:12:12,580 --> 00:12:15,580

So, I'm not going to empty the tank all the way down to the bottom.

212

00:12:15,580 --> 00:12:20,580

I'm just going to empty halfway, because we're still going to have some water to try and put out the fire with.

213

00:12:20,580 --> 00:12:26,580

So, while our twisted fire starters do their thing, let's get a prediction from Karen.

214

00:12:26,580 --> 00:12:29,580

Even if there's a rupture, I don't see the fire going out.

215

00:12:29,580 --> 00:12:35,580

This is a big fire, and I just don't think that there's going to be enough explosion to put it out completely.

216

00:12:35,580 --> 00:12:38,580

Alright, alright, so the fire is ready.

217

00:12:38,580 --> 00:12:40,580

So, this is water extinguisher.

218

00:12:40,580 --> 00:12:44,580

Alright, let's do it in 3, 2, 1.

219

00:12:45,580 --> 00:12:53,580

At over 1000 degrees, the burning coals rapidly convert the water inside the tank to steam under ever increasing pressure.

220

00:12:53,580 --> 00:12:57,580

And remember, there's no safety valve on this one.

221

00:12:57,580 --> 00:12:59,580

Hopefully we'll get a rupture.

222

00:12:59,580 --> 00:13:03,580

So, then water will go everywhere and put out the fire if the myth is true.

223

00:13:03,580 --> 00:13:05,580

If not, it's busted.

224

00:13:05,580 --> 00:13:06,580

Right.

225

00:13:06,580 --> 00:13:07,580

And 5 minutes in.

226

00:13:07,580 --> 00:13:09,580

Oh, look, it's ruptured.

227

00:13:09,580 --> 00:13:11,580

It's actually spraying out water right now.

228

00:13:11,580 --> 00:13:16,580

But the volume of water is insignificant compared to the size of the fire.

229

00:13:16,580 --> 00:13:18,580

No explosion, no fire going out.

230

00:13:18,580 --> 00:13:23,580

In fact, right now, that's not any more effective on the fire than, you know, like a tea kettle.

231

00:13:23,580 --> 00:13:24,580

Yeah.

232

00:13:24,580 --> 00:13:28,580

It's going to take something with a little more kick to snuff out this fire.

233

00:13:28,580 --> 00:13:32,580

But at the 9 minute mark, the canister has connections.

234

00:13:35,580 --> 00:13:36,580

That was cool!

235

00:13:36,580 --> 00:13:38,580

We almost took out the thermal camera.

236

00:13:38,580 --> 00:13:40,580

It actually came out of it.

237

00:13:40,580 --> 00:13:44,580

Obviously, the tank didn't vent the steam fast enough.

238

00:13:44,580 --> 00:13:47,580

When the pressure got too high, something had to give.

239

00:13:49,580 --> 00:13:54,580

Now, it didn't explode or put out the fire, but it did turn into a little rocket.

240

00:13:54,580 --> 00:13:59,580

And the whole can, like, flipped over and then went straight at us.

241

00:13:59,580 --> 00:14:02,580

But as far as the myth goes, so far this myth is looking busted.

242

00:14:02,580 --> 00:14:03,580

Yep.

243

00:14:03,580 --> 00:14:05,580

So far, that's two in the busted bin.

244

00:14:05,580 --> 00:14:09,580

But up next, the foam fire extinguishers in the firing line.

245

00:14:09,580 --> 00:14:11,580

Next up, chemical foam.

246

00:14:11,580 --> 00:14:13,580

Now, this is an aqueous film-forming foam.

247

00:14:13,580 --> 00:14:19,580

This is for claspy fires, which is flammable liquids, like solvents or oils or that sort of thing.

248

00:14:19,580 --> 00:14:24,580

Tanks rated for 300 psi, but just like water, they only fill it to 100 psi.

249

00:14:24,580 --> 00:14:27,580

We're going to throw this in the fire, see if it explodes and extinguishes it.

250

00:14:27,580 --> 00:14:32,580

And just like the water-filled tank, it has no safety valve.

251

00:14:32,580 --> 00:14:36,580

And of course, it goes without saying this shouldn't be attempted at home.

252

00:14:36,580 --> 00:14:39,580

I think the fill valve will be the first thing to go and will hiss out.

253

00:14:39,580 --> 00:14:44,580

And potentially, we could have another mini-missile.

254

00:14:44,580 --> 00:14:47,580

But as far as explosion goes, I don't think so.

255

00:14:47,580 --> 00:14:48,580

Here we go.

256

00:14:48,580 --> 00:14:52,580

Foam extinguisher in three, two, one.

257

00:14:52,580 --> 00:14:54,580

And in she goes.

258

00:14:54,580 --> 00:14:57,580

We got nine minutes before a flash one blew.

259

00:14:57,580 --> 00:14:59,580

You got to bring cards.

260

00:14:59,580 --> 00:15:01,580

Let's do a straight.

261

00:15:01,580 --> 00:15:03,580

Okay, you first.

262

00:15:03,580 --> 00:15:05,580

Two words.

263

00:15:06,580 --> 00:15:08,580

What did I get you?

264

00:15:08,580 --> 00:15:09,580

Sounds like...

265

00:15:09,580 --> 00:15:11,580

Woo!

266

00:15:11,580 --> 00:15:13,580

Yeah!

267

00:15:13,580 --> 00:15:14,580

Yeah!

268

00:15:14,580 --> 00:15:16,580

I can't put out the fire!

269

00:15:16,580 --> 00:15:17,580

It exploded!

270

00:15:17,580 --> 00:15:19,580

I can't put out the fire!

271

00:15:19,580 --> 00:15:21,580

Oh my god!

272

00:15:21,580 --> 00:15:23,580

It's raining!

273

00:15:23,580 --> 00:15:25,580

Oh, oh god!

274

00:15:25,580 --> 00:15:27,580

No!

275

00:15:31,580 --> 00:15:36,580

Yep, the foam-filled canister blew the fire into the next county.

276

00:15:39,580 --> 00:15:42,580

That was awesome!

277

00:15:42,580 --> 00:15:43,580

Where's the canister?

278

00:15:43,580 --> 00:15:46,580

I don't know, but it definitely exploded and it put out the fire.

279

00:15:46,580 --> 00:15:47,580

Wouldn't you agree?

280

00:15:47,580 --> 00:15:51,580

Oh yeah, I'd say there's still a few embers, but it is plausible at least.

281

00:15:51,580 --> 00:15:52,580

Oh, definitely plausible.

282

00:15:52,580 --> 00:15:53,580

Look at that.

283

00:15:53,580 --> 00:15:54,580

That could put out a fire.

284

00:15:54,580 --> 00:15:56,580

Alright, maybe this isn't the safest way to put out a fire,

285

00:15:56,580 --> 00:15:57,580

but it put out a fire.

286

00:15:57,580 --> 00:15:59,580

I love it when I'm wrong.

287

00:15:59,580 --> 00:16:00,580

I was totally wrong.

288

00:16:00,580 --> 00:16:02,580

I thought nothing was going to happen.

289

00:16:02,580 --> 00:16:04,580

This is an extremely exciting result for us,

290

00:16:04,580 --> 00:16:06,580

because first of all, it was a result that we were not expecting.

291

00:16:06,580 --> 00:16:08,580

All of us were totally wrong.

292

00:16:08,580 --> 00:16:12,580

The chemical extinguisher blew up, made this myth plausible.

293

00:16:12,580 --> 00:16:15,580

Yep, it blew out the fire alright,

294

00:16:15,580 --> 00:16:18,580

but not in exactly the same way the myth described.

295

00:16:18,580 --> 00:16:19,580

Put out the fire!

296

00:16:19,580 --> 00:16:23,580

It wasn't the sudden release of the canisters retarded that dampened the flames.

297

00:16:23,580 --> 00:16:29,580

The explosion simply scattered the fuel to the far-flung regions of the range.

298

00:16:29,580 --> 00:16:34,580

And this success has given the guys an idea for one more test.

299

00:16:34,580 --> 00:16:40,580

Another 800 psi CO2 canister, but this time with a dangerous difference.

300

00:16:40,580 --> 00:16:44,580

You know, there's no safety feature on the water or on the chemical foam,

301

00:16:44,580 --> 00:16:45,580

and that was kind of exciting.

302

00:16:45,580 --> 00:16:49,580

So we're going to see if, what if for some reason there was a fault in the system?

303

00:16:49,580 --> 00:16:51,580

What if that safety feature wasn't there?

304

00:16:51,580 --> 00:16:52,580

What would happen?

305

00:16:52,580 --> 00:16:56,580

Unnecessary? Sure, but it sounds exciting.

306

00:16:56,580 --> 00:16:59,580

Remember, these two were only under 100 psi.

307

00:16:59,580 --> 00:17:05,580

So can they extinguish a fire by taking the safety out of a CO2 safety valve?

308

00:17:11,580 --> 00:17:16,580

Adam and Jamie are on a mission to test the tall tail that secret agents

309

00:17:16,580 --> 00:17:20,580

have developed a water-powered electric stun gun.

310

00:17:20,580 --> 00:17:23,580

So it's water pistols at 15 feet.

311

00:17:23,580 --> 00:17:24,580

They've locked in the gun.

312

00:17:24,580 --> 00:17:27,580

Now they want to load it with electricity.

313

00:17:27,580 --> 00:17:30,580

So Jamie takes one water pistol and connects it to another.

314

00:17:30,580 --> 00:17:33,580

It's the basis for his water stun gun.

315

00:17:33,580 --> 00:17:37,580

To this, we're going to attach a stun gun to supply the electricity

316

00:17:37,580 --> 00:17:42,580

so that when we fire this stream of water, we actually zap somebody.

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00:17:42,580 --> 00:17:44,580

That's why we call it the AquaZap.

318

00:17:44,580 --> 00:17:48,580

And Adam's already seeing marketing opportunities.

319

00:17:48,580 --> 00:17:52,580

Allow me to walk you through some of the finer details of the new AquaZap

320

00:17:52,580 --> 00:17:55,580

water suspect acquisition system.

321

00:17:55,580 --> 00:17:58,580

This will be worn on your belt in the field.

322

00:17:58,580 --> 00:18:02,580

When you see a suspect, all you've got to do is find a source of some salt water

323

00:18:02,580 --> 00:18:05,580

and normal table salt works just great.

324

00:18:05,580 --> 00:18:09,580

Draw up water into your tubes and then aim at your suspect.

325

00:18:09,580 --> 00:18:12,580

Pull the trigger of this electric device right here.

326

00:18:12,580 --> 00:18:16,580

Electricity will travel through these two wires out to electrodes

327

00:18:16,580 --> 00:18:18,580

that are in the water stream.

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00:18:18,580 --> 00:18:22,580

And when those water streams hit your suspect, they are yours.

329

00:18:22,580 --> 00:18:23,580

Gift wrapped.

330

00:18:23,580 --> 00:18:24,580

So we've got our gun.

331

00:18:24,580 --> 00:18:26,580

We've got it hooked up to stun gun power.

332

00:18:26,580 --> 00:18:28,580

Now we need to test it.

333

00:18:28,580 --> 00:18:32,580

Well, what we need to find out is whether the stream of water is able to carry enough

334

00:18:32,580 --> 00:18:34,580

electricity to actually zap somebody.

335

00:18:34,580 --> 00:18:35,580

And I have a plan.

336

00:18:35,580 --> 00:18:36,580

It works like this.

337

00:18:36,580 --> 00:18:37,580

You get a couple of buckets.

338

00:18:37,580 --> 00:18:40,580

You put a couple of metal plates at the bottom of the buckets.

339

00:18:40,580 --> 00:18:41,580

They're wired to a meter.

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00:18:41,580 --> 00:18:43,580

You shoot water into the buckets.

341

00:18:43,580 --> 00:18:47,580

The electricity flows through the meter and you can measure what you've got

342

00:18:47,580 --> 00:18:49,580

and whether it's enough to actually zap somebody.

343

00:18:49,580 --> 00:18:50,580

Not bad.

344

00:18:50,580 --> 00:18:51,580

It sounds a little complicated.

345

00:18:51,580 --> 00:18:56,580

Well, it is a little bit, but I happen to know a qualified electrical engineer

346

00:18:56,580 --> 00:18:57,580

and we could bring him in.

347

00:18:57,580 --> 00:19:01,580

And that highly experienced engineer is Grant.

348

00:19:01,580 --> 00:19:07,580

He's got the job of putting together the two bucket target with copper sensors in the bottom.

349

00:19:07,580 --> 00:19:10,580

All will be revealed on his oscilloscope reader.

350

00:19:10,580 --> 00:19:15,580

And we'll know if the signal is being transferred to the target via the water

351

00:19:15,580 --> 00:19:18,580

by what we see on the electrical screen.

352

00:19:18,580 --> 00:19:22,580

Remember, here's what a regular stun gun can do.

353

00:19:22,580 --> 00:19:27,580

At 15 feet, the electric zapper hits the target at 50,000 volts,

354

00:19:27,580 --> 00:19:32,580

then drops instantly to 5,000 volts for the paralyzing stage.

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00:19:32,580 --> 00:19:38,580

And if this myth is true, the water version has got to do just as well as this, if not better.

356

00:19:38,580 --> 00:19:39,580

I think you can hit this target, dude.

357

00:19:39,580 --> 00:19:40,580

Piece of cake.

358

00:19:40,580 --> 00:19:45,580

With everything set, Jamie's ready to wield the wacky water weapon.

359

00:19:45,580 --> 00:19:47,580

So cue the sarcastic sidekick.

360

00:19:47,580 --> 00:19:50,580

I think it's clear that one of these is going to be on the belt of every police officer in the country

361

00:19:50,580 --> 00:19:52,580

inside of a couple years, man.

362

00:19:52,580 --> 00:19:54,580

This thing's going to shake things up.

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00:19:54,580 --> 00:19:56,580

CIA, take note.

364

00:19:56,580 --> 00:19:59,580

This might be the moment of truth you've been waiting for.

365

00:19:59,580 --> 00:20:01,580

Did you get something?

366

00:20:01,580 --> 00:20:04,580

I did actually get something.

367

00:20:04,580 --> 00:20:10,580

Jamie's bullseye the sensors, but the Zap detector has brought up a dodgy reading.

368

00:20:10,580 --> 00:20:17,580

What it's reading like is that it's like it hasn't made contact with a person yet.

369

00:20:17,580 --> 00:20:19,580

And this means just one thing.

370

00:20:19,580 --> 00:20:21,580

Over to you, Grant.

371

00:20:21,580 --> 00:20:24,580

Now, interesting thing about stun guns, they have two phases.

372

00:20:24,580 --> 00:20:27,580

First phase, really high voltage.

373

00:20:27,580 --> 00:20:33,580

And that is to arc, let's say you have an air gap, the barbs are caught in your clothing, whatever.

374

00:20:33,580 --> 00:20:35,580

They arcs so that it makes a connection.

375

00:20:35,580 --> 00:20:39,580

And that goes to the second phase, which is called the loaded phase.

376

00:20:39,580 --> 00:20:43,580

And that's where the stun gun actually does its work of incapacitating the target.

377

00:20:43,580 --> 00:20:45,580

And that is where we want to be.

378

00:20:45,580 --> 00:20:49,580

The bucket rig, preventing it from getting to that second phase.

379

00:20:49,580 --> 00:20:50,580

Thanks, Grant.

380

00:20:50,580 --> 00:20:52,580

But I for one need a graphic.

381

00:20:52,580 --> 00:20:56,580

Leaving the muzzle, the stun gun barbs spark at 50,000 volts,

382

00:20:56,580 --> 00:21:00,580

called the arcing phase, as they try to complete a circuit.

383

00:21:00,580 --> 00:21:06,580

On contact with the target, they hit the loaded phase, where the volts drop instantly to 5,000.

384

00:21:06,580 --> 00:21:12,580

5,000 volts means the target isn't killed, he's just incapacitated.

385

00:21:12,580 --> 00:21:16,580

So for take two, the bucket's kicked, so to speak.

386

00:21:16,580 --> 00:21:19,580

And there's a ballistics gel dummy in its place.

387

00:21:19,580 --> 00:21:23,580

Will this get them into the loaded phase they're looking for?

388

00:21:23,580 --> 00:21:29,580

We have put a pair of screens in that describe the two extents of where his heart would be if he had one.

389

00:21:29,580 --> 00:21:36,580

This allows us to measure the exact amount of electricity the stun gun applies to your heart when you get zapped.

390

00:21:36,580 --> 00:21:41,580

Jamie's locked and loaded for a test at point blank range.

391

00:21:41,580 --> 00:21:44,580

Three, two, one.

392

00:21:47,580 --> 00:21:50,580

But even at that distance, it's not a good start.

393

00:21:50,580 --> 00:21:56,580

Looks like it's going into the loading phase, but the voltage is much, much less.

394

00:21:56,580 --> 00:22:03,580

It's hit the loaded phase okay, but the voltage is so low it wouldn't even stun a stink bug.

395

00:22:03,580 --> 00:22:07,580

So the ballistics gel test is already looking very shaky.

396

00:22:07,580 --> 00:22:11,580

Jamie tries again, this time from 5 feet away.

397

00:22:11,580 --> 00:22:13,580

Go for it.

398

00:22:14,580 --> 00:22:17,580

But now it's gone from bad to worse.

399

00:22:17,580 --> 00:22:21,580

This trace right here indicates that you never made it into the loading phase.

400

00:22:21,580 --> 00:22:23,580

But we did get a signal out of it.

401

00:22:23,580 --> 00:22:27,580

Yes, but it's not, it's still in the arcing phase.

402

00:22:27,580 --> 00:22:31,580

And that's not what you'd call ideal in a stun gun.

403

00:22:31,580 --> 00:22:34,580

It's not where you want to be if you want to stun someone.

404

00:22:34,580 --> 00:22:37,580

It's where you want to be if you want to...

405

00:22:37,580 --> 00:22:39,580

Potentially kill them.

406

00:22:39,580 --> 00:22:40,580

Oh, okay.

407

00:22:40,580 --> 00:22:41,580

Yeah.

408

00:22:41,580 --> 00:22:43,580

All in all, it's not going well.

409

00:22:43,580 --> 00:22:49,580

In a tedious, tiresome afternoon, attempt after attempt yields a totally different result.

410

00:22:49,580 --> 00:22:51,580

From no stun to death.

411

00:22:51,580 --> 00:22:54,580

These electricity myths really kick our ass, I swear.

412

00:22:54,580 --> 00:22:58,580

Which is Adam speak for This Myth's Heading Jew South.

413

00:23:02,580 --> 00:23:04,580

In three, two, one.

414

00:23:04,580 --> 00:23:08,580

Carrie Grant and Tori are tinkering with exploding fire extinguishers.

415

00:23:11,580 --> 00:23:13,580

But more on that later.

416

00:23:13,580 --> 00:23:18,580

Next, they're mulling over the myth that walking on hot coals is mostly a mind over matter.

417

00:23:18,580 --> 00:23:19,580

Matter.

418

00:23:20,580 --> 00:23:22,580

You've always been really curious about fire walking.

419

00:23:22,580 --> 00:23:25,580

Yeah, me too, and I've seen people do it, but they're always in like a trance-like state.

420

00:23:25,580 --> 00:23:27,580

So I was wondering, is that something anybody can do?

421

00:23:27,580 --> 00:23:31,580

Yeah, is it mind over matter, or is it a technique based on science,

422

00:23:31,580 --> 00:23:33,580

and ultimately an explainable phenomenon?

423

00:23:33,580 --> 00:23:34,580

Exactly.

424

00:23:34,580 --> 00:23:37,580

Well, first why don't we go talk to some experts, find out how they make the fire,

425

00:23:37,580 --> 00:23:38,580

if there's a special way to walk on it.

426

00:23:38,580 --> 00:23:41,580

All right, let's go find some fire walkers.

427

00:23:43,580 --> 00:23:48,580

So how exactly do you walk on red hot coals without searing your souls?

428

00:23:48,580 --> 00:23:50,580

Better to be rare than well done.

429

00:23:50,580 --> 00:23:54,580

Many Mythbuster fans think it's all down to mind over matter.

430

00:23:54,580 --> 00:24:01,580

For reasons completely unknown to science, the dances emerge from this ordeal entirely unharmed.

431

00:24:01,580 --> 00:24:04,580

Or is it a matter of science?

432

00:24:06,580 --> 00:24:10,580

And to begin answering these, oh dear, burning questions,

433

00:24:10,580 --> 00:24:13,580

Carrie and Grant take a fire walking field trip.

434

00:24:13,580 --> 00:24:17,580

So we're here on a fact-finding mission, we're in Sonora, California,

435

00:24:17,580 --> 00:24:25,580

and we're here to observe an actual fire walking class being put on by the Fire Walking Institute of Research and Education.

436

00:24:25,580 --> 00:24:26,580

Hi, are you Tali?

437

00:24:26,580 --> 00:24:27,580

I am Tali.

438

00:24:27,580 --> 00:24:28,580

I'm Grant.

439

00:24:28,580 --> 00:24:34,580

Incredibly, Tali teaches his students to walk across coals burning at 1000 degrees.

440

00:24:34,580 --> 00:24:38,580

All right, one or two thousand degrees, that seems crazy to me.

441

00:24:38,580 --> 00:24:41,580

It seems like you're grabbing a pan out of the oven without using oven mitts.

442

00:24:41,580 --> 00:24:45,580

Can you just walk normally across the coals, or is there some sort of special way to do it?

443

00:24:45,580 --> 00:24:49,580

Well, actually the special way is to walk like you're walking down the street.

444

00:24:49,580 --> 00:24:53,580

You don't want to run because then you'll be pounding your feet down into the coals.

445

00:24:53,580 --> 00:24:56,580

You don't want to stop, you want to take light steps.

446

00:24:56,580 --> 00:25:01,580

Well, it's easy to talk the fire walk talk, but let's see you walk the fire walk walk.

447

00:25:01,580 --> 00:25:03,580

You learn this in the Boy Scouts?

448

00:25:03,580 --> 00:25:05,580

I was never in the Boy Scouts.

449

00:25:05,580 --> 00:25:11,580

Carrie and Grant watch closely as the class carefully construct the perfect fire walk fire.

450

00:25:11,580 --> 00:25:16,580

From light up to step up, takes just over an hour.

451

00:25:16,580 --> 00:25:19,580

But after collecting some daunting data...

452

00:25:19,580 --> 00:25:22,580

Getting a top of about 1,300 Fahrenheit.

453

00:25:22,580 --> 00:25:28,580

Carrie is convinced that what matters is not what's in your mind, but how hot the darn coals are.

454

00:25:28,580 --> 00:25:32,580

After measuring this fire at 1400 degrees and hearing that after they rake it out,

455

00:25:32,580 --> 00:25:38,580

it only is going to go down to about a thousand, there's absolutely nothing so far that's convinced me that I'm going to walk on this.

456

00:25:41,580 --> 00:25:44,580

But that's not stopping anyone else.

457

00:25:49,580 --> 00:25:55,580

The students in their zen-like zone glide across without a single injury.

458

00:25:55,580 --> 00:26:01,580

But before the team tested themselves, Grant for one wants some hard data.

459

00:26:01,580 --> 00:26:08,580

I've seen it done, but I'd like to have a little bit more scientific backing before I'm willing to risk my feet.

460

00:26:09,580 --> 00:26:13,580

So it's back to the shop where the science can begin.

461

00:26:13,580 --> 00:26:16,580

And to find out just how much heat gets to the feet,

462

00:26:16,580 --> 00:26:22,580

Carrie begins by fabricating a fake foot from heat-resistant silicone.

463

00:26:22,580 --> 00:26:27,580

Meanwhile, Tori, as per our experts' instructions, prepares to build the fire.

464

00:26:27,580 --> 00:26:30,580

So Carrie and Grant have done the research. They learned how to build a fire walk.

465

00:26:30,580 --> 00:26:32,580

And now we're going to build our own in our parking lot.

466

00:26:32,580 --> 00:26:35,580

First what we're going to do is we're going to lay down 30 feet of sod.

467

00:26:35,580 --> 00:26:37,580

That way we don't crack our cement.

468

00:26:39,580 --> 00:26:42,580

Then what we're going to do is lay down 20 feet of wood.

469

00:26:42,580 --> 00:26:46,580

We're going to light that wood on fire, let it burn down, and start walking.

470

00:26:46,580 --> 00:26:49,580

Alright, we've got fire extinguisher standing by.

471

00:26:49,580 --> 00:26:51,580

Got a hose standing by.

472

00:26:51,580 --> 00:26:52,580

Let's do it.

473

00:26:52,580 --> 00:26:58,580

Now that we have our fire lit, we'll wait one hour for it to get to the optimal temperature for fire walking.

474

00:26:58,580 --> 00:27:04,580

That's when the coals are just glowing red and we can smush them down so we have a nice flat surface to walk on.

475

00:27:04,580 --> 00:27:06,580

And Tori.

476

00:27:08,580 --> 00:27:11,580

Gets in touch with his inner hunter-gatherer.

477

00:27:11,580 --> 00:27:13,580

Alright, should we start walking?

478

00:27:13,580 --> 00:27:19,580

Now let's step over to where Grant's making a sensor used to assess burning and firefighting outfits.

479

00:27:19,580 --> 00:27:22,580

This is called a copper slug calorimeter.

480

00:27:22,580 --> 00:27:27,580

And the idea is that you have this disc of copper that's an exact size and weight.

481

00:27:27,580 --> 00:27:34,580

And based on those characteristics and its thermal transfer, you can connect a thermocouple to it,

482

00:27:34,580 --> 00:27:36,580

which measures temperature.

483

00:27:36,580 --> 00:27:43,580

You'll be able to predict whether or not you're going to get first, second, or possibly even third degree burn.

484

00:27:43,580 --> 00:27:49,580

And once wired up, these copper slugs will transmit that temperature info to a computer.

485

00:27:49,580 --> 00:27:51,580

Cue Grant's inner geek.

486

00:27:51,580 --> 00:27:56,580

Fire walking is one of these things that's always been shrouded in mystery.

487

00:27:56,580 --> 00:28:03,580

And so here we are, we're going to peel back the curtain and have a look inside using science.

488

00:28:03,580 --> 00:28:05,580

Brilliant.

489

00:28:05,580 --> 00:28:11,580

Add with the sensors embedded in the silicone and the fake feet screwed to the bottom of carry shoes.

490

00:28:11,580 --> 00:28:16,580

The team's ready to stroll across hot coals.

491

00:28:16,580 --> 00:28:20,580

I'm going to put these on, walk just like I saw the Fire walkers walk.

492

00:28:20,580 --> 00:28:23,580

And I'm actually really interested to see what sort of measurements we get.

493

00:28:23,580 --> 00:28:25,580

I feel just like Cinderella.

494

00:28:25,580 --> 00:28:28,580

And after a pre-takeoff safety tip.

495

00:28:28,580 --> 00:28:32,580

If you do fall into the embers though, cover your face with your hands.

496

00:28:32,580 --> 00:28:34,580

You can always wear gloves.

497

00:28:34,580 --> 00:28:38,580

Carrie's hot new footwear is finally ready for the runway.

498

00:28:38,580 --> 00:28:42,580

All right you guys, it's over a thousand degrees, which is what we saw at the Fire walk.

499

00:28:42,580 --> 00:28:43,580

You ready to go?

500

00:28:43,580 --> 00:28:45,580

Yeah, I see the coals glowing.

501

00:28:45,580 --> 00:28:47,580

Okay, go ahead.

502

00:28:49,580 --> 00:28:56,580

While Carrie crunches the coals with her silicone soles, Grant's computer crunches the numbers.

503

00:28:56,580 --> 00:28:58,580

See, that wasn't so bad.

504

00:28:58,580 --> 00:28:59,580

No.

505

00:28:59,580 --> 00:29:00,580

All right, Grant, what'd you get?

506

00:29:00,580 --> 00:29:02,580

I got some really interesting results.

507

00:29:02,580 --> 00:29:07,580

And the first set of results up for analysis is the high-speed camera shots.

508

00:29:07,580 --> 00:29:11,580

Showing exactly how much toe touching time there is.

509

00:29:11,580 --> 00:29:19,580

So it turns out that my foot was only in contact with the hot coals from heel to toe for 9 tenths of a second.

510

00:29:19,580 --> 00:29:22,580

And my full weight was only on it for 5 tenths of a second.

511

00:29:22,580 --> 00:29:27,580

So right there, it shows you that might be one of the reasons that you don't get burned when you walk across hot coals.

512

00:29:27,580 --> 00:29:29,580

It's you're not touching the coals for very long.

513

00:29:29,580 --> 00:29:32,580

And what about the temperature and burn sensor data?

514

00:29:32,580 --> 00:29:36,580

The interesting thing is that we don't predict any injury.

515

00:29:36,580 --> 00:29:40,580

It's first, second, or third degree burns during a normal walk.

516

00:29:40,580 --> 00:29:45,580

So as long as she keeps moving, theoretically, you won't get burned.

517

00:29:45,580 --> 00:29:51,580

A theory backed up by this demonstration that the humble hot coals is actually very cool.

518

00:29:51,580 --> 00:29:58,580

Apparently, charcoal and ash are four times better at insulation than wood.

519

00:29:58,580 --> 00:30:07,580

So in theory, you should be able to pick up one of these coals, which on one side is 900 degrees,

520

00:30:07,580 --> 00:30:11,580

and on the charcoal and ash-y side is 300 degrees.

521

00:30:11,580 --> 00:30:19,580

So I should be able to put this in the palm of my hand without injury, and potentially light a fire.

522

00:30:19,580 --> 00:30:21,580

Here we go.

523

00:30:22,580 --> 00:30:27,580

So although the fire radiates heat through the air at over 1000 degrees,

524

00:30:27,580 --> 00:30:30,580

the physics at the point of contact is very different.

525

00:30:30,580 --> 00:30:31,580

There you go.

526

00:30:31,580 --> 00:30:36,580

So it seems a walker experiences low temperatures due to the following.

527

00:30:36,580 --> 00:30:43,580

Speed of contact, charcoal is a poor heat conductor, and an insulating layer of ash on the coals.

528

00:30:43,580 --> 00:30:49,580

Which means it's not looking good for the mythical, mystical method of mind over matter.

529

00:30:49,580 --> 00:30:55,580

Science seems to be saying that despite the searing temperatures, your tootsies don't have time to toast.

530

00:30:55,580 --> 00:30:59,580

But there's only one way to find out for sure.

531

00:30:59,580 --> 00:31:06,580

Now that we know that we're unlikely to get burned, is to actually try it ourselves.

532

00:31:11,580 --> 00:31:13,580

It's Wham-Bam, shoot a man.

533

00:31:13,580 --> 00:31:17,580

In a man, as Adam and Jamie discover it's a dog's life, testing the myth,

534

00:31:17,580 --> 00:31:21,580

you can build an electric stun gun powered by water.

535

00:31:21,580 --> 00:31:23,580

But it hasn't been going well.

536

00:31:25,580 --> 00:31:28,580

Plan A involves shooting into buckets,

537

00:31:28,580 --> 00:31:30,580

Plan B into ballistics gel,

538

00:31:30,580 --> 00:31:32,580

and the results?

539

00:31:32,580 --> 00:31:33,580

Ropey.

540

00:31:33,580 --> 00:31:37,580

So they're on to Plan C, shooting into sheep.

541

00:31:37,580 --> 00:31:40,580

Ah, beauty.

542

00:31:40,580 --> 00:31:45,580

At this point what I'm seeing is a test where we're not getting a lot of good data because we have

so many variables.

543

00:31:45,580 --> 00:31:50,580

Firing of this thing, the waving of the water, and specifically the ballistics gelatin.

544

00:31:50,580 --> 00:31:53,580

I'm not convinced that it's exactly the resistance of human flesh.

545

00:31:53,580 --> 00:31:56,580

So we brought in the leg of lamb for two reasons.

546

00:31:56,580 --> 00:31:59,580

One, to eliminate that variable, because it's very close to human flesh,

547

00:31:59,580 --> 00:32:01,580

it ought to give us a beautiful reading.

548

00:32:01,580 --> 00:32:06,580

And two, because I think Jamie's hungry, and he likes cooking the experiments when we're done with them.

549

00:32:06,580 --> 00:32:08,580

And that's not the only change.

550

00:32:08,580 --> 00:32:11,580

To try to get to the arcing and loaded phases,

551

00:32:11,580 --> 00:32:17,580

they're going to house the water in plastic tubes that will guarantee a laminar flow.

552

00:32:17,580 --> 00:32:22,580

Testing the aquasuct is actually quite difficult because it's hard to control where the streams of water are going.

553

00:32:22,580 --> 00:32:24,580

They can easily short out.

554

00:32:24,580 --> 00:32:30,580

The way the stun guns are designed with shooting out wires, the wires are insulated so you don't have that problem.

555

00:32:30,580 --> 00:32:36,580

So we're going to actually run water through tubes, and the plastic tubes will act as insulation.

556

00:32:36,580 --> 00:32:39,580

We should get more reliable results if we do that.

557

00:32:39,580 --> 00:32:46,580

Next, they stick electrodes from the electric stun gun into the plastic tubes, and poke the tubes into the lamb.

558

00:32:46,580 --> 00:32:48,580

This is very Frankenstein.

559

00:32:48,580 --> 00:32:49,580

A little bit.

560

00:32:49,580 --> 00:32:52,580

Let's try from what? The point blank distance, about two inches away.

561

00:32:52,580 --> 00:32:53,580

Yep.

562

00:32:53,580 --> 00:32:54,580

Okay, let's start with that.

563

00:32:54,580 --> 00:32:55,580

Firing.

564

00:32:57,580 --> 00:32:58,580

Yeah, yeah.

565

00:32:58,580 --> 00:32:59,580

It's working.

566

00:32:59,580 --> 00:33:01,580

Okay, jackpot.

567

00:33:01,580 --> 00:33:04,580

It's recorded the arcing phase and the loaded phase.

568

00:33:04,580 --> 00:33:06,580

Awesome.

569

00:33:06,580 --> 00:33:13,580

This shape would be paralyzed big time, but it needs to work at a distance so they move back.

570

00:33:13,580 --> 00:33:15,580

Firing at two feet.

571

00:33:15,580 --> 00:33:17,580

I got a signal.

572

00:33:17,580 --> 00:33:18,580

You got a signal? Is it a good one?

573

00:33:18,580 --> 00:33:19,580

Not bad.

574

00:33:19,580 --> 00:33:23,580

It's still a paralyzing jolt, but there's a problem.

575

00:33:23,580 --> 00:33:25,580

As we're moving away, it's getting lower and lower.

576

00:33:25,580 --> 00:33:27,580

They move back another two feet.

577

00:33:27,580 --> 00:33:29,580

Four feet. You ready, Grant?

578

00:33:29,580 --> 00:33:30,580

I'm ready.

579

00:33:30,580 --> 00:33:31,580

Four feet.

580

00:33:31,580 --> 00:33:32,580

Got something?

581

00:33:32,580 --> 00:33:33,580

Yes.

582

00:33:33,580 --> 00:33:36,580

We're still in the loading phase.

583

00:33:36,580 --> 00:33:37,580

Only just.

584

00:33:37,580 --> 00:33:40,580

The paralyzing potential is getting weaker and weaker.

585

00:33:40,580 --> 00:33:41,580

So it's dropping.

586

00:33:41,580 --> 00:33:43,580

Every time we move a foot out, it's dropping.

587

00:33:43,580 --> 00:33:44,580

That's right.

588

00:33:44,580 --> 00:33:51,580

What we're seeing here has everything to do with the property of resistance, of a medium's resistance to electricity.

589

00:33:51,580 --> 00:33:52,580

Wire's got a very low resistance.

590

00:33:52,580 --> 00:33:53,580

It loves electricity.

591

00:33:53,580 --> 00:33:56,580

Water, it's got a much higher resistance.

592

00:33:56,580 --> 00:34:01,580

And it increases significantly, however much more water you've got to move through,

593

00:34:01,580 --> 00:34:04,580

which means every time we move one foot further away from our target,

594

00:34:04,580 --> 00:34:08,580

the water's applying more resistance and less electricity is getting to the target.

595

00:34:08,580 --> 00:34:12,580

It's not looking very good for the AquaZap here.

596

00:34:12,580 --> 00:34:17,580

Remember, the standard store-purchased stunner works at 15 feet,

597

00:34:17,580 --> 00:34:20,580

so they retreat another four feet.

598

00:34:20,580 --> 00:34:21,580

Firing.

599

00:34:21,580 --> 00:34:22,580

Eight feet.

600

00:34:22,580 --> 00:34:26,580

It's all heading in one direction, belly up.

601

00:34:26,580 --> 00:34:29,580

I think it's starting to break down, because look at the current here.

602

00:34:29,580 --> 00:34:30,580

I do.

603

00:34:30,580 --> 00:34:35,580

It's still matching the curve somewhat, although it's definitely coughing up blood.

604

00:34:35,580 --> 00:34:40,580

So that means that it's not really working past four feet, and that's not very far.

605

00:34:40,580 --> 00:34:42,580

It's not an optimal distance.

606

00:34:42,580 --> 00:34:43,580

No.

607

00:34:43,580 --> 00:34:44,580

No.

608

00:34:44,580 --> 00:34:47,580

It's taken a monumental effort to get to this point.

609

00:34:47,580 --> 00:34:49,580

Total and utter failure.

610

00:34:49,580 --> 00:34:52,580

But that's what mythbusting is all about.

611

00:34:52,580 --> 00:34:55,580

You want to go through all the problems with the AquaZap?

612

00:34:55,580 --> 00:34:56,580

Okay.

613

00:34:56,580 --> 00:35:02,580

As far as I can see, we've got two major issues, both of which lead towards the same problem.

614

00:35:02,580 --> 00:35:05,580

The first issue is the difficulty in creating a laminar flow

615

00:35:05,580 --> 00:35:10,580

means that the effective distance over which you can use the AquaZap is pretty limited.

616

00:35:10,580 --> 00:35:14,580

And the second is that the amount of electricity delivered varies greatly

617

00:35:14,580 --> 00:35:16,580

with the amount of water that it's traveling through.

618

00:35:16,580 --> 00:35:21,580

Both of these things mean you've got a super limited range this thing works from,

619

00:35:21,580 --> 00:35:23,580

and that doesn't make it a very effective weapon.

620

00:35:23,580 --> 00:35:25,580

Okay, so the AquaZap is DOA.

621

00:35:25,580 --> 00:35:27,580

I'm kind of disappointed though.

622

00:35:27,580 --> 00:35:31,580

I had my heart set on, like, firing lightning bolts.

623

00:35:31,580 --> 00:35:33,580

I thought that you would say that.

624

00:35:33,580 --> 00:35:37,580

I knew that you were feeling that, and that's why I have a surprise for you.

625

00:35:43,580 --> 00:35:44,580

In three.

626

00:35:44,580 --> 00:35:49,580

Carrie Grant and Tori have been testing the tail that if you flame grill a fire extinguisher,

627

00:35:49,580 --> 00:35:53,580

it'll blow up and put out a fire.

628

00:35:53,580 --> 00:35:59,580

In test three, the foam-filled tank blew the fire away rather than put it out.

629

00:35:59,580 --> 00:36:04,580

So for test four, Grant's cannibalized a CO2 canister

630

00:36:04,580 --> 00:36:08,580

to see if it gives them the retarded result they're looking for.

631

00:36:08,580 --> 00:36:11,580

So this is the fire extinguisher that has the safety features defeated.

632

00:36:11,580 --> 00:36:12,580

It's ready to go.

633

00:36:12,580 --> 00:36:13,580

It's totally full.

634

00:36:13,580 --> 00:36:16,580

I'm going to take it over to the unlit fire now.

635

00:36:16,580 --> 00:36:17,580

Gingerly.

636

00:36:17,580 --> 00:36:21,580

And Tori for one is sure there'll be a big bang.

637

00:36:21,580 --> 00:36:24,580

Because it's so dangerous, I don't want to be anywhere near it when the fire is lit.

638

00:36:24,580 --> 00:36:29,580

So I have some timed fuse, which is in a bag of smokeless powder.

639

00:36:29,580 --> 00:36:32,580

Now this fuse will give me 40 seconds per foot,

640

00:36:32,580 --> 00:36:34,580

so that'll give me plenty of time to light the fuse.

641

00:36:34,580 --> 00:36:35,580

Good, let's go.

642

00:36:35,580 --> 00:36:37,580

Get back to the bunker before the fire is lit.

643

00:36:39,580 --> 00:36:42,580

And really, you can't blame the guys for being cautious.

644

00:36:42,580 --> 00:36:43,580

I'm happy.

645

00:36:43,580 --> 00:36:44,580

I'm back here in the bunker.

646

00:36:44,580 --> 00:36:47,580

The water-filled tank started at 100 psi.

647

00:36:47,580 --> 00:36:53,580

This CO2 tank with safety valve disabled is already pressurized to 800.

648

00:36:53,580 --> 00:36:55,580

It has been four minutes.

649

00:36:55,580 --> 00:37:00,580

Safety valve on the regular CO2 fire extinguisher has gone off by now.

650

00:37:00,580 --> 00:37:01,580

Oh yeah, yeah.

651

00:37:01,580 --> 00:37:04,580

Which means it's definitely doing something inside that tank.

652

00:37:04,580 --> 00:37:05,580

Yeah, pressure is building.

653

00:37:05,580 --> 00:37:08,580

Pressure is building, but so is the team's doubt.

654

00:37:08,580 --> 00:37:13,580

Maybe the tank has sprung a leak and they won't get the explosion they want.

655

00:37:24,580 --> 00:37:25,580

Or maybe they will.

656

00:37:25,580 --> 00:37:27,580

And now everybody's happy.

657

00:37:27,580 --> 00:37:35,580

A warm campfire, good company, and a whopper of an explosion.

658

00:37:38,580 --> 00:37:40,580

Did you see how far the tank went?

659

00:37:40,580 --> 00:37:46,580

Officially, using the latest in high-speed camera equipment and ballistic analysis,

660

00:37:46,580 --> 00:37:48,580

I'd say you a long way.

661

00:37:48,580 --> 00:37:51,580

Look, it's a lock from the fire.

662

00:37:51,580 --> 00:37:54,580

Hot? Fire? What do you know?

663

00:37:54,580 --> 00:37:55,580

Wow.

664

00:37:55,580 --> 00:37:57,580

Look at the fire on what's left of it.

665

00:37:57,580 --> 00:37:58,580

There's a little last.

666

00:37:58,580 --> 00:38:00,580

It's almost totally out.

667

00:38:02,580 --> 00:38:06,580

All right, so this is the only part of the CO2 extinguisher that I've found so far.

668

00:38:06,580 --> 00:38:09,580

Look how thick that is. That's like a quarter inch.

669

00:38:09,580 --> 00:38:10,580

Yeah.

670

00:38:10,580 --> 00:38:12,580

Yep, it's busted all right.

671

00:38:12,580 --> 00:38:14,580

But what about the myth?

672

00:38:14,580 --> 00:38:17,580

Well, yeah, I didn't so much put the fire out as obliterated.

673

00:38:17,580 --> 00:38:18,580

But it put it out.

674

00:38:18,580 --> 00:38:19,580

Yeah.

675

00:38:19,580 --> 00:38:21,580

And we got the explosion we wanted.

676

00:38:21,580 --> 00:38:22,580

There you go.

677

00:38:22,580 --> 00:38:23,580

Yeah.

678

00:38:23,580 --> 00:38:25,580

Hello, plausible.

679

00:38:25,580 --> 00:38:39,580

Cary Grant and Tory are tackling the tall tale that a trance is your chance for a hot, cold crossing.

680

00:38:39,580 --> 00:38:40,580

Yeah.

681

00:38:40,580 --> 00:38:41,580

See, that wasn't so bad.

682

00:38:41,580 --> 00:38:46,580

But so far, the numbers predict that anyone can do it burn-free.

683

00:38:46,580 --> 00:38:49,580

However, there's only one way to find out for sure.

684

00:38:49,580 --> 00:38:52,580

So a hop, step, and a jump cut later.

685

00:38:52,580 --> 00:38:54,580

Does it seem like a stupid idea now?

686

00:38:54,580 --> 00:38:55,580

No.

687

00:38:55,580 --> 00:38:58,580

We've had a lot stupider ideas than this.

688

00:38:58,580 --> 00:39:04,580

It's the moment we, if not Cary Grant and Tory, have all been waiting for.

689

00:39:04,580 --> 00:39:06,580

All right, those cools are all red hot.

690

00:39:06,580 --> 00:39:07,580

You guys ready?

691

00:39:07,580 --> 00:39:08,580

There's no turning back now.

692

00:39:08,580 --> 00:39:11,580

Oh, are you nervous at all?

693

00:39:11,580 --> 00:39:12,580

No.

694

00:39:12,580 --> 00:39:13,580

A little.

695

00:39:13,580 --> 00:39:14,580

What?

696

00:39:14,580 --> 00:39:15,580

All right.

697

00:39:15,580 --> 00:39:21,580

After a few moments to psych herself up, Cary's the first onto the foot fryer.

698

00:39:21,580 --> 00:39:23,580

Cue the dramatic music.

699

00:39:23,580 --> 00:39:25,580

Oh, f**k.

700

00:39:25,580 --> 00:39:31,580

It's not totally not hot.

701

00:39:31,580 --> 00:39:39,580

Despite her levels of adrenaline shooting off the scale, Cary makes it across safely and finds her feet unfried.

702

00:39:39,580 --> 00:39:41,580

It's doable.

703

00:39:41,580 --> 00:39:43,580

That's doable.

704

00:39:43,580 --> 00:39:47,580

Next up for their tiptoe into trepidation is Grant.

705

00:39:47,580 --> 00:39:48,580

Yeah, Grant.

706

00:39:48,580 --> 00:39:52,580

And cool as a cucumber, he catwalks over the coals.

707

00:39:52,580 --> 00:39:53,580

Very baseball.

708

00:39:53,580 --> 00:39:54,580

There we go.

709

00:39:54,580 --> 00:39:58,580

A little hotter than I expected, but I think I made it.

710

00:39:58,580 --> 00:40:00,580

Which just leaves Tory.

711

00:40:00,580 --> 00:40:04,580

And true to form, he steps up and charges straight in.

712

00:40:04,580 --> 00:40:05,580

Here we go.

713

00:40:05,580 --> 00:40:07,580

Before breezing across.

714

00:40:07,580 --> 00:40:10,580

I'll just let that pad it off.

715

00:40:10,580 --> 00:40:12,580

I thought it was going to be a lot worse than that.

716

00:40:12,580 --> 00:40:14,580

It looks way worse than it is.

717

00:40:14,580 --> 00:40:15,580

It's really not that bad.

718

00:40:15,580 --> 00:40:17,580

It's the mental part that messes with you the most.

719

00:40:17,580 --> 00:40:20,580

As soon as I stepped on it, it really wasn't that bad.

720

00:40:20,580 --> 00:40:21,580

In fact, I didn't even feel it.

721

00:40:21,580 --> 00:40:26,580

I had to walk back one more time just to see whether or not they were hot.

722

00:40:26,580 --> 00:40:28,580

That was so crazy.

723

00:40:28,580 --> 00:40:30,580

You know what the worst part was, what was going on in your head?

724

00:40:30,580 --> 00:40:32,580

The physical wasn't so bad.

725

00:40:32,580 --> 00:40:36,580

Yeah, there is not any amount of drumming or chanting that would have made me walk on that coal.

726

00:40:36,580 --> 00:40:38,580

But the physics, the physics was there.

727

00:40:38,580 --> 00:40:40,580

That's what got me through the first step.

728

00:40:40,580 --> 00:40:41,580

You know what?

729

00:40:41,580 --> 00:40:45,580

I'm not going to lie, it was hot out there, but not hot enough to burn us.

730

00:40:45,580 --> 00:40:47,580

All right, so this one's looking busted.

731

00:40:47,580 --> 00:40:48,580

Busted.

732

00:40:48,580 --> 00:40:49,580

Busted.

733

00:40:49,580 --> 00:40:51,580

All right, let's try gasoline soaked socks next.

734

00:40:51,580 --> 00:40:52,580

Woo!

735

00:40:52,580 --> 00:40:58,580

It seems it's physics that keep your feet from being flame-grilled and not mind over matter.

736

00:40:58,580 --> 00:40:59,580

Or is it?

737

00:40:59,580 --> 00:41:04,580

What about a mind unprepared, a mind unsullied by the certainty of science?

738

00:41:04,580 --> 00:41:06,580

I thought it was going to be a lot worse than that.

739

00:41:06,580 --> 00:41:09,580

To find out, let's segue to the next day.

740

00:41:09,580 --> 00:41:10,580

What are you cooking?

741

00:41:10,580 --> 00:41:12,580

Well, the bottom of your feet.

742

00:41:12,580 --> 00:41:14,580

We're looking at the science of fire walking.

743

00:41:14,580 --> 00:41:16,580

Fire walking!

744

00:41:16,580 --> 00:41:17,580

Awesome!

745

00:41:17,580 --> 00:41:22,580

Apparently Adam would walk over hot coals to walk over hot coals.

746

00:41:22,580 --> 00:41:24,580

We're all set up.

747

00:41:24,580 --> 00:41:26,580

Adam just got here, but we haven't let the fire yet.

748

00:41:26,580 --> 00:41:30,580

I want to light it in front of him so he sees how hot this fire gets.

749

00:41:30,580 --> 00:41:32,580

So that starts playing on his mind.

750

00:41:32,580 --> 00:41:40,580

It's one thing to think intellectually that I've always wanted to walk on fire.

751

00:41:40,580 --> 00:41:45,580

It's quite another to feel the heat of 2,000 some odd degrees at my back.

752

00:41:45,580 --> 00:41:48,580

So Adam's ready for his trial by fire.

753

00:41:48,580 --> 00:41:49,580

You can do it!

754

00:41:49,580 --> 00:41:55,580

And remember, before Cary, Grant and Tori took their first hot step, they knew they wouldn't get burned.

755

00:41:55,580 --> 00:41:56,580

You gotta tell your feet to go to the bill.

756

00:41:56,580 --> 00:41:57,580

My heart rate just went up a bit.

757

00:41:57,580 --> 00:41:58,580

Okay.

758

00:41:58,580 --> 00:42:03,580

But Adam knows nothing about the data and the technique of stepping lightly.

759

00:42:03,580 --> 00:42:08,580

Will he get across unscathed or will those red hot coals fry his feet?

760

00:42:14,580 --> 00:42:16,580

Ah yes, apparently so.

761

00:42:18,580 --> 00:42:20,580

Wow, that hurt a lot.

762

00:42:21,580 --> 00:42:22,580

Ow, it's going through my head.

763

00:42:22,580 --> 00:42:25,580

As I did it, walk, walk, walk, this isn't so bad.

764

00:42:25,580 --> 00:42:27,580

Holy crap, this is pretty bad.

765

00:42:27,580 --> 00:42:28,580

Ah, like that.

766

00:42:28,580 --> 00:42:30,580

That's about the process.

767

00:42:30,580 --> 00:42:38,580

So it seems that it does matter what's in your mind, but only in so far as knowledge about technique and preparation go.

768

00:42:38,580 --> 00:42:45,580

With no prep at all, I think I made a classic mistake of speeding up and digging my feet into the coals more.

769

00:42:47,580 --> 00:42:54,580

Yep, Adam's hard marching method meant some of the coals stuck to his feet, giving them more time to conduct their heat.

770

00:42:55,580 --> 00:42:56,580

Ouch.

771

00:42:56,580 --> 00:42:57,580

Pays me.

772

00:42:57,580 --> 00:43:05,580

And after a call home with the not so good news, so I just walked on hot coals and I burned the hell out of my feet.

773

00:43:05,580 --> 00:43:08,580

Let's break out the burn cream and get this myth wrapped up.

774

00:43:08,580 --> 00:43:10,580

Oh my god, are you serious?

775

00:43:10,580 --> 00:43:13,580

I would have made it across if it weren't for you meddling kids.

776

00:43:13,580 --> 00:43:14,580

We didn't know it was going to happen.

777

00:43:14,580 --> 00:43:16,580

I mean, we all made it across just fine.

778

00:43:16,580 --> 00:43:18,580

Well, how do you explain that?

779

00:43:18,580 --> 00:43:19,580

Well, the science is all there.

780

00:43:19,580 --> 00:43:20,580

I mean, you can do it without burning your feet.

781

00:43:20,580 --> 00:43:22,580

I mean, it's not magic.

782

00:43:22,580 --> 00:43:27,580

Yeah, and the high speed analysis, it looked like you were grabbing onto the coals with your toes.

783

00:43:27,580 --> 00:43:28,580

Yeah, you have like monkey feet.

784

00:43:28,580 --> 00:43:30,580

You're just picking those coals up.

785

00:43:30,580 --> 00:43:32,580

Okay, so what are you guys calling it?

786

00:43:32,580 --> 00:43:36,580

Well, it's clear that none of us had to be in a trance in order to get across the coals.

787

00:43:36,580 --> 00:43:37,580

Science still wins.

788

00:43:37,580 --> 00:43:38,580

It's busted.

789

00:43:38,580 --> 00:43:39,580

Busted.

790

00:43:39,580 --> 00:43:40,580

See you next time.

791

00:43:40,580 --> 00:43:41,580

You're not hurt.

792

00:43:41,580 --> 00:43:42,580

You're right.

793

00:43:42,580 --> 00:43:43,580

I'm not hurt.

794

00:43:43,580 --> 00:43:44,580

Bye.

795

00:43:53,580 --> 00:44:01,580

Adam and Jamie have proved you can't turn a conventional stun gun into an electrified water stun gun.

796

00:44:01,580 --> 00:44:08,580

But in true never say die fashion, they're moving on, amping up to extreme levels to try and get a result.

797

00:44:08,580 --> 00:44:14,580

Jamie said that he wanted some big lightning bolts, and behind me in this nondescript building are the lightning bolts of his dreams.

798

00:44:14,580 --> 00:44:22,580

This is the home of the Nevada Lightning Lab, and Greg Lay, and he is going to generate some monstrous sized lightning bolts for us.

799

00:44:22,580 --> 00:44:24,580

Jamie will be well pleased.

800

00:44:24,580 --> 00:44:25,580

Ain't that the truth?

801

00:44:25,580 --> 00:44:29,580

This place is the world leader in lightning technology.

802

00:44:29,580 --> 00:44:30,580

Hi Greg.

803

00:44:30,580 --> 00:44:31,580

Hi Jamie.

804

00:44:31,580 --> 00:44:35,580

Ah, there's a lightning bolt generator of our dreams.

805

00:44:35,580 --> 00:44:39,580

So do you mind if we hook that big beastie up to my little squirt gun here and see what happens?

806

00:44:39,580 --> 00:44:41,580

We'll give it our best shot.

807

00:44:41,580 --> 00:44:42,580

Awesome.

808

00:44:42,580 --> 00:44:45,580

Greg's Tesla coil is right up the Mythbusters alley.

809

00:44:45,580 --> 00:44:48,580

This is really quite an extraordinary device.

810

00:44:48,580 --> 00:44:51,580

It's got over a mile of wire, a bank of capacitors.

811

00:44:51,580 --> 00:44:57,580

It sends out lightning bolts with about a million volts or so over 30 feet.

812

00:44:57,580 --> 00:44:59,580

It's just nuts.

813

00:44:59,580 --> 00:45:00,580

Nuts?

814

00:45:00,580 --> 00:45:01,580

Excellent.

815

00:45:01,580 --> 00:45:02,580

Crank it up.

816

00:45:02,580 --> 00:45:04,580

We're good to go.

817

00:45:04,580 --> 00:45:10,580

The Tesla coil is actually two giant coils of wire that conduct electricity.

818

00:45:10,580 --> 00:45:19,580

One charges up the other, increasing the voltage output to near a million volts, and then, like lightning, it breaks out.

819

00:45:19,580 --> 00:45:23,580

Looking for the shortest path to work.

820

00:45:23,580 --> 00:45:29,580

And Jamie and Adam are near beside themselves.

821

00:45:29,580 --> 00:45:32,580

But there's more to this than just a light show.

822

00:45:32,580 --> 00:45:34,580

Adam and Jamie are on a mission.

823

00:45:34,580 --> 00:45:37,580

Is that a big enough lightning bolt for you?

824

00:45:37,580 --> 00:45:38,580

Yeah.

825

00:45:38,580 --> 00:45:40,580

Let's have some bad guys.

826

00:45:40,580 --> 00:45:41,580

OK.

827

00:45:41,580 --> 00:45:43,580

Dummy dude, watch out.

828

00:45:43,580 --> 00:45:45,580

Jamie's up top in a cocoon basket.

829

00:45:45,580 --> 00:45:51,580

Using the AquaZap, he'll fire a stream straight at the Ballistics gel perpetrator.

830

00:45:51,580 --> 00:45:57,580

Can the million volt jolt juice up the stream and blast the bad guy?

831

00:45:57,580 --> 00:45:59,580

Jamie gets into position.

832

00:45:59,580 --> 00:46:03,580

He's getting inside a Tesla coil for science.

833

00:46:03,580 --> 00:46:10,580

Believe it or not, he's insulated and totally safe inside.

834

00:46:10,580 --> 00:46:12,580

Dead man walking.

835

00:46:12,580 --> 00:46:14,580

This is not just a mythbusters first.

836

00:46:14,580 --> 00:46:16,580

It's a world first.

837

00:46:16,580 --> 00:46:20,580

But maybe that's because no one else has been crazy enough to try it.

838

00:46:20,580 --> 00:46:23,580

We're actually doing something really interesting.

839

00:46:23,580 --> 00:46:29,580

This is actually directing a lightning bolt out of a stream of water.

840

00:46:29,580 --> 00:46:35,580

This is the maximum amount of electricity that we could pump through something like a squirt gun.

841

00:46:35,580 --> 00:46:38,580

And it really is quite exciting.

842

00:46:38,580 --> 00:46:41,580

Greg gets the Tesla coil juices flowing.

843

00:46:41,580 --> 00:46:43,580

This is my new favorite toy.

844

00:46:43,580 --> 00:46:45,580

Jamie takes aim.

845

00:46:45,580 --> 00:46:47,580

That's neat.

846

00:46:47,580 --> 00:46:49,580

And fires.

847

00:46:49,580 --> 00:46:58,580

Ha ha ha! We're in it!

848

00:46:58,580 --> 00:47:00,580

Whoa, yeah!

849

00:47:00,580 --> 00:47:03,580

Bullseye. This time they've cracked it.

850

00:47:03,580 --> 00:47:06,580

An electric stun gun that runs on water.

851

00:47:06,580 --> 00:47:08,580

Nice work, dude!

852

00:47:08,580 --> 00:47:10,580

How you feeling?

853

00:47:10,580 --> 00:47:11,580

You got him!

854

00:47:11,580 --> 00:47:12,580

That was a nice shot.

855

00:47:12,580 --> 00:47:16,580

I could see right down the lightning bolt right to his head.

856

00:47:16,580 --> 00:47:18,580

A million volts.

857

00:47:18,580 --> 00:47:23,580

And unlike a real perpetrator, our bad dude hasn't even broken a sweat.

858

00:47:23,580 --> 00:47:24,580

What a trooper.

859

00:47:24,580 --> 00:47:27,580

And he's willing to take another one for the team.

860

00:47:27,580 --> 00:47:30,580

Jamie's starting to warm to this gig.

861

00:47:34,580 --> 00:47:37,580

Done! He's out!

862

00:47:37,580 --> 00:47:40,580

This time the strike is even better.

863

00:47:40,580 --> 00:47:42,580

It's traveled right along the stream.

864

00:47:42,580 --> 00:47:45,580

A million volts straight into the bad guy's brain.

865

00:47:45,580 --> 00:47:50,580

But it's drawn up a small design problem.

866

00:47:50,580 --> 00:47:52,580

Here's what I've concluded.

867

00:47:52,580 --> 00:47:55,580

You've got a perp. He's causing trouble. You want to subdue him.

868

00:47:55,580 --> 00:47:58,580

So you get a crane. You crane in your 18 foot high Tesla coil.

869

00:47:58,580 --> 00:48:00,580

You bring a ladder over. You climb inside it.

870

00:48:00,580 --> 00:48:01,580

Get in a water pistol. Load it up.

871

00:48:01,580 --> 00:48:04,580

Squirt it at the perpetrator and subdue him.

872

00:48:04,580 --> 00:48:07,580

In other words, it seems totally impractical.

873

00:48:10,580 --> 00:48:14,580

And along with the myth, the fun's done and dusted.

874

00:48:14,580 --> 00:48:17,580

I have to admit, I had high hopes for the water stun gun.

875

00:48:17,580 --> 00:48:21,580

But we did do diligence and it's busted.

876

00:48:21,580 --> 00:48:24,580

Yeah, I think it's pretty well busted.

877

00:48:24,580 --> 00:48:27,580

You're not going to fit one of those in a holster any time soon.

878

00:48:27,580 --> 00:48:29,580

No, our work here is done.