

1

00:00:00,000 --> 00:00:02,520

experts that's right we do this for a living.

2

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

and stop a lethal samurai sword

3

00:00:35,400 --> 00:00:37,400

with their bare hands

4

00:00:44,080 --> 00:00:47,260

Who are the myth busters Adam Savage

5

00:00:49,320 --> 00:00:52,240

And Jamie Heineman almost too exciting

6

00:00:53,720 --> 00:00:57,480

Between them more than 30 years of special effects experience

7

00:00:57,840 --> 00:01:01,520

Hugh dramatic music joining them Carrie Byron

8

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

Grant imahara

9

00:01:06,120 --> 00:01:11,520

And Tori Bellachy her medics are nowhere to be found they don't just tell the myths

10

00:01:12,360 --> 00:01:14,480

They put them to the test

11

00:01:28,480 --> 00:01:35,840

Well, it looks like you finally got your dream show Adam. It's a whole episode devoted to ninjas

12

00:01:35,840 --> 00:01:37,840

I know it is so cool

13

00:01:37,920 --> 00:01:45,080

You can jump around make cat noises and karate chops and all sorts of adolescent behavior like we know you love to do

14

00:01:45,760 --> 00:01:47,760

I am so psyched about this one

15

00:01:49,760 --> 00:01:55,720

And so you want to go change into your outfit too now what makes you think I have a ninja costume

16

00:01:56,200 --> 00:01:59,760

I don't know something tells me let's look at some stock footage first

17

00:02:03,640 --> 00:02:09,200

The origin of legendary Japanese warriors the ninja is shrouded in mystery

18

00:02:10,920 --> 00:02:18,880

It's believed they were peasants who developed unorthodox combat techniques to defend themselves against the powerful samurai class

19

00:02:19,440 --> 00:02:25,340

Their skills were so extraordinary. They were reputed to border on being supernatural

20

00:02:26,080 --> 00:02:29,000

So what do we got well Jamie son?

21

00:02:29,000 --> 00:02:35,480

We are going to be testing ninjas agility strength reflexes and weaponry by putting their supposed

22

00:02:36,000 --> 00:02:40,320

Mythical skills to the test of modern science. You mean like catching an arrow

23

00:02:41,800 --> 00:02:47,880

Exactly and there's walking on water. What about the build team? They're gonna test whether you can stop a sword

24

00:02:48,400 --> 00:02:50,400

With only your bare hands

25

00:02:51,400 --> 00:02:56,520

Well, maybe we should start by trying to find a real ninja absolutely, let's go

26

00:02:59,760 --> 00:03:07,340

Fortunately modern-day ninjas aren't concerned about being covert and the guys find the bujinkan dojo in San Francisco

27

00:03:07,680 --> 00:03:13,680

Listed in the yellow pages. Okay, so let's play without to start with chief instructor Dale Segoe has been teaching

28

00:03:14,040 --> 00:03:17,480

Feudal battle skills here for more than 20 years. I don't

29

00:03:17,920 --> 00:03:19,920

Hi, hey Dale. Good to see you

30

00:03:20,520 --> 00:03:23,200

So this is an injury training going on. Yeah

31

00:03:23,400 --> 00:03:28,840

Well, this is all military close quarters combat stuff from Japan's pre-unification civil war period

32

00:03:28,840 --> 00:03:34,880

So like 1600 80 and before really the stuff that we do is based on timing positioning tactics and psychology

33

00:03:35,240 --> 00:03:40,400

Rather than speed and power. I was hoping you just show us like, you know, what an injured would do if I tried to attack

34

00:03:41,240 --> 00:03:44,640

Okay, is now the time to tell Adam Dale is

35

00:03:44,840 --> 00:03:47,580

15th Dan and there is no 16

36

00:03:48,200 --> 00:03:53,440

Hopefully Adam won't get hurt too bad. A little bit is good. Just do whatever

37

00:04:00,880 --> 00:04:06,040

Adam hits the mat in record time. I was to do it so that I locked him up

38

00:04:07,560 --> 00:04:14,320

As he falls Dale gives Adam some pointers on the way down with the famed ninja throwing star

39

00:04:14,320 --> 00:04:16,200

I wasn't actually using the point just this but it would

40

00:04:17,200 --> 00:04:22,040

Ripping out here. Yeah, we took him down. I had it in here to right in the back. That's good

41

00:04:22,040 --> 00:04:22,720

We fell down

42

00:04:22,720 --> 00:04:27,720

I was ripping across here and he came down at a point where he actually was landing on it like this on the back of his neck

43

00:04:28,480 --> 00:04:30,200

That's pretty efficient

44

00:04:30,200 --> 00:04:34,080

Will you come back to our shop and do some of this on high-speed camera? Yeah, I'd like to awesome

45

00:04:34,960 --> 00:04:36,760

Okay, I'm done

46

00:04:36,760 --> 00:04:43,320

It's back to the layer to test their three ninja myths beginning with the tale of running on water

47

00:04:45,040 --> 00:04:46,520

Well barring any

48

00:04:46,520 --> 00:04:51,520

Magical powers which we can't really test on this show ninjas definitely didn't just walk on water

49

00:04:51,880 --> 00:04:56,400

But they might have had some help our researchers have turned up a thing called miss a goomo

50

00:04:56,440 --> 00:04:59,440

So I'm gonna build a set of these and see how effective they are

51

00:05:00,040 --> 00:05:06,800

Miss a goomo meaning water spider in Japanese were flat wooden disks that ninjas strapped to their feet

52

00:05:06,800 --> 00:05:13,400

The theory is the wide surface area distributed their weight evenly on the surface of the water so they didn't sink

53

00:05:14,600 --> 00:05:16,000

So

54

00:05:16,000 --> 00:05:19,080

What kind of wood would a ninja cobbler have used?

55

00:05:19,400 --> 00:05:25,040

I've got some pine based light density fiberboard here. It's pretty much perfect for our uses

56

00:05:25,040 --> 00:05:28,040

So I'm gonna use this as our stand-in for the miss a goomo wood

57

00:05:28,840 --> 00:05:31,960

Adam measures and cuts out two circles of pine board

58

00:05:33,120 --> 00:05:36,520

Then he slices each of them into four separate pieces

59

00:05:38,480 --> 00:05:40,160

That's good

60

00:05:40,160 --> 00:05:46,320

One by one he stains the sections with a brown pigment and painstakingly sands them back

61

00:05:47,560 --> 00:05:49,560

paint on

62

00:05:49,560 --> 00:05:51,360

paint off

63

00:05:51,360 --> 00:05:55,080

Such is the mysterious way of the former movie prop maker

64

00:05:55,280 --> 00:06:01,080

Who for no particular reason wants his water shoes to look worn in looks a bit like old wood now?

65

00:06:02,720 --> 00:06:08,800

Lastly he places a rectangular block in the middle of each circle and secures the pieces together using twine

66

00:06:10,160 --> 00:06:16,960

It's an ancient jigsaw that makes for a puzzling pair of footwear. I didn't expect it to fold like that

67

00:06:17,960 --> 00:06:19,960

But I wonder if that's not

68

00:06:21,160 --> 00:06:23,160

Actually part of its function

69

00:06:23,240 --> 00:06:29,640

Jimmy Choo can rest easy, but these replica ninja shoes may just float like boats

70

00:06:29,640 --> 00:06:31,640

Hey, wait to see how these work

71

00:06:40,160 --> 00:06:45,440

All right, we know ninjas have speed and quick reaction time this myth is about strength

72

00:06:45,920 --> 00:06:49,280

Ideas and ninjas being attacked by a swordsman swordsmen's coming to swing at his head

73

00:06:49,280 --> 00:06:54,680

Ninja catches the blade in his hands without cutting his hands and without being chopped in half me like this

74

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

You're not supposed to like that's precisely why we're not starting with real swords

75

00:07:05,200 --> 00:07:12,680

Precisely the team learned just how dangerous real swords can be in a previous myth when they built a

76

00:07:13,360 --> 00:07:15,360

Decapitation hazard everybody

77

00:07:15,520 --> 00:07:21,320

pneumatically powered mechanical device that could whip around with the same force and precision

78

00:07:21,880 --> 00:07:25,680

Not good as a samurai with a point to prove

79

00:07:26,680 --> 00:07:29,280

Well, I guess it's time to dust off the old sword swing rig

80

00:07:29,280 --> 00:07:34,200

I think we're gonna have to turn on the side because I think it's more like a head swing and maybe calibrate it to human speed

81

00:07:34,200 --> 00:07:38,680

All right, cool. So which one of us is gonna catch it not me people say I'm not that quick

82

00:07:40,360 --> 00:07:43,260

All right, well, maybe we should make a sword catching rig

83

00:07:43,260 --> 00:07:47,080

Maybe two hands that come together like that and we'll calibrate it to human force

84

00:07:47,640 --> 00:07:50,000

Sweet sweet. There's gonna be so much fun

85

00:07:51,640 --> 00:07:54,800

First they need to make fake hands to attach to their rig

86

00:07:56,080 --> 00:08:00,480

Carrie gets to work and mixes up a batch of alginate to make molds

87

00:08:04,200 --> 00:08:07,880

No, I got something else going on. I got surprised for you guys. You're gonna love it

88

00:08:09,440 --> 00:08:14,760

After 20 minutes the gel is set go higher and Tori can break free

89

00:08:15,280 --> 00:08:17,280

Nice looks good

90

00:08:19,280 --> 00:08:27,120

Meanwhile grants brought our ninja's nemesis the samurai sword swinging rig out of storage and has started putting it back together

91

00:08:27,520 --> 00:08:35,840

The basic idea behind this is big air ram pulls on the chain the chain is wound around the shaft as it pulls

92

00:08:36,600 --> 00:08:38,600

spins the shaft sword swings

93

00:08:39,760 --> 00:08:41,760

really quickly

94

00:08:41,960 --> 00:08:47,840

Representing our aristocratic samurai warrior is a pricey reproduction Japanese sword

95

00:08:48,840 --> 00:08:54,740

Representing our ninja peasant is a humble ballistics gel head like it. I love it. Good humble

96

00:08:55,060 --> 00:08:59,300

They align the blade so it sweeps in a downward motion between the arms

97

00:08:59,540 --> 00:09:02,900

Here's the hands. Yep. Yes, it'll get caught right here

98

00:09:03,420 --> 00:09:05,580

In the skull. Love it. That's great

99

00:09:06,140 --> 00:09:12,780

Carrie has made multiple ballistics wax reproductions from Tori's hand molds and slots her first set into the ring

100

00:09:13,780 --> 00:09:18,860

Now we can also get that applause. We always wanted hmm mythbusters with a live audience

101

00:09:25,340 --> 00:09:28,700

Coming up the team tries to cut it as ninjas

102

00:09:30,540 --> 00:09:33,420

We test to see whether ninja miss a gumo shoes

103

00:09:42,180 --> 00:09:47,860

The belief that some people possess the ability to walk on water has been around for centuries

104

00:09:49,420 --> 00:09:51,820

So why not the mythical ninja?

105

00:09:52,060 --> 00:09:54,060

I

106

00:09:54,380 --> 00:10:00,540

Don't know Jamie arrived at the bamboo reef dive center to try out their replica feudal foot floaties

107

00:10:01,060 --> 00:10:07,180

Reaser pool for water shoes you bet. All right. Go for it. Cool. Thanks Adam vanishes

108

00:10:08,060 --> 00:10:10,060

into the ladies room

109

00:10:11,140 --> 00:10:13,140

And just like magic

110

00:10:13,140 --> 00:10:23,740

These are my special device for stirring the castle walking across the water

111

00:10:25,260 --> 00:10:27,060

All right then

112

00:10:27,060 --> 00:10:31,180

They may look unfathomable time might feed in within an inch of their lives

113

00:10:31,260 --> 00:10:37,540

But these flat wooden discs were modeled on an exact replica of Japanese feudal times footwear

114

00:10:38,220 --> 00:10:44,160

When we started looking into whether ninjas could walk on water the first piece we came up with is a museum piece called a

115

00:10:44,740 --> 00:10:48,540

Mizogumo supposedly for water walking. I'm about to find out

116

00:10:49,060 --> 00:10:54,180

Being pre velcro Jamie's nautical knot tying skills are a big help

117

00:10:54,740 --> 00:11:00,340

How many people know this but Jamie comes from an ancient line of nine generations of shoe tires

118

00:11:00,540 --> 00:11:02,540

I

119

00:11:02,820 --> 00:11:07,560

Come silent walrus. Let us storm the castle. I will don my safety key

120

00:11:08,260 --> 00:11:10,260

Don's his padded suit

121

00:11:11,180 --> 00:11:13,180

Sikes himself up for the challenge

122

00:11:14,180 --> 00:11:17,820

The pool waters are as still as glass and all is quiet

123

00:11:18,180 --> 00:11:23,740

It is time for ninja savage to stride forward and walk across its surface

124

00:11:31,340 --> 00:11:33,860

The first step seemed kind of promising

125

00:11:35,700 --> 00:11:42,180

Promising maybe a stretch in order for it to be called walking on water there needs to be more than one step

126

00:11:43,900 --> 00:11:48,060

But ninjas are no quitters so Adam has another tactic to try

127

00:11:49,300 --> 00:11:54,980

To me it seems like it's all gonna be a function of my ability to move my feet crazy fast like a
like a cartoon

128

00:11:56,300 --> 00:11:58,300

Which might be possible

129

00:12:00,540 --> 00:12:02,540

Yeah

130

00:12:04,060 --> 00:12:11,180

Despite his increased momentum the shoes still weren't able to support Adam's weight, but it was
comical

131

00:12:11,180 --> 00:12:14,700

I believe that the moment I hit the water. I was sinking in the water

132

00:12:17,020 --> 00:12:19,300

These may have slowed my scent

133

00:12:20,540 --> 00:12:26,740

Really the best it can be said for them looks like Adam's ninja turtle aspirations are all washed up

134

00:12:27,620 --> 00:12:33,300

I don't know about you, but do you seem a little cumbersome to me? Yeah, I don't think you're going anywhere on water with those things

135

00:12:33,460 --> 00:12:35,900

The important thing is that I look damn good

136

00:12:38,980 --> 00:12:43,540

Well, it turns out that meets the gumus were never really intended for walking on water

137

00:12:43,540 --> 00:12:49,260

They were more for like rice patties or mud flats and they probably worked okay kind of like snow shoes

138

00:12:49,860 --> 00:12:56,660

Exactly, however, you know ninjas also were not at all above trying to encourage the belief in their supernatural power

139

00:12:57,100 --> 00:12:58,860

Right the masters of misinformation

140

00:12:58,860 --> 00:13:06,060

I've heard they would do things like place posts underneath the water as they were escaping a showgun castle to make it look like they were walking on water

141

00:13:06,060 --> 00:13:09,780

They wanted people to fear their magical powers exactly

142

00:13:11,620 --> 00:13:17,540

Misugumo shoes may have sunk like the Titanic, but the guys might just rescue this myth yet

143

00:13:18,420 --> 00:13:28,180

Could ninja stop speeding swords with their bare hands

144

00:13:32,180 --> 00:13:39,860

To find out the team is building a mechanical device that's part sword swinging samurai and part sword catching ninja

145

00:13:40,100 --> 00:13:48,140

To calibrate it to move with realistic human strength and speed they need to do some tests

146

00:13:48,780 --> 00:13:54,140

Grant hangs a force plate on a C-stand that represents the blade the ninja must catch

147

00:13:55,100 --> 00:14:02,060

The force of the ninja's hands will be set to the person with the greatest strength and do it like your life depends on it

148

00:14:02,620 --> 00:14:04,620

Thanks for that motivation grand

149

00:14:07,660 --> 00:14:09,660

Go

150

00:14:10,820 --> 00:14:15,380

And with a mighty firm smack peaking at 1,000 newtons

151

00:14:15,780 --> 00:14:23,060

The most determined to stay in one piece is the pain grant the pain from the initial hit

152

00:14:23,660 --> 00:14:25,660

There you go

153

00:14:25,780 --> 00:14:27,780

You're all full of newtons

154

00:14:29,180 --> 00:14:33,820

Yeah, big newtons, baby the team sets up for their next test

155

00:14:34,980 --> 00:14:37,380

To determine the speed of the sword swipe

156

00:14:38,380 --> 00:14:46,380

Take this sword throw it down as hard as you can on the ninja and we'll see who's the fastest don't think of it as a competition

157

00:14:47,780 --> 00:14:49,780

But it is

158

00:14:50,780 --> 00:14:55,260

Suddenly Adam ambushes the trio it was a classic ninja move

159

00:14:56,740 --> 00:14:59,020

Tori steps up to take the first swing

160

00:15:08,380 --> 00:15:12,860

Warning sword blows to the cranium may cause headaches

161

00:15:14,420 --> 00:15:17,300

Next will Adams attempt have more of an edge

162

00:15:18,580 --> 00:15:21,260

Master savage sword swinging trial take one

163

00:15:30,740 --> 00:15:34,260

Ninja's cool black stalker wear is getting shredded

164

00:15:34,500 --> 00:15:42,580

Finally it's grand's turn the ninja must go to the bathroom before he swings his sword

165

00:15:43,340 --> 00:15:47,140

He hasn't looked this in sense since Star Trek was canceled

166

00:15:48,180 --> 00:15:50,780

Mastery Mahara sword swinging test take one

167

00:15:53,060 --> 00:15:55,060

Nice

168

00:15:56,700 --> 00:16:02,020

They compare their times on my high speed and once again grant aces the test

169

00:16:02,900 --> 00:16:10,300

How many frames is that that is 24 frames and 96 milliseconds nice word way to go benchmark

170

00:16:10,300 --> 00:16:15,780

Thank you. I think it was the face. That's about 40 is like 47 miles per hour

171

00:16:17,900 --> 00:16:22,100

Coming up the team discover a ninja job safety hazard

172

00:16:23,820 --> 00:16:29,500

Look how deep that went and could a ninja really pluck an arrow out of the air

173

00:16:30,180 --> 00:16:32,180

Sorry about that man. It's okay

174

00:16:43,940 --> 00:16:45,940

Next up in our ninja bits

175

00:16:45,980 --> 00:16:48,180

Can you catch an arrow with your bare hands?

176

00:16:48,820 --> 00:16:50,220

How are we gonna do that?

177

00:16:50,220 --> 00:16:55,980

Well, I figure we should take some of our arrows downstairs and you can shoot them at me and I'll just try and catch them

178

00:16:56,380 --> 00:16:59,300

So you'd actually let me shoot at you with a bow and arrow

179

00:17:00,700 --> 00:17:02,540

Amazingly, yes

180

00:17:02,540 --> 00:17:04,540

All right

181

00:17:04,780 --> 00:17:08,620

Legend has it that a ninja could do this dexterous trick with ease

182

00:17:08,900 --> 00:17:11,900

So Jamie and Adam want to get a feel for it themselves

183

00:17:11,900 --> 00:17:16,740

I'm gonna string a regular bow and set up an arrow with a tennis ball

184

00:17:16,740 --> 00:17:18,100

I know and

185

00:17:18,100 --> 00:17:24,540

Shoot it at Adam or at least off to the side of Adam. We'll put Adam in a protective suit in case I

186

00:17:24,860 --> 00:17:26,860

Either get frisky or miss

187

00:17:27,740 --> 00:17:32,420

Jamie is an experienced archer and even though he's not using a real arrowhead

188

00:17:32,420 --> 00:17:37,860

This is not something to try at home. He's gonna be shooting from over there into this garbage can

189

00:17:37,860 --> 00:17:42,860

I'm gonna be standing here. We'll catch it on high-speed camera. See how fast I can actually catch the arrow at

190

00:17:43,780 --> 00:17:49,340

Jamie marks out notches on the shaft the further he pulls back the faster the rod will travel

191

00:17:51,180 --> 00:17:53,020

Push

192

00:17:53,100 --> 00:17:58,740

All right, I'm ready if you are you want to start slow. Yep. All right, Jamie starts out at mark one

193

00:18:02,820 --> 00:18:09,220

The arrow eludes Adam's grasp I don't have enough time to anticipate like by the time you let go and I'm moved

194

00:18:09,900 --> 00:18:14,300

Still at mark one this time Adam tries to move in sync with the arrow

195

00:18:16,660 --> 00:18:17,900

Hey

196

00:18:17,900 --> 00:18:19,900

Good job, you know, I

197

00:18:20,580 --> 00:18:25,140

Anticipated when you were just about to do it and I just started moving and we worked. It's like working together

198

00:18:25,780 --> 00:18:30,280

It's a beautiful thing. Next Jamie ups the addy to mark three

199

00:18:34,180 --> 00:18:40,580

But the arrow keeps sailing on by as the guys unified martial arts magic peaked already

200

00:18:40,820 --> 00:18:47,980

Even though Adams form was impressive the speed was lacking

201

00:18:48,020 --> 00:18:54,500

Their tennis ball projectile was traveling at 58 miles an hour a third of the speed of a real arrow

202

00:18:55,460 --> 00:18:58,740

You've got a couple of things here that are throwing this off for one thing

203

00:18:58,740 --> 00:19:04,060

This is what twice or three times as heavy as a normal arrow would be because of that thing on the end of it

204

00:19:04,060 --> 00:19:07,300

Right, I really think that we need to figure out some other solution

205

00:19:08,060 --> 00:19:13,740

To test this myth at a true-to-life rate the guys have to bounce around a new strategy

206

00:19:17,620 --> 00:19:22,380

Back over at M7 the team has finished putting their mechanical sword catching rig together

207

00:19:23,020 --> 00:19:26,060

Now to set it to move at a real-life rate

208

00:19:27,060 --> 00:19:31,220

We don't want it to be superhuman and we don't want it to be subhuman

209

00:19:31,580 --> 00:19:36,500

We want it to be whatever a person could do then we'll be ready to try and

210

00:19:37,340 --> 00:19:39,340

Catch a sword

211

00:19:40,780 --> 00:19:45,460

Calibration first test at OPSI in three two one

212

00:19:48,900 --> 00:19:53,900

The speed and force of the ninja's arms was exactly the same as Grant's best time

213

00:19:54,020 --> 00:19:58,020

But the replay reveals something undetectable to the naked eye

214

00:19:58,020 --> 00:20:01,620

There's a bounce back which could let that sword get right through there

215

00:20:02,020 --> 00:20:06,700

As the hands hit together they bounce off each other and jiggle like Jello

216

00:20:07,140 --> 00:20:09,620

Opening up an unforeseen headache

217

00:20:09,980 --> 00:20:13,460

The force is causing him to bounce away and it's allowing a gap

218

00:20:13,460 --> 00:20:17,740

Which is gonna allow the sword to go right through and bury into the guy's head

219

00:20:18,260 --> 00:20:22,420

What I'm thinking is maybe we do is put some kind of a latch so that when the hands come together

220

00:20:22,580 --> 00:20:25,460

It keeps them there and it's not adding any more pressure

221

00:20:25,460 --> 00:20:30,060

All it's doing is keeping the hands together like you would be able to do if you were using your

muscles

222

00:20:30,780 --> 00:20:37,560

He attaches two kickstands to the arms that will fall and lock into ratchets and fastens pneumatic rams

223

00:20:37,860 --> 00:20:41,140

On either side of the hands as things starting to look like a monster

224

00:20:41,780 --> 00:20:47,980

Pretty soon you're not gonna recognize it, but it's function not form that counts. Here we go in three

225

00:20:48,980 --> 00:20:50,220

two

226

00:20:50,220 --> 00:20:52,220

one

227

00:20:52,220 --> 00:20:57,100

That look nice and sturdy and stable. Yeah, they check it out frame by frame

228

00:20:58,100 --> 00:21:00,100

Stay together

229

00:21:11,660 --> 00:21:18,380

With their rigs set to human speed and pressure Grant adds a final touch that will trigger the entire system

230

00:21:20,020 --> 00:21:23,500

When the arm passes through it actually activates

231

00:21:24,340 --> 00:21:30,980

The hands clapping let the recreation of the battle between the two ancient warrior classes begin

232

00:21:33,820 --> 00:21:36,260

In three two one

233

00:21:42,660 --> 00:21:49,580

High five it seems our mechanical ninja thwarted the flash of samurai slicing steel straight away

234

00:21:49,820 --> 00:21:52,060

Or are we jumping to conclusions?

235

00:21:53,620 --> 00:21:54,620

Why?

236

00:21:54,620 --> 00:21:57,860

It bounced off the table and then shot back up into the

237

00:21:59,060 --> 00:22:01,060

So you got it on the rebound

238

00:22:01,140 --> 00:22:05,300

And everybody knows being caught on the rebound doesn't count

239

00:22:07,860 --> 00:22:11,420

That was like shock that we actually caught it. It was like how does it that easy?

240

00:22:12,540 --> 00:22:13,580

So true

241

00:22:13,580 --> 00:22:19,380

But moving on is the best remedy Grant adjusts the timer so the hands will trigger sooner

242

00:22:19,380 --> 00:22:26,300

Hopefully this time the adjustment will get it so that the hands clap right on the sword. All right, three two

243

00:22:26,780 --> 00:22:28,780

one

244

00:22:29,420 --> 00:22:31,420

He stopped it with his head

245

00:22:35,900 --> 00:22:39,500

Look how deep that went it's all the way down to his eyebrow

246

00:22:40,020 --> 00:22:46,620

Whoa that definitely split your skull the hand slam shot quicker, but not quick enough

247

00:22:49,940 --> 00:22:51,940

Okay

248

00:22:55,980 --> 00:23:02,980

So they tweak the timer just a hair ninja sword catching rig in three two one

249

00:23:08,660 --> 00:23:10,660

They look right it look really good

250

00:23:11,140 --> 00:23:13,380

This time the sword comes to a stop

251

00:23:13,500 --> 00:23:19,860

But only because the hands closed a fraction too early and the blade got stuck in the ballistics material

252

00:23:20,460 --> 00:23:23,060

five milliseconds off all right five

253

00:23:23,900 --> 00:23:29,620

milliseconds jump fast five milliseconds is that's ridiculous faster than you can blink your eye

254

00:23:30,220 --> 00:23:32,220

much faster

255

00:23:33,020 --> 00:23:39,500

Such an infinite tesama amount might not make any difference to their results in the slice palm

256

00:23:40,140 --> 00:23:46,220

So do they call this myth busted right here right now or go for absolute precision?

257

00:23:46,220 --> 00:23:47,380

I

258

00:23:47,380 --> 00:23:54,140

Think maybe we have to get it the perfect timing before we can actually say anything other people yell at us next Adam and Janie

259

00:23:54,500 --> 00:23:56,500

Reinvent the ancient ninja

260

00:23:56,900 --> 00:23:58,900

21st century style

261

00:24:01,060 --> 00:24:08,540

And after the show log on to discovery comm slash myth busters to see what ask a ninja ninja thinks about the show

262

00:24:09,900 --> 00:24:14,100

We do a lot of crazy stunts in this show, but none of it is stuff you should try at home

263

00:24:19,020 --> 00:24:24,540

Jamie and Adam are targeting the myth that a ninja can fuck a speeding arrow out of the air

264

00:24:26,020 --> 00:24:30,260

You know I was only able to catch these arrows at 60 miles an hour, and I'm not trained at this

265

00:24:30,260 --> 00:24:37,420

But still your average arrow travels like three times that fast if we were to build a mechanical hand

266

00:24:37,460 --> 00:24:40,500

I could do that, you know I can make it grab as fast as it's

267

00:24:40,980 --> 00:24:46,500

Physically possible to grab something or even faster if it turns out that's not possible. Yeah, okay

268

00:24:46,500 --> 00:24:52,460

I'll build a super accurate arrow shooting rig you build a hand grabbing rig and we'll see what the limit of the human ability to

269

00:24:52,460 --> 00:24:54,460

Grab an arrow is okay

270

00:24:55,940 --> 00:25:02,220

Before they build a new rig Jamie and Adam want to study the physical capability of a master of martial arts

271

00:25:03,140 --> 00:25:05,140

up close

272

00:25:05,300 --> 00:25:07,300

And personal

273

00:25:08,420 --> 00:25:12,880

And to the day our feudal battle skills expert. Sorry sir

274

00:25:12,880 --> 00:25:19,620

Hi, I'm gonna see Dale is willing to let the guys time the swiftness of his highly trained hand when you're ready

275

00:25:20,140 --> 00:25:23,360

Just go like that and we'll fire the camera and see how fast

276

00:25:24,860 --> 00:25:27,400

There whenever you're ready

277

00:25:28,780 --> 00:25:30,780

To get it

278

00:25:31,100 --> 00:25:33,100

If you blink you would have missed it

279

00:25:33,420 --> 00:25:40,340

Wow, this is 500 frames per second, so you closed your hand in about 35 milliseconds

280

00:25:40,620 --> 00:25:41,380

That's great

281

00:25:41,380 --> 00:25:47,220

That gives us a really good baseline to try and get a robot to equate to and I think it makes a lot easier for our mythical

282

00:25:47,220 --> 00:25:51,180

Ninja to actually catch it Jamie's beret doesn't come off for many reasons

283

00:25:51,180 --> 00:25:57,100

But one of them is to well his job is to make a mechanical hand. That's as fast as Dale's

284

00:25:57,940 --> 00:26:04,740

This is a trick that I've used before on various kinds of movie things where I need a fake hand

285

00:26:05,300 --> 00:26:12,580

Motorcycle chain is actually a very sturdy and if you run up a line along one side of it that pulls taught the whole thing

286

00:26:12,700 --> 00:26:18,620

Wants to curl up like that. Jamie welds five pieces of chain together to form the fingers of a hand

287

00:26:19,780 --> 00:26:25,020

Then he attaches it to a metal stand and threads the links through with long laces

288

00:26:25,580 --> 00:26:28,700

These things that I'm putting in here right now would be equivalent to

289

00:26:29,340 --> 00:26:30,460

tendons

290

00:26:30,460 --> 00:26:33,860

But instead of going to a muscle they're going to a pneumatic actuator

291

00:26:34,380 --> 00:26:40,220

The actuators will provide the force that will clamp the fingers and thumbs shot in a vice-like grip

292

00:26:41,780 --> 00:26:44,220

This will be protecting Jamie's shop in no time

293

00:26:46,020 --> 00:26:48,020

You have three minutes to comply

294

00:26:49,820 --> 00:26:53,580

While Jamie completes the catch Adam works on the throw

295

00:26:55,020 --> 00:27:00,380

Hard-mounted the bow to a steel frame. I've got a trigger mount that can pull back the string

296

00:27:00,380 --> 00:27:06,040

And all this will be attached to a timer a super sensitive timer that will also trigger the hand catching

297

00:27:06,660 --> 00:27:12,220

The timers will allow the guys to fine-tune the release and hand grab to the millisecond

298

00:27:14,060 --> 00:27:20,820

Adam and Jamie's arrow-napping device is part man. Haha, that's perfect part machine

299

00:27:20,820 --> 00:27:22,820

Well

300

00:27:26,100 --> 00:27:31,940

Hey moving that's not going anywhere. Oh ninja robo hands

301

00:27:33,860 --> 00:27:35,860

Your move creep

302

00:27:38,340 --> 00:27:44,360

Arrow catching rig test number one here we go three two one

303

00:27:50,900 --> 00:27:52,900

Too late

304

00:27:52,940 --> 00:27:56,340

Adam goes through the numbers off by 200 milliseconds

305

00:27:56,740 --> 00:28:02,020

Both the arrow and hand were moving at accurate real-life speeds the arrow clock

306

00:28:02,500 --> 00:28:08,940

170 miles an hour and the hand grab was just two milliseconds slower than ninja Dale

307

00:28:10,100 --> 00:28:13,300

Adam adjusts the timers to his precise calculations

308

00:28:13,940 --> 00:28:20,000

The arrow to release 200 milliseconds after the hand starts to activate. So that's one two

309

00:28:20,320 --> 00:28:24,940

It's 200 milliseconds that ought to do it three two one

310

00:28:26,840 --> 00:28:29,200

Wonder what happened too fast for my eyes. I know

311

00:28:30,960 --> 00:28:33,880

Finally they achieve a perfectly coordinated shot

312

00:28:34,000 --> 00:28:41,800

But even though the rig was working at the correct human and arrow speed the ever elusive projectiles slips through the hand's grasp

313

00:28:43,520 --> 00:28:47,880

That tells me that at human speed it's not fast enough to grab the arrow

314

00:28:48,120 --> 00:28:50,840

I think that's exactly what this says. I think you're absolutely right

315

00:28:51,240 --> 00:28:54,200

I think our only choice at this point is to make the hand go faster

316

00:28:54,840 --> 00:28:59,880

To ramp it up. That's all there is left. All right. I'll get to rig it. Hi ■■■■■■

317

00:29:00,440 --> 00:29:06,200

That's let's go in Japanese. We have a technique for speeding up the hand. So this will move

318

00:29:06,840 --> 00:29:08,840

So quickly you won't even be able to see it move

319

00:29:09,560 --> 00:29:17,080

Very ninja the trick is to spring load the actuators so they hit the quick release superhuman hard and fast

320

00:29:17,960 --> 00:29:19,000

three

321

00:29:19,000 --> 00:29:19,960

two

322

00:29:19,960 --> 00:29:21,960

one

323

00:29:25,720 --> 00:29:27,720

That is perfect

324

00:29:29,800 --> 00:29:31,800

Superhuman ninja strength

325

00:29:33,480 --> 00:29:38,680

Got it at bionic speed robo hand finally manages to defend himself

326

00:29:39,720 --> 00:29:45,800

Our robot hand is closing five times as fast as a human could possibly close their hand and that's what it took

327

00:29:45,800 --> 00:29:51,240

It finished before the tail feathers got there, but any slower it wouldn't have caught that arrow

328

00:29:51,880 --> 00:29:55,960

So the hand of a mere mortal could never have achieved this feat

329

00:29:56,760 --> 00:30:01,720

Myth is busted. This is what it would take to catch an arrow robo hand robo hand

330

00:30:02,280 --> 00:30:07,240

Now just all we have to do is build the rest of our superhuman ninja robot and we can take over the world

331

00:30:08,600 --> 00:30:10,600

Okay, you do that

332

00:30:16,440 --> 00:30:21,240

On the other side of the break adam has trouble finding his feet walking on water

333

00:30:23,640 --> 00:30:26,760

Woo, I'll find an indignity that would have been humiliating

334

00:30:34,280 --> 00:30:36,280

Trying to walk on water

335

00:30:37,080 --> 00:30:41,480

Wearing an exact replica of supposed ninja water walking shoes

336

00:30:43,160 --> 00:30:45,160

Adam got nothing but wet

337

00:30:45,960 --> 00:30:53,000

This time adam is thinking out of the box and making a modern day pair of ninja shoes

338

00:30:55,000 --> 00:31:01,960

His 21st century misugumo materials are a pair of snowboard boots aluminum and packing foam

339

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

This is a deadly weapon

340

00:31:08,040 --> 00:31:13,800

I've calculated that four layers of this gives me about 2.2 cubic feet per foot

341

00:31:14,520 --> 00:31:19,640

Of water displacement that equals about a total of 265 pounds of buoyancy

342

00:31:20,200 --> 00:31:23,880

He traces outlines of the boots onto the foam cuts out a hole

343

00:31:26,360 --> 00:31:28,360

And wedges them inside

344

00:31:30,840 --> 00:31:33,240

Then he sprays glue between the layers

345

00:31:36,280 --> 00:31:38,920

Awesome, I could not have gone better

346

00:31:39,880 --> 00:31:45,720

He tapes aluminum sheeting to the base and rivets on a lightweight rail to keep everything rigid

347

00:31:46,040 --> 00:31:50,520

The final touch is to paint them in a timeless shade of ninja noir

348

00:31:51,400 --> 00:31:55,960

I'm painting these black because I want to say that I want to be invisible, right?

349

00:31:56,040 --> 00:31:59,400

I mean it's like in the modern society. You're just

350

00:32:00,200 --> 00:32:02,200

Now one knows who you are

351

00:32:02,200 --> 00:32:05,160

That is the essence of the ninja, right?

352

00:32:05,160 --> 00:32:14,360

To find out it's back to the pool these look like fun. Well, this is ninja suit 2.0. This is my attempt

353

00:32:14,920 --> 00:32:16,280

What do you think?

354

00:32:16,280 --> 00:32:20,520

I think it's going to be real hard to stay upright on those puppies. There's only one way to find out

355

00:32:24,360 --> 00:32:29,080

Yeah adam boards his tanker ships and is ready to launch

356

00:32:35,160 --> 00:32:37,160

Ha ha ha ha ha ha

357

00:32:38,600 --> 00:32:42,280

Whoo, if I had any dignity that would have been humiliating

358

00:32:43,240 --> 00:32:46,360

Just as well because we want to see that pratfall again

359

00:32:48,520 --> 00:32:56,600

For his next attempt he tries a gentle sitting start. There you go. There we go. Oh, I'm stealthy as the night

360

00:32:57,640 --> 00:32:59,640

Oh

361

00:32:59,880 --> 00:33:01,880

Don't I look like silent death?

362

00:33:02,600 --> 00:33:06,200

I'm bringing justice in the night

363

00:33:11,800 --> 00:33:16,200

Our far from soundless assassin is trying his hardest to move forward

364

00:33:18,040 --> 00:33:23,000

My paddle still seems to be working man, but it's like being stuck on a nautical treadmill

365

00:33:23,880 --> 00:33:25,880

I

366

00:33:30,200 --> 00:33:35,640

Don't know about these ninja shoes man. What do you think? I think they suck. They don't suck

367

00:33:37,000 --> 00:33:39,000

Harsh but true

368

00:33:41,080 --> 00:33:47,320

The samurai have won this mission and adam accepts defeat I give up on my ninja shoes

369

00:33:48,280 --> 00:33:49,960

They're not stealthy

370

00:33:49,960 --> 00:33:51,640

They're not easy

371

00:33:51,640 --> 00:33:53,640

And they don't move

372

00:33:54,280 --> 00:34:00,920

Coming up on mythbusters. Can I walk across this tub of goo and kari takes a swing at a real ninja?

373

00:34:09,240 --> 00:34:15,720

You've seen this ninja battle trick in a thousand b-grade martial arts movies, but is it possible?

374

00:34:15,720 --> 00:34:24,280

To find out kari tori and grant built a sword catching machine that so far hasn't cut it

375

00:34:25,080 --> 00:34:27,080

He stopped it with his head

376

00:34:27,080 --> 00:34:33,720

But the timing of their rig is only off by less than the blink of an eye and grants got a plan to make it perfect

377

00:34:35,160 --> 00:34:42,200

And that's this it's a timer and this will give me millisecond resolution so I can dial in the delay exactly

378

00:34:43,160 --> 00:34:48,760

Grant makes the minute adjustment they need and our ninja is prepared to make his final attempt

379

00:34:49,560 --> 00:34:54,360

This is it. I can feel it. This has got to be in three two one

380

00:34:56,280 --> 00:35:00,120

Ah something came off the hands. Yeah, it was really close

381

00:35:02,440 --> 00:35:08,440

Once again the sword slips through our ninja's fingers, but where his reflexes right on

382

00:35:09,240 --> 00:35:11,800

That's that's that's it. Keep going

383

00:35:13,720 --> 00:35:15,720

Keep going keep going keep going

384

00:35:16,440 --> 00:35:20,760

We got it. That's the timing was right. Thank you. Thank you very much

385

00:35:20,920 --> 00:35:25,800

You can't get any more perfect on the timing than that. You still can't catch the sword. That's it.
Look and it's just

386

00:35:27,080 --> 00:35:31,880

Slide right through with their mechanical ninja operating under ideal conditions

387

00:35:32,200 --> 00:35:34,440

There's nothing more they can do in the workshop

388

00:35:34,680 --> 00:35:39,880

So it's time again to consult our real life ninja dale nice to meet you

389

00:35:40,360 --> 00:35:44,360

So I notice you have all your fingers. Have you ever tried to catch a sword with your hands?

390

00:35:44,520 --> 00:35:47,320

We prefer to get out of the way. I mean we may take the sword away

391

00:35:48,040 --> 00:35:51,880

But there's there's an offline evasion first a wise tactic

392

00:35:52,200 --> 00:35:58,200

But to put this myth to the true test dale is bravely allowing carried a swing of sword towards him

393

00:35:58,600 --> 00:36:03,240

Don't worry. The blade has been dull. All right. So, uh, he's just coming at you like this

394

00:36:05,160 --> 00:36:07,160

So, let me just get the spot

395

00:36:08,680 --> 00:36:12,360

What you have a lot of confidence in her a lot more than we do

396

00:36:14,680 --> 00:36:20,360

For extra protection he's wearing shuko on his hands reproduction ninja climbing claws

397

00:36:20,840 --> 00:36:23,720

So go like this. Yeah, you'd be starting with your left foot forward

398

00:36:24,360 --> 00:36:27,320

And then taking a step getting some momentum and kaboom

399

00:36:28,440 --> 00:36:32,920

Okay, don't hold back carry carry summons up her best kaboom

400

00:36:35,400 --> 00:36:39,880

I'm gonna get you or just the sword. No, that's scary though. Okay

401

00:36:41,320 --> 00:36:43,000

You almost got him that time wow

402

00:36:43,000 --> 00:36:47,320

With 40 years of training under his black belt. That's some force behind it

403

00:36:47,800 --> 00:36:50,760

Dale blocks or blows using just one hand

404

00:36:51,560 --> 00:36:55,800

Dale's preferred sword catch technique is different to the one we're testing

405

00:36:56,200 --> 00:36:59,400

So what's his take on the bare double-handed approach?

406

00:37:00,280 --> 00:37:04,440

The idea of trying to stop it this way with all that kinetic energy still coming here

407

00:37:05,000 --> 00:37:08,120

Is probably not a good idea if you were to attempt it and try to make it work

408

00:37:08,200 --> 00:37:12,360

To be best to catch and receive so you're absorbing and redirecting the force

409

00:37:16,360 --> 00:37:20,200

That's taking hand goodbye, but I think I'll just wave and thank you so much

410

00:37:20,200 --> 00:37:23,560

Thank you. Yeah. Yeah. Thank you. Good to see you guys. High five, huh?

411

00:37:23,800 --> 00:37:25,800

Yeah

412

00:37:26,120 --> 00:37:32,680

Look at that slice back at the shop armed with dale's input and the sorry condition of their fake hands

413

00:37:33,080 --> 00:37:35,080

What conclusion has the team come to?

414

00:37:36,200 --> 00:37:38,200

So, yeah bare hands

415

00:37:38,680 --> 00:37:43,560

The timing was perfect and the hands came together at the perfect time with the most human strength

416

00:37:43,560 --> 00:37:49,160

We can muster and still couldn't hold on to it. Are we calm this one busted? Yeah, pretty much unless you're a movie ninja

417

00:37:49,160 --> 00:37:53,320

I don't think that you can hold on to the sword. There's just too much velocity behind it. Yep

418

00:37:53,560 --> 00:37:55,560

We gave this one our best shot

419

00:37:55,560 --> 00:37:57,560

See, you mean all those ninja movies were not true

420

00:38:12,120 --> 00:38:18,360

Attempting the mythical ninja trick of walking on water adam went nowhere but under

421

00:38:24,520 --> 00:38:28,040

But as the silent observer of his numerous dunkings

422

00:38:28,520 --> 00:38:32,440

Jamie's had time to think and he's come up with a mysterious solution

423

00:38:33,240 --> 00:38:36,600

There is something that I've come up with that you can't walk on it

424

00:38:37,240 --> 00:38:39,240

Does have a lot of water in it

425

00:38:40,200 --> 00:38:42,200

I'd like to see how that works

426

00:38:43,080 --> 00:38:46,680

His covert concoction is 200 gallons of water

427

00:38:47,800 --> 00:38:51,640

And 1 000 pounds of powdery cornstarch

428

00:38:54,520 --> 00:38:59,000

Trusted mithertern Jess is in charge of getting the consistency just right

429

00:39:04,440 --> 00:39:07,160

Some blue food coloring completes the recipe

430

00:39:10,040 --> 00:39:13,080

Okay, we're good. Are we ready to pour? Yeah, anywhere

431

00:39:14,280 --> 00:39:19,640

The mixture is tipped into a large plastic container that represents a deep samurai moat

432

00:39:24,520 --> 00:39:28,680

Adam is perplexed. What is this stuff? It's water

433

00:39:29,800 --> 00:39:36,200

It's got some else in it, but it's water. It's a hinderman version of water. Yeah, and you're gonna walk on it

434

00:39:37,080 --> 00:39:43,720

No way way, there's nothing adam would rather do than play in a giant taboo goo

435

00:39:44,680 --> 00:39:46,680

Look at this

436

00:39:46,920 --> 00:39:48,920

Ha ha ha

437

00:39:50,440 --> 00:39:57,160

Finally the container is filled to the brim and our ninja novice soaks up some advice from sensei hinderman

438

00:39:57,320 --> 00:40:03,320

I think you ought to get one good stride across it as far as hanging out there and walking around

439

00:40:03,880 --> 00:40:05,880

Or even hopping. I have my doubts

440

00:40:06,680 --> 00:40:08,520

All right, well, I want to go

441

00:40:08,520 --> 00:40:13,240

Adam scales the imaginary wall and is ready to cross the water obstacle

442

00:40:13,880 --> 00:40:17,160

Think like those movies where they're walking up bamboo and stuff, you know

443

00:40:28,520 --> 00:40:30,520

That is so cool

444

00:40:33,000 --> 00:40:37,400

Hey, it worked it sure did adam ran across the surface

445

00:40:37,560 --> 00:40:45,880

The reason is the cornstarch and water combo is a non-newtonian fluid and these kinds of fluids change their viscosity

446

00:40:46,520 --> 00:40:51,000

It looks like a liquid. It pours like a liquid, but when you want to run across it

447

00:40:52,680 --> 00:40:57,160

You're fine because the impact of your feet is enough to change that balance

448

00:40:57,560 --> 00:41:01,000

All of a sudden you've got a solid that you're dealing with only for a second

449

00:41:01,320 --> 00:41:04,760

But it's long enough for you to move across the top of it without sinking into it

450

00:41:05,080 --> 00:41:12,200

I'm just gonna go back and forth a couple of times because it's really fun adam shatters the perception that shadow warriors don't know how to have a good time

451

00:41:20,120 --> 00:41:23,320

Dude, it's a lot of work big ninja is a hard job

452

00:41:26,600 --> 00:41:28,600

It wants to let you go down doesn't it?

453

00:41:29,000 --> 00:41:36,600

All right, so this is just to show there's no trickery involved. This is actually liquid. I'm gonna step into it

454

00:41:37,000 --> 00:41:39,560

I'm gonna sink then I'm gonna change my clothes

455

00:41:44,520 --> 00:41:46,520

Oh, that's funky

456

00:41:51,160 --> 00:41:54,840

So it's a far-fetched idea for feudal japanese times

457

00:41:55,080 --> 00:42:03,160

But corn was introduced to japan around the 16th century right around the time ninjas existed and it sure was fun

458

00:42:03,480 --> 00:42:05,480

Oh, come on in the water's great

459

00:42:05,800 --> 00:42:09,720

Of course, this is a little on the silly side. I mean, yes, it's a liquid

460

00:42:09,880 --> 00:42:13,080

But uh, are you really gonna have large quantities of

461

00:42:13,560 --> 00:42:15,960

Corn starch mixed up and sitting around someplace

462

00:42:16,040 --> 00:42:23,400

I suppose maybe next to a corn starch factory in Asia somewhere and you happen to be a ninja and you happen to be trying to sneak around

463

00:42:24,120 --> 00:42:26,120

It's a bit of stretch

464

00:42:26,840 --> 00:42:32,120

All right, so this is the end of the line for walking on water. What do you think? It's busted totally busted

465

00:42:33,000 --> 00:42:35,000

Let's go home. All right

466

00:42:40,280 --> 00:42:43,560

Adam i'm a little concerned about upsetting the ninja community

467

00:42:44,440 --> 00:42:46,840

Really? I mean come on. How many of them could there be left?

468

00:42:47,480 --> 00:42:49,480

Ah

469

00:42:49,800 --> 00:42:55,960

Do you want to know what the ask a ninja ninja really thinks log on to discovery.com slash myth busters to find out

470

00:42:56,120 --> 00:42:58,120

It looks like a buddy of mine

471

00:42:58,440 --> 00:43:03,240

Didn't get enough watch bloopers behind the scenes clips and buster getting battered

472

00:43:03,560 --> 00:43:07,560

Stop by the video gallery at discovery.com slash myth busters