

1

00:00:00,000 --> 00:00:03,440

On this special episode of Mythbusters,

2

00:00:03,440 --> 00:00:07,760

testing the voltage on electrified urban legends.

3

00:00:07,760 --> 00:00:10,080

Flat of recharging.

4

00:00:10,080 --> 00:00:12,520

Answering nature's call.

5

00:00:12,520 --> 00:00:14,240

Oh, man.

6

00:00:14,240 --> 00:00:15,120

Warm.

7

00:00:15,120 --> 00:00:17,880

On an electrified third rail.

8

00:00:17,880 --> 00:00:19,280

You've got the lights almost full.

9

00:00:19,280 --> 00:00:20,680

It's total disaster.

10

00:00:20,680 --> 00:00:22,520

Then struck by lightning.

11

00:00:22,520 --> 00:00:23,320

Where's your tongue?

12

00:00:23,320 --> 00:00:25,400

Let's see.

13

00:00:25,400 --> 00:00:28,280

The Mythbusters tempt fate.

14

00:00:28,280 --> 00:00:29,320

This won't hurt you at all.

15

00:00:29,320 --> 00:00:32,200

Feels like I got a barbell stuck in my tongue.

16

00:00:32,200 --> 00:00:35,880

And microwave myths put to the test.

17

00:00:35,880 --> 00:00:37,000

Totally f***ing me.

18

00:00:37,000 --> 00:00:39,080

We finally get a reasonable experiment here.

19

00:00:39,080 --> 00:00:40,200

And he's like, uh-oh.

20

00:00:40,200 --> 00:00:42,200

And troubles brewing.

21

00:00:42,200 --> 00:00:44,560

I would say that the rig is not safe at all.

22

00:00:44,560 --> 00:00:47,440

Who are the Mythbusters?

23

00:00:47,440 --> 00:00:50,280

Am I missing an eyebrow?

24

00:00:50,280 --> 00:00:51,480

Adam Savage.

25

00:00:51,480 --> 00:00:54,360

I always enjoyed seeing Adam in pain.

26

00:00:54,360 --> 00:00:55,000

Oh!

27

00:00:55,000 --> 00:00:56,680

And Jamie Heineman.

28

00:00:56,680 --> 00:00:59,280

Jamie wants a big bone.

29

00:00:59,320 --> 00:01:02,800

More than 30 years special effects experience.

30

00:01:02,800 --> 00:01:04,000

Feel kind of sexy.

31

00:01:04,000 --> 00:01:06,880

They don't just tell the myths.

32

00:01:06,880 --> 00:01:08,640

They put them to the test.

33

00:01:15,880 --> 00:01:16,800

It's late.

34

00:01:16,800 --> 00:01:18,960

You've had a few drinks.

35

00:01:18,960 --> 00:01:21,280

There's no train expected.

36

00:01:21,280 --> 00:01:23,360

Nature's calling.

37

00:01:23,360 --> 00:01:25,680

What could possibly go wrong?

38

00:01:29,280 --> 00:01:38,800

Where are we?

39

00:01:38,800 --> 00:01:42,160

We're here at the Golden Gate Railway Museum in San Francisco.

40

00:01:42,160 --> 00:01:45,440

And we're testing the myth about peeing on the third rail.

41

00:01:45,440 --> 00:01:49,160

This is the one guy found himself late at night in a train yard peed on the third rail.

42

00:01:49,160 --> 00:01:52,400

The electrified rail got electrocuted and died.

43

00:01:52,400 --> 00:01:54,400

That's the one.

44

00:01:54,400 --> 00:01:59,840

Some subway systems are powered by an electrified rail on the track.

45

00:01:59,840 --> 00:02:09,520

A steel paddle slides along the top of that third rail, arcing as it draws current.

46

00:02:09,520 --> 00:02:17,280

There's enough power in the New York subway to light the whole state of Vermont.

47

00:02:17,280 --> 00:02:21,080

Rob Lobenstein is the superintendent of that system.

48

00:02:21,080 --> 00:02:22,920

He's well aware of this myth.

49

00:02:22,920 --> 00:02:27,000

My first day on the job, they give you all the safety tips and warnings.

50

00:02:27,000 --> 00:02:30,280

And that's the very first thing they tell you not to do.

51

00:02:30,280 --> 00:02:35,680

After 34 years, Rob still has a healthy caution about electricity jumping up urine streams.

52

00:02:35,680 --> 00:02:38,960

Do you want to pee on that, Jamie?

53

00:02:38,960 --> 00:02:41,960

I don't want to pee on that.

54

00:02:41,960 --> 00:02:45,800

Come on, do you feel lucky?

55

00:02:45,800 --> 00:02:50,200

To test this myth, they'll need to make a stunt dummy with the same electrical properties

56

00:02:50,200 --> 00:02:51,200

as a human body.

57

00:02:51,200 --> 00:03:01,360

They'll have to come up with a system to make it pee, electrify a track, and finally, test

58

00:03:01,360 --> 00:03:05,040

urine's ability to conduct a challenge.

59

00:03:05,040 --> 00:03:09,040

So the boys need a dummy that can answer nature's call.

60

00:03:09,040 --> 00:03:11,720

They'll start with a skeleton.

61

00:03:11,720 --> 00:03:17,360

Okay, this is actually a nice one.

62

00:03:17,360 --> 00:03:19,720

Did it come with a body bag?

63

00:03:19,720 --> 00:03:22,720

Oh, dang!

64

00:03:22,720 --> 00:03:25,720

Stop!

65

00:03:25,720 --> 00:03:30,000

I'll always miss my old skeleton.

66

00:03:30,000 --> 00:03:31,760

It's too bad.

67

00:03:31,760 --> 00:03:38,000

He got his head blown off with a Mannlicher-Carcano rifle.

68

00:03:38,000 --> 00:03:42,600

In the past, they've encased a skeleton in a product called Ballistics Gel, which is

69

00:03:42,600 --> 00:03:45,160

used to test bullets.

70

00:03:45,160 --> 00:03:48,960

The guys think it might work well here, too.

71

00:03:48,960 --> 00:03:53,280

It has nearly exactly the same electrical resistance as the human body.

72

00:03:53,280 --> 00:04:00,040

They just need to mold it into shape.

73

00:04:00,040 --> 00:04:02,480

We use the vacuum for all sorts of things.

74

00:04:02,480 --> 00:04:04,400

We use it all the time here in the shop.

75

00:04:04,400 --> 00:04:06,720

Let's carry this over and cut it out.

76

00:04:06,720 --> 00:04:11,120

We use it for toy prototypes when we're inventing something.

77

00:04:11,120 --> 00:04:13,920

The same plastic is used in soda bottles.

78

00:04:13,920 --> 00:04:18,200

They'll mold the dummies front and back and join the shells together.

79

00:04:18,400 --> 00:04:22,440

Normally, they'd use glue to do that.

80

00:04:22,440 --> 00:04:25,240

But Adam's made an executive decision.

81

00:04:25,240 --> 00:04:31,840

He thinks it'll be quicker just to use tape.

82

00:04:31,840 --> 00:04:32,840

He's looking pretty healthy.

83

00:04:32,840 --> 00:04:36,200

I've always wanted my own full-sized, visible human.

84

00:04:36,200 --> 00:04:43,360

The same speed that Adam has when he goes through and does a job will elicit an occasional

85

00:04:43,360 --> 00:04:47,600

mistake because he doesn't think before he does something.

86

00:04:47,600 --> 00:04:52,480

The next step is to fill the legs with gel, crucial for the experiment that will give

87

00:04:52,480 --> 00:04:56,160

them the same electrical properties as humans.

88

00:04:56,160 --> 00:05:01,320

They make this stuff out of boiled-down animal products like cow hooves.

89

00:05:01,320 --> 00:05:06,120

It's really foul.

90

00:05:06,120 --> 00:05:09,360

Stop.

91

00:05:09,360 --> 00:05:11,600

Stop.

92

00:05:11,600 --> 00:05:15,960

Adam's tape is not holding.

93

00:05:15,960 --> 00:05:18,760

Damn it.

94

00:05:18,760 --> 00:05:24,120

It's sticking from everywhere.

95

00:05:24,120 --> 00:05:27,440

We didn't glue that at all, huh?

96

00:05:27,440 --> 00:05:29,440

No, I didn't.

97

00:05:29,440 --> 00:05:30,440

Adam.

98

00:05:30,440 --> 00:05:31,440

Yep.

99

00:05:31,440 --> 00:05:32,440

Oh, stop playing.

100

00:05:32,440 --> 00:05:33,440

Let's do this.

101

00:05:33,440 --> 00:05:35,440

That's such a good sound.

102

00:05:35,440 --> 00:05:37,440

There we go.

103

00:05:37,440 --> 00:05:39,440

Hey, look at that.

104

00:05:39,440 --> 00:05:43,440

It's filling up.

105

00:05:43,440 --> 00:05:45,440

Not for long.

106

00:05:45,440 --> 00:05:47,440

Now both feet are leaking.

107

00:05:47,440 --> 00:05:48,440

Come on.

108

00:05:48,440 --> 00:05:49,440

Come on.

109

00:05:49,440 --> 00:05:50,440

Oh, it's slanted.

110

00:05:50,440 --> 00:05:51,440

Oh.

111

00:05:51,440 --> 00:06:04,440

If we get lots of ice in here really fast, we'll be okay.

112

00:06:04,440 --> 00:06:07,400

Ballistics gel sets solid when cooled.

113

00:06:07,400 --> 00:06:10,400

They only have four bags of ice.

114

00:06:10,400 --> 00:06:12,400

I kind of think it's...

115

00:06:12,400 --> 00:06:14,400

There we go.

116

00:06:14,400 --> 00:06:23,400

That's fast enough.

117

00:06:23,400 --> 00:06:29,400

One thing that keeps bothering me about this is that urine itself is probably not going

118

00:06:29,400 --> 00:06:30,400

to conduct all that much.

119

00:06:30,400 --> 00:06:34,960

I mean, we don't really know, but I can't imagine that you're going to be able to conduct

120

00:06:34,960 --> 00:06:37,280

current like you would with a wire.

121

00:06:37,280 --> 00:06:39,280

Even so, the dirty work begins.

122

00:06:39,280 --> 00:06:43,680

Oh, it's warm.

123

00:06:43,680 --> 00:06:48,120

What this boils down to is how much current can we actually carry through about a quarter-inch

124

00:06:48,120 --> 00:06:50,640

diameter stream of urine?

125

00:06:50,640 --> 00:06:52,800

And is it enough to kill you?

126

00:06:52,800 --> 00:06:57,320

The guys know it's not just the number of volts in a shock that hurts you, but rather

127

00:06:57,320 --> 00:07:02,680

the amount of electricity that actually flows through you, called the current.

128

00:07:02,680 --> 00:07:06,960

They can work out how much current will zap a third rail victim if they know two other

129

00:07:06,960 --> 00:07:07,960

facts.

130

00:07:07,960 --> 00:07:12,720

They need to find out the electrical resistance of urine.

131

00:07:12,720 --> 00:07:17,640

So it's about 10,000 ohms, which is just what we expected.

132

00:07:17,640 --> 00:07:22,840

And they know a subway train runs on about 650 volts.

133

00:07:22,840 --> 00:07:25,960

Your home sockets are 110.

134

00:07:25,960 --> 00:07:29,840

They'll match the subway with a transformer from a fluorescent light.

135

00:07:29,840 --> 00:07:35,520

If you had a rather robust stream of urine and you were able to spray it up on the ceiling

136

00:07:35,520 --> 00:07:40,200

into a fluorescent lamp, you would probably receive the same effect as peeing on the third

137

00:07:40,200 --> 00:07:41,200

rail.

138

00:07:41,200 --> 00:07:47,520

A famous electrical formula called Ohm's Law says the current equals voltage divided by

139

00:07:47,520 --> 00:07:48,520

resistance.

140

00:07:48,520 --> 00:07:55,120

So 650 volts passing through urine at 10,000 ohms resistance means there'll be a current

141

00:07:55,120 --> 00:07:58,600

of 65 milliamps.

142

00:07:58,720 --> 00:08:01,840

30 milliamps is enough to paralyze your breathing.

143

00:08:01,840 --> 00:08:05,120

65 can give you a heart attack.

144

00:08:05,120 --> 00:08:07,600

So that part of the myth is true.

145

00:08:07,600 --> 00:08:10,760

Urine can carry a shock big enough to kill you.

146

00:08:10,760 --> 00:08:16,480

In this dry run, they'll try to pass that current through a tube of donated urine, through

147

00:08:16,480 --> 00:08:21,320

ballistics gel and into a relay switch triggered at 65 milliamps.

148

00:08:21,320 --> 00:08:24,120

We'll be cooking with gas.

149

00:08:24,120 --> 00:08:29,960

And I think we should hear the thing click if it's going to work, if I plug it in right

150

00:08:29,960 --> 00:08:30,960

now.

151

00:08:30,960 --> 00:08:35,560

There you go.

152

00:08:35,560 --> 00:08:36,960

That's fantastic.

153

00:08:36,960 --> 00:08:41,120

Something actually worked for a change.

154

00:08:41,120 --> 00:08:46,960

So they've got the body built, tested the urine, now for the bionic bladder.

155

00:08:46,960 --> 00:08:52,600

Well, here on MythBusters it seems we'll do just about anything for science.

156

00:08:52,600 --> 00:08:55,320

Got 250 milliliters there.

157

00:08:55,320 --> 00:08:58,280

It took about 18 and a half seconds.

158

00:08:58,280 --> 00:09:01,400

And that's what we're going to try and replicate with our rail rig.

159

00:09:01,400 --> 00:09:02,400

Here I go.

160

00:09:11,400 --> 00:09:15,400

Start in now.

161

00:09:17,400 --> 00:09:19,400

A lot of seconds.

162

00:09:20,400 --> 00:09:25,400

19 seconds, that's perfect.

163

00:09:25,400 --> 00:09:27,920

That's a relief.

164

00:09:27,920 --> 00:09:31,080

But Adam's still got bladder problems.

165

00:09:31,080 --> 00:09:34,200

So the question is pressure, I think.

166

00:09:34,200 --> 00:09:37,600

Personally, I don't let gravity do my trick.

167

00:09:37,600 --> 00:09:41,200

You know, there's some pressure involved.

168

00:09:41,200 --> 00:09:46,200

So the question is, how to add pressure to the system?

169

00:09:49,400 --> 00:09:54,200

What better way to pressurize a fake bladder than with a whoopee cushion?

170

00:09:54,200 --> 00:09:57,200

Yeah, that's holding pressure.

171

00:09:57,200 --> 00:10:02,200

Better still, it fits perfectly.

172

00:10:02,200 --> 00:10:08,520

But of course that's only half the equipment.

173

00:10:08,520 --> 00:10:12,880

If you make the stream really small and narrow, the surface tension is going to tend to make

174

00:10:12,880 --> 00:10:15,400

it go into a spray or a droplet.

175

00:10:15,400 --> 00:10:19,200

Yeah, I've gone as close as I can to the real thing.

176

00:10:20,000 --> 00:10:22,000

You gotta fill it up?

177

00:10:22,000 --> 00:10:23,000

Yeah.

178

00:10:23,000 --> 00:10:25,000

Are you ready?

179

00:10:25,000 --> 00:10:26,000

Ready.

180

00:10:26,000 --> 00:10:27,000

Commencing.

181

00:10:27,000 --> 00:10:28,000

Wee-wee.

182

00:10:33,000 --> 00:10:35,000

Looks like a pretty convincing stream to me.

183

00:10:35,000 --> 00:10:36,000

Yeah.

184

00:10:36,000 --> 00:10:38,000

Getting urine everywhere.

185

00:10:38,000 --> 00:10:43,000

It looks okay, but how close to real is it?

186

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

What they need is a comparison.

187

00:10:46,000 --> 00:10:48,000

Volunteers.

188

00:10:48,000 --> 00:10:50,000

Anyone?

189

00:10:54,000 --> 00:10:59,000

Once more, Adam is forced to offer his bladder and dignity to science.

190

00:10:59,000 --> 00:11:04,000

Here on MythBusters, we're prepared to put our pants on the floor for you.

191

00:11:04,000 --> 00:11:08,000

The moment to remember will be captured on high-speed camera.

192

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

I think I got 100 mils.

193

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

Are you ready?

194

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

All right, here we go.

195

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

This is not our ballistic dummy that we're looking at here, right?

196

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

It's a real live dummy.

197

00:11:19,000 --> 00:11:21,000

This is what it is.

198

00:11:21,000 --> 00:11:23,000

All right.

199

00:11:24,000 --> 00:11:26,000

We have a match.

200

00:11:28,000 --> 00:11:31,000

Finally, Adam has a leak he's happy with.

201

00:11:31,000 --> 00:11:32,000

You know, the science is good.

202

00:11:32,000 --> 00:11:34,000

We know why things are working and why they're not working,

203

00:11:34,000 --> 00:11:36,000

and we're getting some really good results.

204

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

I'm having a great time.

205

00:11:37,000 --> 00:11:39,000

As dirty as the work is.

206

00:11:42,000 --> 00:11:45,000

The MythBusters are ready to ride the third ramp.

207

00:11:45,000 --> 00:11:47,000

Where's the wee bottle I have to go?

208

00:11:47,000 --> 00:11:50,000

I guess I can hold it until we're down there.

209

00:11:50,000 --> 00:11:52,000

Oh, man.

210

00:11:55,000 --> 00:11:59,000

Will urinating on the third rail have shocking results?

211

00:11:59,000 --> 00:12:02,000

Do I get a lollipop this is done?

212

00:12:02,000 --> 00:12:06,000

But up next, Adam donates part of his body to science

213

00:12:06,000 --> 00:12:10,000

as the MythBusters try to bust a lightning legend.

214

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

Now I'm talking all funny.

215

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

Come on, will you please help me out?

216

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

Yes, we'll carry you.

217

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

Hold on.

218

00:12:19,000 --> 00:12:21,000

I got struck by lightning?

219

00:12:21,000 --> 00:12:22,000

Yes.

220

00:12:22,000 --> 00:12:24,000

How the f**k did that happen?

221

00:12:24,000 --> 00:12:25,000

It's not.

222

00:12:25,000 --> 00:12:29,000

In August 2003, Matt Thompson was hit by lightning

223

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

in the hills outside Keystone, Colorado.

224

00:12:33,000 --> 00:12:36,000

A bolt of lightning taken straight in the chest.

225

00:12:36,000 --> 00:12:38,000

It just came out of nowhere.

226

00:12:38,000 --> 00:12:42,000

The direct hit traveled all the way through Matt's body.

227

00:12:42,000 --> 00:12:44,000

I had no clue what happened.

228

00:12:44,000 --> 00:12:46,000

Matt's story was big news.

229

00:12:46,000 --> 00:12:49,000

On websites worldwide, the issue was raging.

230

00:12:49,000 --> 00:12:51,000

Matt, you almost died.

231

00:12:51,000 --> 00:12:54,000

Was Matt's metal tongue stud the reason he was struck?

232

00:12:54,000 --> 00:12:55,000

So my tongue ring.

233

00:12:55,000 --> 00:12:58,000

Oh, no, dude, you might have swallowed it.

234

00:12:58,000 --> 00:13:00,000

Where's your tongue? Let's see.

235

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

Oh, it's broken off in there, it looks like.

236

00:13:03,000 --> 00:13:06,000

Body jewelry attracting lightning strikes?

237

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

This looks like a job for the Mythbusters.

238

00:13:15,000 --> 00:13:19,000

The myth is that wearing a tongue stud increases your chances of being struck by lightning.

239

00:13:19,000 --> 00:13:22,000

So what kind of cockamamie theory is this?

240

00:13:22,000 --> 00:13:28,000

Well, this cockamamie theory says that the lightning bolt is being attracted directly to it.

241

00:13:28,000 --> 00:13:29,000

Like a lightning rod?

242

00:13:29,000 --> 00:13:31,000

Yeah, exactly.

243

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

It sounds kind of silly.

244

00:13:34,000 --> 00:13:36,000

Being loaded into an ambulance with a fried tongue,

245

00:13:36,000 --> 00:13:39,000

you can bet Matt Thompson didn't think it was a silly myth.

246

00:13:39,000 --> 00:13:42,000

Still, the boys are skeptical.

247

00:13:42,000 --> 00:13:46,000

It's obvious that jewelry does affect your body if you get struck by lightning,

248

00:13:46,000 --> 00:13:48,000

but the question still remains.

249

00:13:48,000 --> 00:13:50,000

Does it increase your chances of being struck by lightning?

250

00:13:50,000 --> 00:13:52,000

For the tongue stud lightning test,

251

00:13:52,000 --> 00:13:57,000

two heads made from ballistics gel will be mounted near a lightning generator.

252

00:13:57,000 --> 00:14:01,000

One of the heads will be pierced with metal studs.

253

00:14:01,000 --> 00:14:05,000

Adam and Jamie want to know which head the charge jumps to.

254

00:14:05,000 --> 00:14:06,000

That'll be fun.

255

00:14:06,000 --> 00:14:08,000

Well, that's definitely why we're doing this.

256

00:14:08,000 --> 00:14:12,000

The first job is to build a rig that will attract lightning.

257

00:14:12,000 --> 00:14:15,000

They need something big, metal, and round.

258

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

Here we are.

259

00:14:16,000 --> 00:14:17,000

That's them.

260

00:14:17,000 --> 00:14:18,000

What, these?

261

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

Yeah.

262

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

Oh, okay.

263

00:14:20,000 --> 00:14:24,000

Well, we're using walks because the round surface of a walk is a perfect thing to test

264

00:14:24,000 --> 00:14:29,000

in an electrical field around because it doesn't have any point that can gather the electricity to a single point.

265

00:14:29,000 --> 00:14:31,000

Seven, eight.

266

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

It's like they knew we were coming.

267

00:14:33,000 --> 00:14:35,000

I can imagine that.

268

00:14:38,000 --> 00:14:41,000

Oh, hell, I don't like to get those out of there.

269

00:14:41,000 --> 00:14:45,000

Back at the workshop, while Jamie grapples with removing the walk handles,

270

00:14:45,000 --> 00:14:48,000

Adam is going into reproduction mode.

271

00:14:48,000 --> 00:14:54,000

I am going to take this casting of my head, and it is me, I swear,

272

00:14:54,000 --> 00:14:59,000

and I'm going to fill it with some rigid foam so I can cut it in half

273

00:14:59,000 --> 00:15:03,000

and turn it into a vacuform mold to make a bunch of ballistic gel heads.

274

00:15:06,000 --> 00:15:08,000

This is where things start to happen kind of fast.

275

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

There's a point at which it gets clear again.

276

00:15:12,000 --> 00:15:13,000

There, see?

277

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

Now it turns dark.

278

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

That's just about to bubble.

279

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

That's the trick.

280

00:15:18,000 --> 00:15:20,000

If you look in here, we can watch it.

281

00:15:20,000 --> 00:15:22,000

It's going to blow all the way up.

282

00:15:22,000 --> 00:15:23,000

Isn't that amazing?

283

00:15:23,000 --> 00:15:25,000

Oh, look at this. Here it comes.

284

00:15:28,000 --> 00:15:30,000

All right, so I mixed too much.

285

00:15:30,000 --> 00:15:34,000

Jamie, ahead of schedule, has found time for art.

286

00:15:34,000 --> 00:15:36,000

I don't know what it is, but it's pretty.

287

00:15:36,000 --> 00:15:38,000

It's like a big steel tulip.

288

00:15:41,000 --> 00:15:44,000

Adam, meanwhile, has a solid base for his mold.

289

00:15:44,000 --> 00:15:47,000

There is something strangely satisfying about that.

290

00:15:47,000 --> 00:15:51,000

But getting the plastic shell to form is proving to be a headache.

291

00:15:51,000 --> 00:15:53,000

No, no, come on.

292

00:15:56,000 --> 00:15:58,000

Adam's really hard on my tools.

293

00:15:58,000 --> 00:16:01,000

He'll tend to plow through things without thinking.

294

00:16:08,000 --> 00:16:09,000

I hate this frame.

295

00:16:09,000 --> 00:16:11,000

It's ripping my fingers to shreds.

296

00:16:11,000 --> 00:16:14,000

A little more comfort in your design.

297

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

That's all I want.

298

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

It'll toughen your fingers up. It's good for you.

299

00:16:18,000 --> 00:16:20,000

You, my fingers don't need toughening.

300

00:16:23,000 --> 00:16:25,000

Let's see if it still fits.

301

00:16:26,000 --> 00:16:27,000

No, that doesn't fit.

302

00:16:27,000 --> 00:16:30,000

My head's gotten fatter in the intervening years.

303

00:16:30,000 --> 00:16:32,000

As if nobody knew that.

304

00:16:34,000 --> 00:16:37,000

All right, let's go do another nine.

305

00:16:40,000 --> 00:16:44,000

Jamie is attaching inverted walks to the tops of metal rods.

306

00:16:44,000 --> 00:16:50,000

A non-conductive plexiglass spike will protrude above each watt to hold the dummy's head.

307

00:16:51,000 --> 00:16:54,000

Adam has finally created ten head molds.

308

00:16:54,000 --> 00:16:59,000

They need more than two in case the high-voltage strike blows them apart.

309

00:16:59,000 --> 00:17:05,000

They'll be filled with ballistic gel and will mimic the electrical conductivity of the human head.

310

00:17:05,000 --> 00:17:07,000

Smart work.

311

00:17:07,000 --> 00:17:10,000

But Adam's about to do something not so bright.

312

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

To get into the spirit of this myth, he's volunteered to get his own tongue pierced.

313

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

Hi, are you Joey?

314

00:17:22,000 --> 00:17:23,000

Yeah, hi.

315

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

I'm Adam.

316

00:17:24,000 --> 00:17:25,000

Nice to meet you, Adam.

317

00:17:25,000 --> 00:17:26,000

Jamie.

318

00:17:26,000 --> 00:17:27,000

Hey, Jamie, how you doing?

319

00:17:27,000 --> 00:17:28,000

Good.

320

00:17:28,000 --> 00:17:29,000

I'm here to get a tongue piercing.

321

00:17:29,000 --> 00:17:30,000

Let's see your tongue.

322

00:17:31,000 --> 00:17:33,000

Yeah, we can put some jewelry in there for you.

323

00:17:33,000 --> 00:17:37,000

All right, have you ever heard any myths about tongue piercings?

324

00:17:37,000 --> 00:17:40,000

No, I've heard some realities about tongue piercings.

325

00:17:40,000 --> 00:17:41,000

I don't know about any myths.

326

00:17:41,000 --> 00:17:42,000

What do you have in mind?

327

00:17:42,000 --> 00:17:47,000

Well, there's a story going around about a woman in Britain who apparently was struck by lightning.

328

00:17:47,000 --> 00:17:50,000

And she said it was because she had a tongue piercing.

329

00:17:50,000 --> 00:17:51,000

Never heard that one.

330

00:17:51,000 --> 00:17:52,000

You never heard that one?

331

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

Never heard that one.

332

00:17:53,000 --> 00:17:55,000

You ever had any complaints of anyone struck by lightning?

333

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

None of my clients have ever been struck by lightning.

334

00:17:58,000 --> 00:18:03,000

So these are some of the basic beads that I have for you to choose from.

335

00:18:03,000 --> 00:18:07,000

Probably the most comfortable size to start with is this one right here.

336

00:18:07,000 --> 00:18:12,000

If you want to go with something a little fancier, it's possible to wear gemstones for it as well.

337

00:18:12,000 --> 00:18:15,000

So if you want to get really flash, you can wear something like that.

338

00:18:15,000 --> 00:18:17,000

What do you think, Jamie?

339

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

Should I go flash or plain?

340

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

I think you should go for maximum conductivity, actually.

341

00:18:22,000 --> 00:18:24,000

Yeah, I suppose you're right.

342

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

Do you have anything shaped like a little lightning rod?

343

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

No lightning rods, and we don't have any copper.

344

00:18:29,000 --> 00:18:31,000

I think you're going to have to go with the stainless steel.

345

00:18:31,000 --> 00:18:34,000

All right, the stainless steel ball about the size is exactly what I was thinking about.

346

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

Okay, that should be great.

347

00:18:36,000 --> 00:18:39,000

So why don't you come on in here.

348

00:18:39,000 --> 00:18:42,000

Have a seat on the dinosaur chair there.

349

00:18:42,000 --> 00:18:44,000

Do I get a lollipop when this is done?

350

00:18:44,000 --> 00:18:48,000

You do get a lollipop when this is done, but only if you earn it.

351

00:18:48,000 --> 00:18:51,000

He's just seen the needle.

352

00:18:51,000 --> 00:18:55,000

For once, atoms have a loss for words.

353

00:18:57,000 --> 00:19:02,000

All right, so you ready?

354

00:19:02,000 --> 00:19:05,000

It's very, very quick and very, very easy.

355

00:19:05,000 --> 00:19:07,000

You can set your glasses right there.

356

00:19:07,000 --> 00:19:10,000

What I want you to do is swallow one last time.

357

00:19:10,000 --> 00:19:12,000

Breathe easy.

358

00:19:12,000 --> 00:19:13,000

Give me your tongue.

359

00:19:13,000 --> 00:19:15,000

There you go.

360

00:19:15,000 --> 00:19:16,000

This won't hurt you at all.

361

00:19:16,000 --> 00:19:17,000

I'm not going to pull on you.

362

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

I just want to make sure I got you right where I need you.

363

00:19:21,000 --> 00:19:23,000

Piercing is real quick.

364

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

I'm just getting lined up.

365

00:19:25,000 --> 00:19:26,000

Here you go.

366

00:19:26,000 --> 00:19:28,000

Give me a breath in and out.

367

00:19:28,000 --> 00:19:29,000

You're done.

368

00:19:29,000 --> 00:19:31,000

Jewelry's in.

369

00:19:31,000 --> 00:19:34,000

I'm going to take the clamp off and screw the bead on the bottom,

370

00:19:34,000 --> 00:19:35,000

but it won't hurt you.

371

00:19:35,000 --> 00:19:36,000

You're absolutely done.

372

00:19:36,000 --> 00:19:38,000

Let me just make sure the beads are tight.

373

00:19:38,000 --> 00:19:40,000

You can have your tongue back.

374

00:19:40,000 --> 00:19:41,000

There you go.

375

00:19:41,000 --> 00:19:42,000

You're done.

376

00:19:44,000 --> 00:19:46,000

I'm all right.

377

00:19:46,000 --> 00:19:49,000

That was not so bad.

378

00:19:49,000 --> 00:19:51,000

But now I'm talking all funny.

379

00:19:51,000 --> 00:19:55,000

Feels like I got a barbell stuck in my tongue, man.

380

00:19:55,000 --> 00:19:59,000

Ah, ah, how about that?

381

00:19:59,000 --> 00:20:03,000

She sells seashells by the sea shore.

382

00:20:03,000 --> 00:20:10,000

Coming up, two heads are better than one when it comes to testing this myth.

383

00:20:10,000 --> 00:20:14,000

It just goes to show, you know, don't put any really big bolts in your mouth

384

00:20:14,000 --> 00:20:16,000

during the thunderstorm.

385

00:20:23,000 --> 00:20:28,000

In August 2003, Matt Thompson was struck by lightning in Colorado.

386

00:20:28,000 --> 00:20:29,000

It's my tongue ring.

387

00:20:29,000 --> 00:20:30,000

It's my nose.

388

00:20:30,000 --> 00:20:31,000

I don't know, dude.

389

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

Once the lightning attracted to his metal tongue piercing.

390

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

Oh, it's broken off in there, it looks like.

391

00:20:37,000 --> 00:20:41,000

To test the myth that body jewelry increases your chance of being struck,

392

00:20:41,000 --> 00:20:45,000

Adam and Jamie have enlisted the help of Delta Star West.

393

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

They manufacture industrial grade electrical machinery.

394

00:20:49,000 --> 00:20:52,000

They still feel nice and cool.

395

00:20:52,000 --> 00:20:56,000

Adam's freshly made gelatin heads are the focal points.

396

00:20:56,000 --> 00:20:59,000

He has to suffer as much as I have.

397

00:20:59,000 --> 00:21:03,000

A metal stud expertly fitted to one dummy's lower lip.

398

00:21:03,000 --> 00:21:06,000

He should have been a surgeon.

399

00:21:06,000 --> 00:21:10,000

All right, let's see how it does.

400

00:21:10,000 --> 00:21:15,000

We have this gigantic bank of capacitors, which creates over a million volts at

401

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

something like a thousand amps.

402

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

And it's sending electricity across this wire through this electrode.

403

00:21:22,000 --> 00:21:29,000

And these heads, which are grounded, will complete the circuit.

404

00:21:29,000 --> 00:21:33,000

Real lightning can be over a hundred million volts.

405

00:21:33,000 --> 00:21:36,000

It kills about 100 Americans a year.

406

00:21:36,000 --> 00:21:41,000

This million volt jolt would still turn you into toast.

407

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

Everyone's keeping a safe distance.

408

00:21:44,000 --> 00:21:46,000

We're good.

409

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

The lightning will discharge into one of the heads.

410

00:21:49,000 --> 00:21:53,000

It takes just a fraction of a second.

411

00:21:53,000 --> 00:21:55,000

It's hit the head on the right.

412

00:21:55,000 --> 00:21:58,000

You can see it in freeze frame.

413

00:22:01,000 --> 00:22:05,000

Here it is again on high speed camera.

414

00:22:05,000 --> 00:22:08,000

Well, it went to the one without the barbell in it.

415

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

It did.

416

00:22:10,000 --> 00:22:13,000

We learned a couple of really important things from the first test.

417

00:22:13,000 --> 00:22:18,000

And the first thing was that the lightning bolt went to the top of the head

418

00:22:18,000 --> 00:22:24,000

and no place else on the electrode, which tells us that our rig is nicely set up.

419

00:22:24,000 --> 00:22:26,000

It's pretty neutral.

420

00:22:26,000 --> 00:22:31,000

And we are getting current to go through the head itself and not through the steel.

421

00:22:31,000 --> 00:22:33,000

But the testing has just started.

422

00:22:33,000 --> 00:22:39,000

In the interests of accuracy, they move each head to the opposite spike.

423

00:22:39,000 --> 00:22:42,000

We're just doing a control by swapping the heads on the rig

424

00:22:42,000 --> 00:22:47,000

and making sure that the rig doesn't prefer one direction or the other.

425

00:22:49,000 --> 00:22:54,000

This time it hit the stud head.

426

00:22:54,000 --> 00:22:59,000

Well, you know, one, I think really important thing that I just saw was,

427

00:22:59,000 --> 00:23:02,000

I guess I was focusing in the right place at the right time.

428

00:23:02,000 --> 00:23:08,000

I saw the lightning bolt travel down like this and it went right along this pathway.

429

00:23:08,000 --> 00:23:10,000

It did not go to that.

430

00:23:10,000 --> 00:23:15,000

So even in the head, if this wasn't a track then, you know, thing for the lightning bolt,

431

00:23:15,000 --> 00:23:19,000

it would have gone there and down or something like that.

432

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

It didn't. I clearly saw it take a pathway right down to the top of this.

433

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

We're good to go in another shot.

434

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

So the lightning hit the head, but not the stud.

435

00:23:31,000 --> 00:23:33,000

Same thing.

436

00:23:33,000 --> 00:23:35,000

Yeah, I saw that too.

437

00:23:35,000 --> 00:23:39,000

Interesting that it really doesn't do anything to the gelatin that we can see.

438

00:23:39,000 --> 00:23:41,000

Truly.

439

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

So that's two strikes to the pierced head, one to the control head.

440

00:23:45,000 --> 00:23:48,000

Will swapping them back make a difference?

441

00:23:53,000 --> 00:23:58,000

It's the pierced head again, but a confusing pattern is emerging.

442

00:23:58,000 --> 00:24:03,000

The charge often goes to the piercing side, but it never seems to touch the metal.

443

00:24:03,000 --> 00:24:09,000

The mythbusters won't be satisfied until they can see the lightning hit the stud directly.

444

00:24:09,000 --> 00:24:12,000

You know, we've now run this a dozen times or more.

445

00:24:12,000 --> 00:24:15,000

The heads are working perfectly. The rig is working great.

446

00:24:15,000 --> 00:24:18,000

We're getting consistent strikes always to the top of the head.

447

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

Not once has the lightning gone right for the stud.

448

00:24:21,000 --> 00:24:26,000

Yeah, you know, I mean, all we've got left to do is put a bunch of studs in there.

449

00:24:26,000 --> 00:24:30,000

Some really big ones maybe. See what happens. See if we can get something to react to them.

450

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

Let's fire it up.

451

00:24:40,000 --> 00:24:42,000

It went to the head with the studs in it.

452

00:24:42,000 --> 00:24:45,000

Still didn't touch the studs. Went right down through the metal.

453

00:24:47,000 --> 00:24:50,000

Maybe even more metal.

454

00:24:50,000 --> 00:24:56,000

Of course, if your tongue piercing is this big, lightning is the least of your worries.

455

00:25:01,000 --> 00:25:05,000

I'd say I'd go into the top of the head and go out to the bolt and back in.

456

00:25:05,000 --> 00:25:10,000

It just goes to show you don't put any really big bolts in your mouth during the thunderstorm.

457

00:25:12,000 --> 00:25:16,000

Finally, a test for the mother of all studs.

458

00:25:16,000 --> 00:25:18,000

Oh, cheek piercing there.

459

00:25:18,000 --> 00:25:24,000

It's unlikely to catch on at many nightclubs, though it might just help you get in the door.

460

00:25:26,000 --> 00:25:29,000

Will it attract lightning?

461

00:25:30,000 --> 00:25:35,000

At last, a direct hit.

462

00:25:38,000 --> 00:25:42,000

Well, that knocked a doorknob right out of his face.

463

00:25:42,000 --> 00:25:46,000

The mythbusters are unconvinced that studs attract lightning.

464

00:25:46,000 --> 00:25:50,000

While the zap did seem to prefer the head with the piercing,

465

00:25:50,000 --> 00:25:56,000

a lack of consistent direct hits suggests some other unknown factor was involved.

466

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

We could have done this a thousand times and still not gotten that same result.

467

00:26:03,000 --> 00:26:06,000

Lightning is just really unpredictable.

468

00:26:06,000 --> 00:26:10,000

That might be the case, Jimmy, but we do know that metal does have an effect,

469

00:26:10,000 --> 00:26:14,000

depending on how much of it there is and where it is on the body.

470

00:26:14,000 --> 00:26:19,000

And we did get a strike right to the doorknob, but come on, who wears a doorknob?

471

00:26:19,000 --> 00:26:25,000

The only thing this myth has shown the guys for sure is that Adam's wild days are over.

472

00:26:30,000 --> 00:26:35,000

Oh, that happened.

473

00:26:35,000 --> 00:26:39,000

Oh, God, that was horrible.

474

00:26:39,000 --> 00:26:43,000

Ah, there we go, my tongue is free.

475

00:26:43,000 --> 00:26:48,000

Coming up next on Mythbusters, we put those pesky microwave legends to the test.

476

00:26:48,000 --> 00:26:50,000

Every last one of them.

477

00:26:50,000 --> 00:26:53,000

Is your cookie in here? Get your cookies.

478

00:26:53,000 --> 00:26:55,000

Is it down here or is your cookie?

479

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

The humble microwave oven.

480

00:27:02,000 --> 00:27:08,000

Is it a handy cooking device or mysterious machine with dark and frightening powers?

481

00:27:08,000 --> 00:27:12,000

Microwaves just seem to be magnets for urban legends,

482

00:27:12,000 --> 00:27:15,000

so we're going to put some of the main ones to the test.

483

00:27:20,000 --> 00:27:22,000

Whoa! You are the man.

484

00:27:23,000 --> 00:27:26,000

Of all the myths surrounding the microwave oven,

485

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

none is more famous than the story of the poodle

486

00:27:29,000 --> 00:27:32,000

sent for a spin in a microwave to dry its fur.

487

00:27:32,000 --> 00:27:35,000

The result? One hot dog.

488

00:27:35,000 --> 00:27:39,000

Well, meet Jazzy, a two-year-old show poodle.

489

00:27:39,000 --> 00:27:43,000

Jazzy's being groomed for her Mythbusters guest appearance,

490

00:27:43,000 --> 00:27:46,000

so we'll come back later to check how she's doing.

491

00:27:46,000 --> 00:27:49,000

Apart from testing these new microwave ovens,

492

00:27:49,000 --> 00:27:53,000

Jamie also wants to build the microwave oven from hell.

493

00:27:53,000 --> 00:27:57,000

Let's take a moment to find out how microwaves actually work.

494

00:27:57,000 --> 00:28:00,000

A microwave oven uses radio waves to cook food.

495

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

A device called a magnetron

496

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

bombards the inside of the oven with radio waves,

497

00:28:05,000 --> 00:28:08,000

which react with water molecules in the food,

498

00:28:08,000 --> 00:28:11,000

causing them to vibrate at enormous speed.

499

00:28:11,000 --> 00:28:16,000

That friction creates heat, which is a very important element of the microwave oven.

500

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

In the early days, it was hailed as a revolutionary kitchen convenience.

501

00:28:20,000 --> 00:28:22,000

It's a family-sized turkey.

502

00:28:22,000 --> 00:28:25,000

675 watts of cooking power means faster cooking

503

00:28:25,000 --> 00:28:27,000

than most other microwave ovens.

504

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

This store has been selling microwaves ever since those heady times.

505

00:28:31,000 --> 00:28:34,000

The main thing I'm interested in personally is raw power.

506

00:28:34,000 --> 00:28:38,000

Well, the average microwave today is about 1,100 watts.

507

00:28:38,000 --> 00:28:41,000

The average microwave is about 1,000 watts.

508

00:28:41,000 --> 00:28:44,000

The average microwave is about 1,000 watts.

509

00:28:44,000 --> 00:28:47,000

The average microwave today is about 1,100 watts.

510

00:28:47,000 --> 00:28:50,000

But you can go up from there or you can go down from there.

511

00:28:50,000 --> 00:28:53,000

How many people are going to be using the oven?

512

00:28:53,000 --> 00:28:56,000

One very strange television show.

513

00:28:56,000 --> 00:28:58,000

Just one.

514

00:28:58,000 --> 00:29:00,000

Is this the soul of the microwave oven?

515

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

Or the heart of the microwave.

516

00:29:02,000 --> 00:29:05,000

This is a little radio transmitter,

517

00:29:05,000 --> 00:29:09,000

and you plug it in and it converts it to DC voltage

518

00:29:09,000 --> 00:29:12,000

and out comes the microwave.

519

00:29:12,000 --> 00:29:16,000

It looks like Jamie's suffering a little microwave madness.

520

00:29:16,000 --> 00:29:18,000

Sorry.

521

00:29:18,000 --> 00:29:20,000

Did you get enough, Jamie?

522

00:29:20,000 --> 00:29:23,000

Microwaves are really cool. They're like X-ray guns.

523

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

And I think the same thing that makes people afraid of them

524

00:29:26,000 --> 00:29:28,000

and makes them generate a lot of myths about them

525

00:29:28,000 --> 00:29:30,000

is what's always fascinated me.

526

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

I'm going to make this super powerful microwave gun

527

00:29:34,000 --> 00:29:37,000

that I can heat things up or roll around in my shop with.

528

00:29:37,000 --> 00:29:40,000

And that for me is a lot of fun.

529

00:29:40,000 --> 00:29:43,000

I think he wants to take apart all these microwaves

530

00:29:43,000 --> 00:29:46,000

and make some kind of super microwave.

531

00:29:46,000 --> 00:29:49,000

And I don't know if he's planned on shielding or anything,

532

00:29:49,000 --> 00:29:52,000

but I don't necessarily want to be in the building when he does it.

533

00:29:52,000 --> 00:29:56,000

Back at the workshop, it's time to test microwave myth number two.

534

00:29:56,000 --> 00:30:00,000

That microwaving metal makes the oven explode.

535

00:30:00,000 --> 00:30:04,000

Adam and Jamie are going to microwave several metal objects.

536

00:30:04,000 --> 00:30:07,000

Just in case something dramatic does occur,

537

00:30:07,000 --> 00:30:10,000

we'll watch from behind a Lexan shield.

538

00:30:10,000 --> 00:30:12,000

Lexan is a bulletproof material

539

00:30:12,000 --> 00:30:15,000

used in the windshields of NASCAR.

540

00:30:15,000 --> 00:30:18,000

It's time for the first metallic test subject.

541

00:30:22,000 --> 00:30:24,000

Now, nothing happening there.

542

00:30:24,000 --> 00:30:26,000

Spoon's been in there for two minutes. I don't see nothing.

543

00:30:26,000 --> 00:30:28,000

Turn it off.

544

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

So, I mean...

545

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

I'm guessing it.

546

00:30:34,000 --> 00:30:36,000

The spoon was really hot.

547

00:30:36,000 --> 00:30:39,000

That spoon was really hot, but I didn't do anything.

548

00:30:39,000 --> 00:30:43,000

I mean, didn't arc, it didn't like, buzz or, you know, all that stuff.

549

00:30:43,000 --> 00:30:46,000

Something else from the silverware drawer, perhaps?

550

00:30:46,000 --> 00:30:48,000

It's working the microwave.

551

00:30:50,000 --> 00:30:54,000

Maybe the sharp prongs will cause sparks to fly.

552

00:30:54,000 --> 00:30:56,000

Oh, yeah, that's true.

553

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

Not a thing.

554

00:30:58,000 --> 00:31:02,000

Adam and Jamie have heard that tinfoil scrunched into a ball can have an effect.

555

00:31:02,000 --> 00:31:04,000

Oh, that's cool!

556

00:31:04,000 --> 00:31:06,000

It looks like something got a star trek.

557

00:31:06,000 --> 00:31:08,000

It's beautiful, actually.

558

00:31:08,000 --> 00:31:11,000

Now, that's interesting.

559

00:31:11,000 --> 00:31:15,000

The microwaves are causing an electric charge to build up in the metal.

560

00:31:15,000 --> 00:31:19,000

Scrunching the foil allows the charge to jump the gaps.

561

00:31:19,000 --> 00:31:24,000

Jamie tries again, this time folding the foil into an accordion shape.

562

00:31:24,000 --> 00:31:26,000

Whoa!

563

00:31:26,000 --> 00:31:29,000

The Heinemann with the precognitive technique.

564

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

Look at that!

565

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

That's the best.

566

00:31:32,000 --> 00:31:34,000

Dude, you are the man!

567

00:31:34,000 --> 00:31:36,000

It's just going...

568

00:31:36,000 --> 00:31:38,000

Spectacular, yes.

569

00:31:38,000 --> 00:31:40,000

But explosive? No.

570

00:31:40,000 --> 00:31:42,000

A warning, though.

571

00:31:42,000 --> 00:31:46,000

Microwaving metal might result in magnetron meltdown.

572

00:31:46,000 --> 00:31:49,000

So, metal in a microwave. Is it true or is it false?

573

00:31:49,000 --> 00:31:52,000

Well, that's false with provisions.

574

00:31:52,000 --> 00:31:58,000

Only in the case of an object that is made out of metal that is contacting the sides,

575

00:31:58,000 --> 00:32:03,000

it creates marking there that would feed back into the magnetron and reduce its lifespan.

576

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

Busted.

577

00:32:06,000 --> 00:32:08,000

What's Jamie up to?

578

00:32:08,000 --> 00:32:10,000

Does he have a screw loose?

579

00:32:10,000 --> 00:32:14,000

Jamie's harvested the magnetrons from four microwaves.

580

00:32:17,000 --> 00:32:21,000

Looks like he's serious about building that super microwave machine.

581

00:32:21,000 --> 00:32:23,000

Scary stuff.

582

00:32:23,000 --> 00:32:24,000

Microwave oven!

583

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

It's time now for Adam and Jamie to investigate a microwave myth that is potentially lethal.

584

00:32:34,000 --> 00:32:40,000

If you overheat water in a microwave, you may take the cup out of the bowl and then the water is going to explode in your face,

585

00:32:40,000 --> 00:32:43,000

injuring you or burning you in some horrific way.

586

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

We're going to time how long it takes to bubble.

587

00:32:46,000 --> 00:32:52,000

After a little research, Adam and Jamie know that the only way water could explode is if it's being super heated.

588

00:32:52,000 --> 00:32:57,000

That is, heated beyond boiling point, without actually boiling.

589

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

Tap water always boils because it has impurities.

590

00:33:01,000 --> 00:33:04,000

Distilled water has no impurities.

591

00:33:04,000 --> 00:33:06,000

That means no boiling.

592

00:33:06,000 --> 00:33:11,000

They put two cups of water in the microwave, one distilled, one tap.

593

00:33:11,000 --> 00:33:16,000

When the tap water boils, they'll know that the distilled water has become super heated.

594

00:33:17,000 --> 00:33:23,000

Just dropping in a sugar cube should make the boiling process happen instantly and violently.

595

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

Spectacular!

596

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

That would suffice.

597

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

That was exploding water?

598

00:33:35,000 --> 00:33:37,000

It erupted, it left the container.

599

00:33:37,000 --> 00:33:38,000

Yeah?

600

00:33:38,000 --> 00:33:39,000

Quite a bit of it.

601

00:33:39,000 --> 00:33:43,000

If someone were holding the cup, they would definitely have severe burns.

602

00:33:44,000 --> 00:33:51,000

But if straight tap water can't explode, how likely is it that people will be scalded by exploding beverages?

603

00:33:51,000 --> 00:33:54,000

On your average day in your average house, it's not very likely.

604

00:33:54,000 --> 00:33:59,000

However, with the hundreds of millions of people using microwaves every day to boil water, re-boil water,

605

00:33:59,000 --> 00:34:02,000

I'd say it could happen a few times a year around the world.

606

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

Uh, miss absolutely true.

607

00:34:08,000 --> 00:34:12,000

Finally, Jamie's finished playing Dr. Frankenstein.

608

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

What we have here is a super-duper microwave oven.

609

00:34:14,000 --> 00:34:21,000

I've taken the guts out of four microwaves, the magnetrons, and I've put them in a box,

610

00:34:21,000 --> 00:34:24,000

all aiming at a single glass of water.

611

00:34:24,000 --> 00:34:30,000

So, in theory, this should heat up that glass of water about four times as fast as a regular microwave would.

612

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

Maybe it'll just go, pfft, we'll find out.

613

00:34:35,000 --> 00:34:40,000

Jamie, I'm ready to test this infernal machine of yours, but could you wrap me up a little more?

614

00:34:40,000 --> 00:34:42,000

I don't feel quite safe yet.

615

00:34:42,000 --> 00:34:44,000

What are you, a turkey?

616

00:34:48,000 --> 00:34:51,000

I wouldn't say Jamie's an evil genius.

617

00:34:51,000 --> 00:34:53,000

I know, this could be a wonderful mousetrap.

618

00:34:53,000 --> 00:34:57,000

I'm not sure he's evil and I'm not sure he's a genius, but uh...

619

00:34:57,000 --> 00:35:01,000

We're ready for a mega-microwave test-firing.

620

00:35:01,000 --> 00:35:02,000

About 30 seconds.

621

00:35:02,000 --> 00:35:04,000

Jamie flicks the switch.

622

00:35:04,000 --> 00:35:06,000

The room's filled with an angry buzz.

623

00:35:06,000 --> 00:35:08,000

How come my watch has stopped?

624

00:35:08,000 --> 00:35:10,000

I'm gonna give it.

625

00:35:10,000 --> 00:35:13,000

What on earth is happening behind those metal walls?

626

00:35:13,000 --> 00:35:15,000

Let's put the temperature probe in.

627

00:35:20,000 --> 00:35:22,000

That doesn't look like it's boiling.

628

00:35:22,000 --> 00:35:24,000

No, in fact, 66 degrees.

629

00:35:24,000 --> 00:35:28,000

You've... you've made a refrigerator.

630

00:35:28,000 --> 00:35:29,000

That's amazing.

631

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

For all that humming, you ended up with bupkus.

632

00:35:32,000 --> 00:35:36,000

Looks like that's the evil genius theory out the window.

633

00:35:36,000 --> 00:35:41,000

Time for the final myth, the famous poodle in the microwave.

634

00:35:41,000 --> 00:35:44,000

It's the moment of truth for our guest star, Jazzy,

635

00:35:44,000 --> 00:35:47,000

who's been crimped and preened to perfection.

636

00:35:47,000 --> 00:35:49,000

Or is it?

637

00:35:49,000 --> 00:35:52,000

There's some things that even we on Mythbusters can't do,

638

00:35:52,000 --> 00:35:54,000

and I think this is one of them.

639

00:35:54,000 --> 00:35:57,000

There's just no way that we could put a poodle in a microwave.

640

00:35:57,000 --> 00:36:00,000

It might dry our hair, but it killed the dog.

641

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

Fortunately for the viewers, this one's just gonna have to remain a legend.

642

00:36:07,000 --> 00:36:13,000

Coming up is O'Malley, phasing a certain shocking end.

643

00:36:13,000 --> 00:36:17,000

And three, two, one.

644

00:36:25,000 --> 00:36:29,000

Jamie and Adam have rolled into the Golden Gate Railway Museum

645

00:36:29,000 --> 00:36:32,000

to test the myth about the guy who died the nastiest of deaths,

646

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

relieving himself on an electrified third rail.

647

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

Usually when you hear the narrative, the guy has a name.

648

00:36:39,000 --> 00:36:43,000

It's Joseph Patrick O'Malley, a more Irish name you couldn't get.

649

00:36:43,000 --> 00:36:46,000

O'Malley is in for a rough time.

650

00:36:46,000 --> 00:36:51,000

He's been built with the same electrical properties as the human body.

651

00:36:51,000 --> 00:36:54,000

The plan is to wire him up so that if the myth is true,

652

00:36:54,000 --> 00:36:58,000

current will run from the third rail up his urine stream

653

00:36:58,000 --> 00:37:01,000

and trigger an electric release switch,

654

00:37:01,000 --> 00:37:03,000

knocking him over backwards.

655

00:37:03,000 --> 00:37:06,000

The current by then will be exiting his feet.

656

00:37:06,000 --> 00:37:10,000

There's no third rail here, so they'll build their own,

657

00:37:10,000 --> 00:37:16,000

attaching a section of track to a 650-volt transformer.

658

00:37:16,000 --> 00:37:22,000

And once in position, there's the delicate, but most important issue.

659

00:37:22,000 --> 00:37:23,000

Perfect.

660

00:37:23,000 --> 00:37:26,000

Adam, is your bladder ready to do the real thing?

661

00:37:26,000 --> 00:37:29,000

Yeah, we've got it set up basically the way we think it would be set up in real life,

662

00:37:29,000 --> 00:37:31,000

the way someone would actually happen across the situation.

663

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

It's a dry day, the ground is dry, our subject is wearing normal rubber-soled shoes.

664

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

He's having a wee on the rail, there's no wires around him.

665

00:37:41,000 --> 00:37:45,000

We'll electrify the rail and we'll see what happens to him.

666

00:37:45,000 --> 00:37:49,000

The guys will stand on a rubber mat to insulate them.

667

00:37:49,000 --> 00:37:54,000

O'Malley, well, he probably wishes he'd had that drink.

668

00:37:54,000 --> 00:37:56,000

The electric release is like a human heart.

669

00:37:56,000 --> 00:38:00,000

If it's triggered, he's a dead man.

670

00:38:04,000 --> 00:38:06,000

Let's make this set hot.

671

00:38:06,000 --> 00:38:07,000

Hot set.

672

00:38:07,000 --> 00:38:10,000

Three, two, one.

673

00:38:10,000 --> 00:38:23,000

Nothing.

674

00:38:23,000 --> 00:38:25,000

The release wasn't triggered.

675

00:38:25,000 --> 00:38:28,000

O'Malley lives another day.

676

00:38:28,000 --> 00:38:30,000

Adam's putting on a brave face.

677

00:38:30,000 --> 00:38:32,000

That's exactly what I expected.

678

00:38:32,000 --> 00:38:39,000

He's got rubber-soled shoes, he's on dry ground, there's no way a mere 600 volts is going to arc through his shoes.

679

00:38:41,000 --> 00:38:44,000

But there's life in this myth yet.

680

00:38:44,000 --> 00:38:47,000

Maybe it was a rainy night, the guys' shoes were wet.

681

00:38:47,000 --> 00:38:51,000

That would help complete the circuit with the ground.

682

00:38:51,000 --> 00:38:53,000

Battery charging.

683

00:38:53,000 --> 00:38:56,000

We're electrified, here we go.

684

00:39:01,000 --> 00:39:03,000

Nothing.

685

00:39:03,000 --> 00:39:05,000

Not a thing.

686

00:39:05,000 --> 00:39:07,000

Damn.

687

00:39:07,000 --> 00:39:10,000

I can feel he needs to see a doctor.

688

00:39:10,000 --> 00:39:11,000

Set is cool.

689

00:39:11,000 --> 00:39:16,000

Jamie, dry shoes didn't work, wet shoes, wet ground didn't work, what's next?

690

00:39:16,000 --> 00:39:20,000

Well, I guess the only thing left is to take his shoes off and we'll assume he's barefoot.

691

00:39:20,000 --> 00:39:22,000

Okay.

692

00:39:22,000 --> 00:39:24,000

Okay, there's two.

693

00:39:27,000 --> 00:39:31,000

Stumbling around the train yard late at night looking for a place to pee barefoot.

694

00:39:31,000 --> 00:39:33,000

All right, are we good?

695

00:39:33,000 --> 00:39:35,000

Hot set.

696

00:39:35,000 --> 00:39:37,000

Here we go.

697

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

Nope, there's no connection going.

698

00:39:42,000 --> 00:39:47,000

The guys are starting to suspect the problem isn't in the feet, but the urine stream.

699

00:39:47,000 --> 00:39:50,000

Perhaps it's not carrying the current.

700

00:39:50,000 --> 00:39:54,000

Yeah, it looks like those are not performing a solid stream.

701

00:39:54,000 --> 00:39:56,000

Yeah.

702

00:39:56,000 --> 00:40:02,000

Sure enough, by the time the urine reaches the rail, it's broken into separate drops.

703

00:40:02,000 --> 00:40:05,000

It needs to be solid to carry a current.

704

00:40:05,000 --> 00:40:08,000

The guys might have a solution for that.

705

00:40:08,000 --> 00:40:11,000

The only thing we have left is to try a larger stream of urine.

706

00:40:11,000 --> 00:40:17,000

You know, maybe that'll be more likely to create a continuous connection there with the ground.

707

00:40:17,000 --> 00:40:21,000

That's what we started out with, and that's where we're going.

708

00:40:21,000 --> 00:40:25,000

This could be the best day in O'Malley's life.

709

00:40:25,000 --> 00:40:27,000

Or the worst.

710

00:40:28,000 --> 00:40:31,000

The guys are hoping their luck will change.

711

00:40:31,000 --> 00:40:37,000

This is their last chance to prove the third rail myth is possible.

712

00:40:37,000 --> 00:40:42,000

We've gone with a more, perhaps, equestrian stream of urine.

713

00:40:42,000 --> 00:40:45,000

Hecadermian.

714

00:40:45,000 --> 00:40:48,000

I hope we get a continuous stream.

715

00:40:48,000 --> 00:40:50,000

I'd like to see this thing work.

716

00:40:50,000 --> 00:40:52,000

I'd like to watch it fall over.

717

00:40:52,000 --> 00:40:55,000

To be honest, I still don't think it's quite going to work.

718

00:40:56,000 --> 00:40:59,000

The ground is dried enough to safely try again.

719

00:40:59,000 --> 00:41:04,000

The larger and atomically dubious stream will stay solid longer.

720

00:41:04,000 --> 00:41:08,000

And they decided to give the myth another helping hand.

721

00:41:08,000 --> 00:41:10,000

Moving the rail closer.

722

00:41:10,000 --> 00:41:14,000

I always like to hold on tight to whatever I'm f***ing on.

723

00:41:16,000 --> 00:41:19,000

The bladder is full. The rail is set.

724

00:41:19,000 --> 00:41:24,000

The electrics are good. We're good for the close-up test.

725

00:41:24,000 --> 00:41:26,000

Powering up.

726

00:41:26,000 --> 00:41:27,000

Powering up.

727

00:41:27,000 --> 00:41:32,000

If this setup doesn't complete the circuit, trigger the release, and kill O'Malley,

728

00:41:32,000 --> 00:41:35,000

it will certainly kill the myth.

729

00:41:35,000 --> 00:41:40,000

Alright. And three, two, one.

730

00:41:46,000 --> 00:41:48,000

It worked.

731

00:41:48,000 --> 00:41:51,000

Yeah, man. Six inches away from the rail.

732

00:41:51,000 --> 00:41:57,000

It just goes to show, do not grab the third rail with both hands and f*** on it from three inches away.

733

00:41:57,000 --> 00:42:02,000

Oh, man. Wait a second. I've got to take a leak.

734

00:42:06,000 --> 00:42:08,000

I'd never make it in the show.

735

00:42:12,000 --> 00:42:16,000

It was tricky, but they've successfully jumped a current from the third rail

736

00:42:16,000 --> 00:42:20,000

up a stream of urine with lethal results.

737

00:42:22,000 --> 00:42:28,000

So after all the testing we did, Jamie, do you think it's possible to electrocute yourself by peeing on the third rail?

738

00:42:28,000 --> 00:42:32,000

Maybe given the right circumstances, it's raining, it's the ground's wet,

739

00:42:32,000 --> 00:42:37,000

it's shoes are wet, or maybe he's not wearing shoes. Could happen.

740

00:42:37,000 --> 00:42:44,000

In fact, there are no recorded cases of O'Malley or anyone else dying like this in the New York subway.

741

00:42:44,000 --> 00:42:48,000

Watching it break up in every stream that we've photographed

742

00:42:48,000 --> 00:42:51,000

just doesn't look like you could make a solid connection.

743

00:42:51,000 --> 00:42:53,000

I'd say that's a myth busted.

744

00:42:53,000 --> 00:42:56,000

Not that I'd be peeing on the third rail anytime soon.