

1

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

Remember, don't try this at home.

2

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

We're what you call experts.

3

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

On this episode of MythBusters, guns at the ready.

4

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

Well, this is a little more macho.

5

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

As Jamie and Adam head for the deep end.

6

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

To test once and for all if bullets really are...

7

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

...stopped by water.

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

Hopefully we'll be gone before the pool fully drains.

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

And for the build team, it's Playground Pandemonium.

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

Can you ever do a full 360...

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

...a flat push...

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

...on a swing set?

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

Personally, I don't think that this is a safe thing to be doing.

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

They're gonna do whatever it takes.

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

Hold onto your seats.

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

You're in for a wild ride.

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

Who are the MythBusters?

18

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

Adam Savage.

19

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

I reject the reality and substitute my own.

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

And Jamie Heineman.

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

We're either gonna die or we're gonna fly.

22

00:01:04,000 --> 00:01:08,000

Between them more than 30 years special effects experience.

23

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

That was intense.

24

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

They don't just tell the Myths.

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

They put them to the test.

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00:01:27,000 --> 00:01:30,000

Another Myth where we get to fire some guns.

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

What's this one all about?

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00:01:32,000 --> 00:01:34,000

The Myth is that you're being shot at.

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00:01:34,000 --> 00:01:35,000

You dive underwater.

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00:01:35,000 --> 00:01:37,000

The water protects you from the bullets.

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00:01:37,000 --> 00:01:40,000

I've seen this in countless Hollywood movies.

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00:01:40,000 --> 00:01:42,000

The heroes being chased by the bad guys.

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00:01:42,000 --> 00:01:44,000

He jumps off a bridge and into a river.

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00:01:44,000 --> 00:01:47,000

They all start shooting where they think he is.

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00:01:47,000 --> 00:01:49,000

And he escapes totally unscathed.

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

Well, I have no doubt that the water's gonna slow down...

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00:01:52,000 --> 00:01:54,000

...and eventually stop a bullet.

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00:01:54,000 --> 00:01:57,000

But what we have to test is how deep would you have to be...

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00:01:57,000 --> 00:01:59,000

...to be protected by it?

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00:01:59,000 --> 00:02:02,000

How deep do you have to dive to survive?

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

The MythBusters will build a 10 foot tall acrylic tank.

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00:02:06,000 --> 00:02:10,000

Add some ballistics gel, fill it with water and start shooting.

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00:02:10,000 --> 00:02:14,000

They'll move the gel up and down until they learn the survival depth...

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00:02:14,000 --> 00:02:16,000

...for each gun they fire.

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

Jamie begins work on the water tank.

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00:02:20,000 --> 00:02:23,000

To cope with the force of gunshots...

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00:02:23,000 --> 00:02:27,000

...the inch thick acrylic is held in place by iron girders.

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00:02:30,000 --> 00:02:34,000

Adam, on the other hand, is working on something smaller.

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00:02:34,000 --> 00:02:38,000

I'm starting to make a plexiglass box that will hold my ballistics gel block...

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00:02:38,000 --> 00:02:42,000

...and allow it to be adjustable within our...

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00:02:42,000 --> 00:02:47,000

...what do you call this? Our bullet bench model fish tank sort of thing.

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

Also known as the ballistics tank.

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

Adam's gel holding box will slide into the tank...

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00:02:53,000 --> 00:02:57,000

...where it will be raised or lowered to any given depth.

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

And the gel?

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

Well, believe it or not, the recipe comes courtesy of the FBI.

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00:03:09,000 --> 00:03:13,000

And while the gel setting, the tank's ready to be filled up.

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00:03:13,000 --> 00:03:19,000

Music

59

00:03:19,000 --> 00:03:23,000

Slowly, the leaks are starting to appear.

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00:03:23,000 --> 00:03:28,000

Their tank is marginally more waterproof than a sieve.

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00:03:30,000 --> 00:03:34,000

In the meantime, the ballistics gel is all set.

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00:03:34,000 --> 00:03:39,000

Its flesh like consistency is such that if a bullet goes through it, you'd be dead.

63

00:03:39,000 --> 00:03:43,000

If it doesn't, you'd live to tell the tale.

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00:03:45,000 --> 00:03:48,000

To be honest, until right now, I wasn't sure that that was going to work.

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00:03:51,000 --> 00:03:53,000

The rig is all fired up.

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00:03:53,000 --> 00:03:57,000

Now the team just need to work out what to shoot it with.

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00:03:58,000 --> 00:04:01,000

I think we should start out with the 9mm pistol that we have.

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

And then we could do the M1 carbine and a shotgun.

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00:04:05,000 --> 00:04:11,000

And then there's the big 50, the 50 caliber rifle, which is sort of the most powerful thing that you can own.

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00:04:11,000 --> 00:04:14,000

And in fact, you can't own it in California.

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00:04:14,000 --> 00:04:15,000

So we'll have to borrow one?

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00:04:15,000 --> 00:04:16,000

We'll have to borrow one.

73

00:04:16,000 --> 00:04:19,000

Well, that ought to silence most of our detractors in this one.

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00:04:19,000 --> 00:04:21,000

But I expect we'll still get some complaints.

75

00:04:21,000 --> 00:04:24,000

Yeah, you didn't use a cannon or something.

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00:04:25,000 --> 00:04:29,000

Cannons aside, Jamie goes shopping for the rest of the firepower.

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00:04:30,000 --> 00:04:32,000

And he's come to the right place.

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00:04:33,000 --> 00:04:36,000

They've got more guns here than a Tarantino movie.

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00:04:37,000 --> 00:04:39,000

This is like an elephant gun.

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00:04:40,000 --> 00:04:42,000

What's that fancy black one there?

81

00:04:43,000 --> 00:04:44,000

Well, this is a little more macho.

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00:04:45,000 --> 00:04:52,000

Macho Jamie's got enough firepower to start a military coup, let alone test this watery myth.

83

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

He's even arranged to borrow the dreaded 50 caliber.

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

This is a workout just picking it up.

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

It weighs about 50 pounds.

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00:05:04,000 --> 00:05:06,000

So can I see one of the bullets?

87

00:05:06,000 --> 00:05:07,000

Yeah.

88

00:05:08,000 --> 00:05:09,000

Yeah.

89

00:05:11,000 --> 00:05:14,000

All right, well, that's what this fires.

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

It's smaller than my head.

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

It's all right.

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00:05:18,000 --> 00:05:20,000

Will he dare fire this mother indoors?

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00:05:21,000 --> 00:05:24,000

Well, that depends on how the other guns do.

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00:05:25,000 --> 00:05:29,000

And the starting gun is the smallest, the 9 millimeter.

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00:05:30,000 --> 00:05:38,000

So we're a 9 millimeter pistol, 147 grain round, distance of 6 feet.

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00:05:38,000 --> 00:05:40,000

Okay, the gun is loaded.

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

Three, two, one.

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00:05:48,000 --> 00:05:49,000

Interesting.

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00:05:51,000 --> 00:05:53,000

So where's the bullet?

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00:05:54,000 --> 00:05:57,000

That looks like we went right through the ballistics gel, Jamie.

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00:05:58,000 --> 00:06:03,000

Sure enough, the bullet fired at 960 feet per second when cleaned through the gel.

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

This means it was a fatal hit.

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

Six feet of water, eight enough to stop a 9 mil pistol.

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00:06:10,000 --> 00:06:13,000

So the team lower the gel to seven feet.

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00:06:14,000 --> 00:06:19,000

Okay, this is 9 millimeter pistol, 147 grain round at seven feet.

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00:06:20,000 --> 00:06:23,000

That's another one that went through.

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00:06:26,000 --> 00:06:28,000

Shall we lower it to eight feet?

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00:06:28,000 --> 00:06:32,000

Okay, this is 9 millimeter pistol at eight feet.

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00:06:34,000 --> 00:06:38,000

Three, two, one.

110

00:06:40,000 --> 00:06:41,000

And the result?

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00:06:42,000 --> 00:06:44,000

Whoa, no, that didn't go all the way through.

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00:06:44,000 --> 00:06:45,000

Jamie?

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00:06:45,000 --> 00:06:46,000

Yeah.

114

00:06:46,000 --> 00:06:50,000

It's about half an inch under the surface of the ballistics gel.

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00:06:50,000 --> 00:06:55,000

It's a non-lethal hit, eight feet under, and you're safe from a 9 mil.

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00:06:56,000 --> 00:07:00,000

And for the next test, the shotgun.

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

There's that sound.

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

James, are the minutes ready?

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

So this is the three inch deer slug out of a shotgun.

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00:07:08,000 --> 00:07:09,000

This is awkward.

121

00:07:11,000 --> 00:07:15,000

Three, two, one.

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00:07:16,000 --> 00:07:18,000

It's busted but tanked.

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00:07:20,000 --> 00:07:21,000

Back off, back off.

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

And water spilling straight onto the lights.

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00:07:24,000 --> 00:07:26,000

This is seriously dangerous.

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00:07:28,000 --> 00:07:31,000

Luckily, the power is pulled before anyone gets electrocuted.

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00:07:31,000 --> 00:07:32,000

Just can't come out.

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00:07:32,000 --> 00:07:35,000

The team are safe, at least for now.

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00:07:36,000 --> 00:07:37,000

Jesus wet, Jamie.

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00:07:37,000 --> 00:07:40,000

There's a huge crack in the front piece here.

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00:07:40,000 --> 00:07:45,000

Surprisingly, firing a pump action shotgun inside, not a good idea.

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00:07:46,000 --> 00:07:50,000

But in all the mayhem, what exactly happened to the slug?

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00:07:50,000 --> 00:07:55,000

We saw the little shotgun slugs sitting on top of our ballistics gel and thought,

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00:07:55,000 --> 00:07:59,000

erroneously it turns out that it hadn't punctured the ballistics gel.

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

But in fact, we looked carefully, we can see that not only did it puncture the ballistics gel,

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00:08:04,000 --> 00:08:10,000

but knocked a massive chunk, a cone-sized chunk out of the bottom of the ballistics gel.

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00:08:10,000 --> 00:08:12,000

That's definitely a lethal hit.

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00:08:12,000 --> 00:08:19,000

They pierce the gel, burst the tank, and maybe busted this watery myth.

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00:08:19,000 --> 00:08:25,000

Later, Adam and Jamie head to the pool to solve their shotgun slip-up.

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00:08:25,000 --> 00:08:28,000

Three, two, one.

141

00:08:28,000 --> 00:08:30,000

But next...

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00:08:30,000 --> 00:08:36,000

Coming up on MythBusters, is it possible to go 360 degrees around a swing set?

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

Ahhhh!

144

00:08:43,000 --> 00:08:48,000

It's one of the great playground parables.

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00:08:51,000 --> 00:08:55,000

If you try hard enough, can you get someone to swing over the top?

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00:08:55,000 --> 00:08:58,000

What a trooper. Not one complaint all day.

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00:08:58,000 --> 00:09:02,000

The build team is about to become King of the Swings.

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00:09:02,000 --> 00:09:12,000

What is the myth, Grant?

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

The claim is that if you get up enough speed, you can actually swing all the way around a swing set,

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00:09:18,000 --> 00:09:21,000

make a complete revolution, without falling out.

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00:09:21,000 --> 00:09:23,000

Sounds like a good way to break your neck.

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00:09:23,000 --> 00:09:27,000

This is one where, quite honestly, I have no idea what the result's gonna be.

153

00:09:27,000 --> 00:09:29,000

So what's the plan? How are you gonna do this?

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00:09:29,000 --> 00:09:37,000

The overall plan is to purchase a standard regulation playground swing set, and try it with one of us.

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00:09:37,000 --> 00:09:39,000

And when that doesn't work?

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00:09:39,000 --> 00:09:44,000

And when that doesn't work, then we'll goose it up and take it the next step.

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00:09:44,000 --> 00:09:48,000

Yet another common everyday item turned deadly.

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00:09:48,000 --> 00:09:54,000

The build team members are going back to their school days to test a classic kiddy myth.

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

Can you ever swing all the way around a swing set?

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00:09:57,000 --> 00:10:01,000

It's a dangerous challenge, so don't try this at home, kids.

161

00:10:01,000 --> 00:10:06,000

Leave this kind of myth-busting to the experts.

162

00:10:06,000 --> 00:10:14,000

Today, Tauri's in charge of safety.

163

00:10:14,000 --> 00:10:18,000

And he's already made an alarming find.

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00:10:18,000 --> 00:10:23,000

Warning. This swing was designed for use by children only, not for adult use.

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00:10:23,000 --> 00:10:26,000

We have three adults that are gonna be trying this out.

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00:10:26,000 --> 00:10:30,000

This is not rated for that weight.

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00:10:30,000 --> 00:10:35,000

So just to be sure, Tauri adds more mats.

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00:10:35,000 --> 00:10:39,000

And decides to test exactly how safe they are.

169

00:10:39,000 --> 00:10:42,000

Alright, so this is for sight.

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00:10:42,000 --> 00:10:53,000

I think we need some softer pads.

171

00:10:53,000 --> 00:11:04,000

As Tauri continues being a human crash test dummy, the others are plotting something a little more scientific.

172

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

They're building a giant calibrated scale, which, when coupled with the high-speed camera,

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00:11:10,000 --> 00:11:20,000

will allow them to work out whether they're coming close to generating sufficient force needed for a chain-straight 360.

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00:11:20,000 --> 00:11:25,000

This myth is a battle between the strength of the pusher driving the swing up

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

and the force of gravity pulling the frustrated swinger down.

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00:11:29,000 --> 00:11:32,000

The pusher must propel the swing fast.

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00:11:32,000 --> 00:11:38,000

Centripetal force, which depends on this velocity, maintains the circular motion.

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00:11:38,000 --> 00:11:43,000

As the swing gets higher, if centripetal force is less than the force of gravity,

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00:11:43,000 --> 00:11:48,000

the chains will go slack and the swinger will fall out of the sky.

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00:11:48,000 --> 00:11:52,000

The high-speed camera will reveal the height at which the chains go loose

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00:11:52,000 --> 00:11:56,000

and the exact velocity of the swinger.

182

00:11:56,000 --> 00:12:03,000

If no swingers get close, the team can use these figures to learn what it will take to go full circle.

183

00:12:03,000 --> 00:12:08,000

Okay, test number one, me under my own strength.

184

00:12:08,000 --> 00:12:10,000

Watch out.

185

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

So, Carrie, you're going to want to swing to your maximum speed.

186

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

Once you get up to that point, call out to the high-speed camera and they'll record it.

187

00:12:16,000 --> 00:12:20,000

Okay, I'm getting to the point where the chain's starting to get loose when I get to the top.

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

So, I'm thinking I'm at my maximum.

189

00:12:23,000 --> 00:12:28,000

Even at her maximum, Carrie's way off a 360.

190

00:12:29,000 --> 00:12:31,000

Whoa!

191

00:12:31,000 --> 00:12:33,000

You went over horizontal.

192

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

Your swing technique is excellent.

193

00:12:36,000 --> 00:12:43,000

The high-speed sure proves that, and it helps the team work out that Carrie reached a max height of 11 feet

194

00:12:43,000 --> 00:12:48,000

and swung at 23 and a half feet per second.

195

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

Okay, who's up next?

196

00:12:51,000 --> 00:12:53,000

Ready.

197

00:12:53,000 --> 00:12:56,000

Test number two, Tori underneath his own strength.

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00:12:56,000 --> 00:12:58,000

All right, ready?

199

00:12:58,000 --> 00:13:03,000

Can safety officer Tori launch the child swing any further around?

200

00:13:03,000 --> 00:13:05,000

All right.

201

00:13:12,000 --> 00:13:14,000

I'm okay.

202

00:13:14,000 --> 00:13:16,000

Are you okay, dude?

203

00:13:16,000 --> 00:13:19,000

Oh, I'm so glad we have the mats.

204

00:13:19,000 --> 00:13:23,000

So, the swing really wasn't rated for adult use.

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00:13:23,000 --> 00:13:25,000

Time's rolling up.

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00:13:25,000 --> 00:13:29,000

He just couldn't generate enough force to overcome gravity.

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00:13:29,000 --> 00:13:33,000

The higher he goes, the harder he falls.

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

But if it's any consolation, they got the numbers they needed.

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00:13:37,000 --> 00:13:44,000

So, you achieve 22.4 feet per second, less than Carrie.

210

00:13:44,000 --> 00:13:50,000

Before Grant's turn, Tori welds the swing firmly shut.

211

00:13:50,000 --> 00:13:53,000

I'm not gonna let that happen again.

212

00:13:53,000 --> 00:13:57,000

And that's not the only precaution, because after Tori's accident,

213

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

Grant is suiting up for safety.

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

All right, it's gonna be test three.

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

Grant under full power, two people pushing.

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

With two pushers, power ranger Grant's picking up speed fast.

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

Do the big push.

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00:14:16,000 --> 00:14:18,000

Go!

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00:14:19,000 --> 00:14:24,000

But he's going to need to use his superpowers to get over this swing bar.

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00:14:27,000 --> 00:14:32,000

Even with two people pushing, Grant goes no closer to 360

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00:14:32,000 --> 00:14:35,000

than Carrie and Tori did on their own.

222

00:14:35,000 --> 00:14:40,000

23 feet per second and 11.5 feet in height.

223

00:14:40,000 --> 00:14:45,000

So, even little Grant was too heavy to push all the way 360.

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00:14:45,000 --> 00:14:49,000

Hey, that suit was cumbersome and it was getting a little scary.

225

00:14:49,000 --> 00:14:51,000

Yeah, it's still way too dangerous.

226

00:14:51,000 --> 00:14:52,000

So, what's the plan?

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00:14:52,000 --> 00:14:54,000

Little Simulate Susie.

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00:14:54,000 --> 00:14:56,000

And how much does Simulate Susie weigh?

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00:14:56,000 --> 00:14:58,000

She weighs 65 pounds.

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

All right, that's about your average weight of like a seven or eight year old?

231

00:15:01,000 --> 00:15:03,000

Yeah, and she's not gonna complain.

232

00:15:03,000 --> 00:15:08,000

For a Simulate Susie, sitting on a swing will be like a walk in the park.

233

00:15:09,000 --> 00:15:14,000

After all, for her last outing, she was strapped into a crashing airplane.

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00:15:16,000 --> 00:15:21,000

Of course, little Susie can't hold on for herself, so the build team wire her in.

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00:15:21,000 --> 00:15:24,000

But please don't try this at home.

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00:15:26,000 --> 00:15:28,000

But using Susie isn't the only change.

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00:15:28,000 --> 00:15:31,000

The team are also having the length of chain,

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00:15:31,000 --> 00:15:35,000

because a shorter chain needs less velocity to make the 360.

239

00:15:36,000 --> 00:15:37,000

In with her.

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00:15:37,000 --> 00:15:39,000

In with her and then pull off.

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00:15:39,000 --> 00:15:40,000

Yeah.

242

00:15:40,000 --> 00:15:45,000

Lastly, they tie ropes around her, so that this time, they can really give it their all.

243

00:15:52,000 --> 00:15:56,000

The build team boys eave hard, but still know 360.

244

00:15:56,000 --> 00:15:59,000

So, Tari calls in some beefy bikers.

245

00:15:59,000 --> 00:16:02,000

Yeah, we need a little help.

246

00:16:02,000 --> 00:16:03,000

All right.

247

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

We'll see you in a bit.

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

Now that was quick.

249

00:16:11,000 --> 00:16:12,000

You made it.

250

00:16:12,000 --> 00:16:15,000

Dude, we need a little help.

251

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

Oh, man, how you doing?

252

00:16:17,000 --> 00:16:22,000

These Hell's Angels may be just what little Susie needs.

253

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

You guys ready?

254

00:16:25,000 --> 00:16:30,000

One, two, here we go.

255

00:16:34,000 --> 00:16:35,000

Success.

256

00:16:35,000 --> 00:16:37,000

Susie's over the bar.

257

00:16:37,000 --> 00:16:40,000

This myth is still alive and kicking.

258

00:16:41,000 --> 00:16:42,000

That's all we needed.

259

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

It's just a little muscle.

260

00:16:48,000 --> 00:16:52,000

Later, the build team go all out for a 360.

261

00:16:57,000 --> 00:17:02,000

But after the break, Adam and Jamie unleash the big guns.

262

00:17:04,000 --> 00:17:08,000

Adam and Jamie have had a shotgun setback.

263

00:17:08,000 --> 00:17:10,000

Does water stop bullets?

264

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

Well, from a 12 gauge, absolutely not.

265

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

It ruptured the tank and flooded the store.

266

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

Flaps off, flaps off.

267

00:17:21,000 --> 00:17:25,000

Well, it looks like we're not going to be shooting any more guns off in the shop.

268

00:17:25,000 --> 00:17:30,000

Yeah, you know, I think the problem with our rig is it doesn't have to be a gun.

269

00:17:30,000 --> 00:17:35,000

That's a worst case scenario, but all we really need is obviously a longer column of water,

270

00:17:35,000 --> 00:17:38,000

but a column of water could be at an angle, like a 30 degree angle.

271

00:17:38,000 --> 00:17:42,000

Which would actually be more realistically the way you would get shot at,

272

00:17:42,000 --> 00:17:45,000

like somebody off to the side of a lake or a river or whatever.

273

00:17:45,000 --> 00:17:48,000

Their first rig was the worst case scenario.

274

00:17:48,000 --> 00:17:53,000

With the shooter directly above, the target needs to be deeper than the furthest bullet.

275

00:17:53,000 --> 00:17:56,000

Now, with the shooter shooting at 30 degrees,

276

00:17:56,000 --> 00:17:59,000

the target can be much closer to the surface.

277

00:17:59,000 --> 00:18:04,000

For an 8 foot penetrating bullet, he'd need to be just 4 feet underwater.

278

00:18:08,000 --> 00:18:14,000

Adam begins recycling the busted vertical tank into the new longer 30 degree rig.

279

00:18:16,000 --> 00:18:21,000

He's doubling the firing range, as he makes a 20 foot railway on the water.

280

00:18:21,000 --> 00:18:26,000

He's doubling the firing range, as he makes a 20 foot railway on which the ballistic gel

281

00:18:26,000 --> 00:18:30,000

will be slid up or down to the necessary distance.

282

00:18:33,000 --> 00:18:38,000

While Adam's been working, Jamie's found somewhere to shoot into water at 30 degrees.

283

00:18:38,000 --> 00:18:43,000

It's not a lake or a river, but a public swimming pool.

284

00:18:45,000 --> 00:18:49,000

Worst case scenario today is that somebody dies from a bullet wound.

285

00:18:50,000 --> 00:18:56,000

The team head for the deep end to cause a splash with their calibrated rail rig.

286

00:18:58,000 --> 00:19:02,000

While gun expert Gina Ralske prepares their lethal weapons.

287

00:19:04,000 --> 00:19:09,000

The rig's in place, but because the pool is slightly shallower than they'd expected,

288

00:19:09,000 --> 00:19:14,000

it's ended up at an angle of 23 degrees rather than the plan 30.

289

00:19:15,000 --> 00:19:18,000

Everything's set for the ballistic gel.

290

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

Now the box jellyfish is one of the most lethal foes you'll encounter in your average swimming pool.

291

00:19:24,000 --> 00:19:29,000

They prefer temperatures between 79 and 82 degrees and they give a nasty sting.

292

00:19:29,000 --> 00:19:34,000

If you see one, just swim in the other direction and remember, he's just as afraid of you.

293

00:19:35,000 --> 00:19:41,000

With the jellyfish in place and the refraction aimer marked up, the pool experiment can begin.

294

00:19:42,000 --> 00:19:51,000

And first weapon up is a replica Civil War rifle, which will be firing Jamie's homemade bullets at a thousand feet per second.

295

00:19:52,000 --> 00:19:59,000

This is the black powder rifle, ballistic gel at a distance of 15 feet.

296

00:19:59,000 --> 00:20:01,000

Okay, cocking.

297

00:20:02,000 --> 00:20:08,000

And three, two, one.

298

00:20:11,000 --> 00:20:13,000

Ha ha ha ha.

299

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

It's a bullseye on the cellophane, but where did the round end up?

300

00:20:22,000 --> 00:20:24,000

That's the...

301

00:20:25,000 --> 00:20:27,000

directly to where I am.

302

00:20:27,000 --> 00:20:28,000

Where you are?

303

00:20:28,000 --> 00:20:30,000

It's about 25 feet.

304

00:20:30,000 --> 00:20:37,000

The bullet veered way off target, so the confused team try again with the gel at 5 feet.

305

00:20:38,000 --> 00:20:43,000

Three, two, one.

306

00:20:45,000 --> 00:20:47,000

That might have made it in.

307

00:20:48,000 --> 00:20:53,000

But when Adam looks for it, it's nowhere to be seen and it's certainly not in the gel.

308

00:20:54,000 --> 00:21:00,000

I think when we're done with this, I think we'll be able to say that if you're, you know, somehow transported back to the time of the Civil War

309

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

and you're being chased by a battalion of soldiers, then actually diving into the water might actually save you.

310

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

But how deep would a time traveler need to dive?

311

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

The team now test three feet and for that, they step up safety.

312

00:21:16,000 --> 00:21:20,000

Okay, black powder rifle, distance of three feet.

313

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

Oh yeah, I see the round in the back of the box.

314

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

That's definitely lethal at three feet.

315

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

Dead through three feet, safe through five.

316

00:21:34,000 --> 00:21:40,000

But with the 23 degree shooting angle, you'd actually be safe just two feet under the surface.

317

00:21:44,000 --> 00:21:54,000

And next up, it's the first of the supersonic weapons, the 223 rifle, firing at a frightening 2,500 feet per second.

318

00:21:55,000 --> 00:21:59,000

So this is the 223 at 10 feet.

319

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

Now that was loud.

320

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

Frogman Adams in to assess the damage.

321

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

That was right there.

322

00:22:12,000 --> 00:22:15,000

Well, there's your problem.

323

00:22:17,000 --> 00:22:19,000

This thing just exploded. Are these hollow points?

324

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

No, just full metal jacket.

325

00:22:21,000 --> 00:22:23,000

That's the very tip of it.

326

00:22:24,000 --> 00:22:27,000

It's littered down there. I got up all the pieces as I could.

327

00:22:27,000 --> 00:22:32,000

Well, Adam, let's just bring this sucker right up to the shortest distance we can do. What's that, like three feet?

328

00:22:32,000 --> 00:22:34,000

Absolutely, three feet.

329

00:22:34,000 --> 00:22:38,000

Three, two, one.

330

00:22:41,000 --> 00:22:44,000

Surely three feet can't stop that mother.

331

00:22:47,000 --> 00:22:50,000

The tip of the bullet was just resting at the ballistics gel.

332

00:22:50,000 --> 00:22:53,000

Wow, this thing's breaking up the minute it hits the water.

333

00:22:53,000 --> 00:22:56,000

So, you know, no wonder we can't hit the ballistics gel.

334

00:22:56,000 --> 00:23:02,000

So as surprised as I am to say it, 223 myth actually confirmed.

335

00:23:03,000 --> 00:23:15,000

On entering the water, the supersonic 223 bullet decelerates so fast that it disintegrates into tiny black fragments, which sink slowly to the bottom of the pool.

336

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

So the team jumped the gun to the M1, firing at 2,800 feet per second.

337

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

This is a serious weapon and one that's already been through the Mythbusters mill.

338

00:23:30,000 --> 00:23:35,000

When Adam and Jamie tested how tough bulletproof glass was, no guns could penetrate it.

339

00:23:36,000 --> 00:23:40,000

Until that is, they tried the M1.

340

00:23:41,000 --> 00:23:43,000

That went right through it.

341

00:23:43,000 --> 00:23:46,000

This puppy flew straight through.

342

00:23:46,000 --> 00:23:50,000

And three, two, one.

343

00:23:52,000 --> 00:23:58,000

And the results? The same as for the 223, tiny fragments of bullet.

344

00:23:59,000 --> 00:24:06,000

You know what, instead of going to five feet, let's bring this thing right back up to, you know, that two foot, three foot mark that we had.

345

00:24:06,000 --> 00:24:11,000

Okay. This is the M1 Grand 30 caliber at two feet.

346

00:24:11,000 --> 00:24:13,000

Two, one.

347

00:24:14,000 --> 00:24:19,000

At two feet, the powerful M1 just pierces the ballistics gel.

348

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

It's about four inches in, which by our calibration is just enough to break the skin.

349

00:24:28,000 --> 00:24:33,000

Incredibly, this myth is confirmed for another supersonic gun.

350

00:24:33,000 --> 00:24:40,000

Considering that out of water, that very bullet, when we were testing our blast chamber, went through two and a half inches of bulletproof glass.

351

00:24:41,000 --> 00:24:48,000

The water obviously has a profound effect on the bullet in completely eliminating its deadliness very quickly.

352

00:24:49,000 --> 00:24:54,000

Two feet underwater, ten inches down from the surface. The myth's confirmed.

353

00:24:55,000 --> 00:25:02,000

That only leads the frightening 50 cal, but are the Mythbusters brave enough to shoot this brute into the pool?

354

00:25:03,000 --> 00:25:04,000

Oh my gosh.

355

00:25:04,000 --> 00:25:10,000

Coming right up, circus chaos as the build team tried to swing full circle.

356

00:25:15,000 --> 00:25:17,000

Remember, don't try this at home.

357

00:25:18,000 --> 00:25:20,000

We're what you call experts.

358

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

In the 360 swing myth, the awesome foursome got Susie over the top.

359

00:25:29,000 --> 00:25:32,000

But it turns out to be not quite what the team had hoped for.

360

00:25:33,000 --> 00:25:37,000

Moments after Susie goes over the bar, she just falls out of the sky.

361

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

It's not a chain straight 360, so it's back to the drawing board.

362

00:25:43,000 --> 00:25:47,000

So you guys needed to call in the big guns to get her over the bar, did ya?

363

00:25:48,000 --> 00:25:54,000

Yeah, we cleared the bar, but it wasn't a full 360. It was more like 300 and then she fell.

364

00:25:54,000 --> 00:26:01,000

Well, we know this myth is busted. You can't under your own power do a 360, but as Mythbusters, we kinda wanna see what it takes to actually do it.

365

00:26:02,000 --> 00:26:06,000

So we decided to build a scale model to help us figure out if it was even possible.

366

00:26:08,000 --> 00:26:11,000

Hello. I'm Susie. Hello.

367

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

Lost it. It's too late.

368

00:26:15,000 --> 00:26:18,000

Tori, the minimum amount of push to get it 360.

369

00:26:18,000 --> 00:26:19,000

Okay.

370

00:26:19,000 --> 00:26:21,000

Test number one, Tori Power on the model.

371

00:26:21,000 --> 00:26:22,000

Ooh, that was good.

372

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

That was pretty good.

373

00:26:25,000 --> 00:26:34,000

And her speed, 36 feet per second, way faster than even Grant swung at, and maybe too fast to replicate on the full-size swing.

374

00:26:34,000 --> 00:26:39,000

But there is a way to make it easier. Use rigid arms.

375

00:26:42,000 --> 00:26:46,000

With rigid arms, no energy is wasted in keeping the chain straight.

376

00:26:47,000 --> 00:26:53,000

All the forces are channeled into velocity, so a much slower speed is needed to go 360.

377

00:26:56,000 --> 00:26:57,000

That's it.

378

00:26:58,000 --> 00:27:03,000

Bingo. The rigid arm only needed a velocity of 10 feet per second.

379

00:27:03,000 --> 00:27:08,000

And that means that the next stop is the big top, the circus.

380

00:27:10,000 --> 00:27:14,000

I'm standing here in my headband and my leg warmers because we've come to Oakland to trap these arts.

381

00:27:14,000 --> 00:27:19,000

We hear that they have a swing that's guaranteed to do 360, and I want to try it.

382

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

The build team have found a full-size rigid arm swing and a circus acrobat,

383

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

who may be able to train them to go full circle.

384

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

Are you one of those kids that tried to do a 360 on the swing?

385

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

I've been in the circus my whole life. I'm a seventh generation circus performer, so...

386

00:27:39,000 --> 00:27:40,000

Wow.

387

00:27:40,000 --> 00:27:45,000

I really didn't have swing sets. I had Russian swings, trampolines, flying trapezes my whole life, so...

388

00:27:46,000 --> 00:27:50,000

Eric's clearly the man to help the build team go 360.

389

00:27:51,000 --> 00:27:56,000

France up first and harnessed in, he's ready for some negative Gs.

390

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

Okay, Eric, are you sure I'm safe?

391

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

Um, yeah.

392

00:28:04,000 --> 00:28:09,000

And with those words of encouragement, it's time to swing this puppy around.

393

00:28:10,000 --> 00:28:12,000

I'm shrugging my shoulders and it's...

394

00:28:12,000 --> 00:28:13,000

You don't have to shrug yet.

395

00:28:14,000 --> 00:28:16,000

Yeah, you're not upside down yet, dude.

396

00:28:16,000 --> 00:28:17,000

Open your eyes!

397

00:28:18,000 --> 00:28:22,000

With Eric on board, the swing begins to creep higher and higher.

398

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

They're already over 220 degrees.

399

00:28:30,000 --> 00:28:32,000

But Grants not looking so hot.

400

00:28:33,000 --> 00:28:34,000

He looks like he's about to hurl.

401

00:28:35,000 --> 00:28:36,000

I need a break!

402

00:28:36,000 --> 00:28:40,000

Nausea kicks in at 230 degrees.

403

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

It was really, really weird when we're getting up there.

404

00:28:44,000 --> 00:28:48,000

I had to stop like I was kind of grunting, but I just had to kind of stop and focus.

405

00:28:48,000 --> 00:28:49,000

Okay, here I come.

406

00:28:50,000 --> 00:28:52,000

Can Carrie do any better?

407

00:28:54,000 --> 00:28:56,000

She's certainly not as green as Grant.

408

00:28:57,000 --> 00:28:58,000

Okay, go ahead and lower your grip.

409

00:29:02,000 --> 00:29:03,000

Yeah!

410

00:29:03,000 --> 00:29:05,000

Oh my gosh, that's enough!

411

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

It carries the highest so far, reaching 240 degrees.

412

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

Can Tori make the elusive 360?

413

00:29:13,000 --> 00:29:17,000

It's a challenge thing, um, the fact that both of them didn't make it.

414

00:29:18,000 --> 00:29:19,000

I have to make it.

415

00:29:20,000 --> 00:29:22,000

And now, for the main attraction.

416

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

And he's away.

417

00:29:30,000 --> 00:29:32,000

This, of course, is the easy bit.

418

00:29:33,000 --> 00:29:34,000

And Eric's up.

419

00:29:35,000 --> 00:29:37,000

Now they can really get this thing going.

420

00:29:40,000 --> 00:29:42,000

Already they're past Grant's best efforts.

421

00:29:45,000 --> 00:29:46,000

Oh, you're almost there!

422

00:29:48,000 --> 00:29:49,000

Sorry.

423

00:29:51,000 --> 00:29:52,000

They're over 280.

424

00:29:53,000 --> 00:29:54,000

Oh, you're getting it!

425

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

With one final push.

426

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

Push!

427

00:30:02,000 --> 00:30:03,000

Push!

428

00:30:04,000 --> 00:30:05,000

It's just too much.

429

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

Tori's as tired as a slug scaling a chimney.

430

00:30:10,000 --> 00:30:13,000

His mind wants to continue, but his body's given up.

431

00:30:14,000 --> 00:30:16,000

I was like, yeah, we're gonna get it!

432

00:30:16,000 --> 00:30:18,000

And then my legs were like, no you're not.

433

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

Well, we came here for a 360.

434

00:30:22,000 --> 00:30:23,000

We've got to leave with one.

435

00:30:23,000 --> 00:30:24,000

Yeah.

436

00:30:24,000 --> 00:30:25,000

Well, I'll do 360 for you guys.

437

00:30:26,000 --> 00:30:27,000

You'll do it for us?

438

00:30:27,000 --> 00:30:28,000

No problem.

439

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

All right.

440

00:30:31,000 --> 00:30:35,000

Eric, the seventh generation circus performer, takes center stage.

441

00:30:38,000 --> 00:30:39,000

It wants to go around.

442

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

There you go!

443

00:30:42,000 --> 00:30:43,000

Nice!

444

00:30:44,000 --> 00:30:46,000

The ringmaster is over.

445

00:30:46,000 --> 00:30:49,000

So for rigid arms, this myth is confirmed.

446

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

A 360 is really possible.

447

00:30:55,000 --> 00:30:57,000

Eric, hey, thanks so much for all your help today.

448

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

With the rigid arms mission accomplished, the team must return to their chain swing

449

00:31:05,000 --> 00:31:08,000

to try to repeat this amazing feat.

450

00:31:09,000 --> 00:31:15,000

Next up, the build team unlock the secret to a chain straight 360.

451

00:31:18,000 --> 00:31:22,000

Later, back at the pool, will the big 50 get fired?

452

00:31:23,000 --> 00:31:24,000

This is the 50 caliber.

453

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

At the poolside, water is being surprisingly bullet proof.

454

00:31:36,000 --> 00:31:41,000

A few feet under and you'd be safe from all the firepower they've used.

455

00:31:42,000 --> 00:31:49,000

Until now, when they're about to fire, the biggest gun in town at 3,000 feet per second.

456

00:31:50,000 --> 00:31:56,000

I don't know whether you understand what is about to happen here, but this is the M1 grant.

457

00:31:57,000 --> 00:31:58,000

Yeah.

458

00:31:58,000 --> 00:31:59,000

This is the 50 caliber.

459

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

The M1 grant holds 150 grains.

460

00:32:04,000 --> 00:32:06,000

This one is 600 grains.

461

00:32:06,000 --> 00:32:07,000

This kills you.

462

00:32:07,000 --> 00:32:09,000

This kills you and everyone else in the room.

463

00:32:11,000 --> 00:32:18,000

Despite its crazy size, it looks like Jamie's going to bite the bullet and really fire this thing.

464

00:32:19,000 --> 00:32:24,000

Yeah, let's just be prepared to get unpacked and get out of here really fast.

465

00:32:25,000 --> 00:32:28,000

Hopefully we'll be gone before the pool fully drains.

466

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

Jamie's not being quite so lighthearted.

467

00:32:41,000 --> 00:32:42,000

So the safety's off now?

468

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

I would think so, yeah.

469

00:32:43,000 --> 00:32:44,000

Okay.

470

00:32:48,000 --> 00:32:52,000

With the bullet loaded, it's time to step back to safety.

471

00:32:52,000 --> 00:32:54,000

For everyone except Jamie.

472

00:32:55,000 --> 00:32:57,000

Okay, eyes and ears.

473

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

This is the 50 caliber at 10 feet.

474

00:33:03,000 --> 00:33:07,000

Come hell or high water, this beast is going to get fired.

475

00:33:08,000 --> 00:33:12,000

Three, two, one.

476

00:33:18,000 --> 00:33:21,000

That was more like an explosion than a gunshot.

477

00:33:21,000 --> 00:33:23,000

But where's the banana bullet?

478

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

There is no bullet in the ballistics gel.

479

00:33:28,000 --> 00:33:35,000

But with this weapon, the bullet could have gone through the gel and buried itself in the far side of the pool.

480

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

What do you got?

481

00:33:39,000 --> 00:33:41,000

I got a bunch of stuff.

482

00:33:41,000 --> 00:33:46,000

It expended all its energy within three feet and became totally non-lean.

483

00:33:48,000 --> 00:33:49,000

Wow.

484

00:33:49,000 --> 00:33:54,000

At 23 degrees, even the terrifying 50 cal won't get you.

485

00:33:54,000 --> 00:33:57,000

Just 14 inches under and you'd be safe.

486

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

Well, Adam, this is totally amazing.

487

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

Even with the 50 caliber and armor piercing around,

488

00:34:03,000 --> 00:34:06,000

it lost all its energy within the first couple of feet.

489

00:34:06,000 --> 00:34:10,000

It ripped the copper jacket off of it and didn't penetrate the target.

490

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

Just like all our other high-powered rifles.

491

00:34:12,000 --> 00:34:13,000

Yeah.

492

00:34:13,000 --> 00:34:16,000

And yet with the slower muzzle velocity,

493

00:34:16,000 --> 00:34:19,000

weapons like handgun, the black powder rifle and the shotgun,

494

00:34:19,000 --> 00:34:22,000

we found deeper penetration, sometimes as much as eight feet.

495

00:34:22,000 --> 00:34:27,000

But at a 30 degree angle, you'd still only have to get your body under about three feet,

496

00:34:27,000 --> 00:34:28,000

which is quite achievable.

497

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

Well, I guess you know what that means.

498

00:34:31,000 --> 00:34:33,000

Yeah, the myth is confirmed.

499

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

You would be safe.

500

00:34:35,000 --> 00:34:37,000

Not that I'd want to try it.

501

00:34:47,000 --> 00:34:52,000

A rigid arm swing can indeed go 360.

502

00:34:55,000 --> 00:34:57,000

But chain swings.

503

00:34:57,000 --> 00:35:00,000

Well, the build team tried their best, but got nowhere.

504

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

This myth is busted.

505

00:35:03,000 --> 00:35:06,000

So now in classic myth busters fashion,

506

00:35:06,000 --> 00:35:10,000

they're going to do whatever it takes to get a chain swing up and over the bar.

507

00:35:11,000 --> 00:35:15,000

We came up with sort of a wild-y coyote solution to this 360 problem.

508

00:35:15,000 --> 00:35:18,000

We're just going to strap a few rockets to a little simulated Susie

509

00:35:18,000 --> 00:35:21,000

and just watch her go around the swing set.

510

00:35:22,000 --> 00:35:26,000

No sooner said than done, little Susie's got one glued to her back.

511

00:35:27,000 --> 00:35:31,000

Three, two, one, firing.

512

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

Well, the little rocketeer went over the bar,

513

00:35:38,000 --> 00:35:40,000

but not quite as planned.

514

00:35:42,000 --> 00:35:44,000

Well, that test was pretty good.

515

00:35:45,000 --> 00:35:49,000

I think what we need to check out now is what's more important,

516

00:35:49,000 --> 00:35:53,000

tension on the chain or angular velocity,

517

00:35:53,000 --> 00:35:56,000

which is going to push it around in an arc.

518

00:35:57,000 --> 00:36:03,000

So for test two, the rocket is positioned exactly horizontal for maximum velocity.

519

00:36:03,000 --> 00:36:08,000

In three, two, one, firing.

520

00:36:12,000 --> 00:36:17,000

The horizontal rocket sends Susie off into a cataclysmic spin

521

00:36:17,000 --> 00:36:20,000

and blows off her hand.

522

00:36:22,000 --> 00:36:25,000

So for the next test, the rocket is positioned vertically

523

00:36:25,000 --> 00:36:28,000

for max tension on the chain.

524

00:36:28,000 --> 00:36:31,000

In three, two, one, launching.

525

00:36:34,000 --> 00:36:37,000

That was pretty pathetic.

526

00:36:37,000 --> 00:36:40,000

So the vertical rocket was pretty useless.

527

00:36:40,000 --> 00:36:44,000

It's going to be a combination that's needed for this myth.

528

00:36:44,000 --> 00:36:47,000

Something like, say, 40 degrees.

529

00:36:47,000 --> 00:36:49,000

So this is test number four.

530

00:36:49,000 --> 00:36:51,000

Rockets 40 degrees to the horizontal.

531

00:36:52,000 --> 00:36:58,000

Alright, we're armed and launching in three, two, one, fire.

532

00:36:58,000 --> 00:37:02,000

Yes! Yes! Perfect!

533

00:37:02,000 --> 00:37:03,000

That was great.

534

00:37:03,000 --> 00:37:05,000

40 degrees was spot on.

535

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

Susie goes 360 and beyond.

536

00:37:08,000 --> 00:37:13,000

So the next stage is to replicate this result on the full-size swing

537

00:37:13,000 --> 00:37:16,000

by strapping on some mammoth missiles.

538

00:37:18,000 --> 00:37:23,000

Coming right up, full-size Susie gets ready for the ride of her life.

539

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

Rockets finally made mini Susie go 360.

540

00:37:40,000 --> 00:37:45,000

Now at Hamilton Air Force Base, the mythbusters are about to scale things up

541

00:37:45,000 --> 00:37:50,000

and strap rockets onto their full-size swing to replicate this feat.

542

00:37:50,000 --> 00:37:55,000

Luckily, they've got amateur rocket expert Eric Gates to help them.

543

00:37:56,000 --> 00:38:00,000

A slightly smoother Eric has already helped the mythbusters

544

00:38:00,000 --> 00:38:04,000

test whether there was ever a Ming Dynasty astronaut.

545

00:38:09,000 --> 00:38:15,000

And rocket cars? Thanks to Eric, Adam and Jamie know they can go damn fast

546

00:38:15,000 --> 00:38:17,000

but won't get off the ground.

547

00:38:19,000 --> 00:38:26,000

But this time he's got to jet-simulate Susie 360 degrees round a swing set.

548

00:38:27,000 --> 00:38:31,000

Worst case scenario is this chair is just going to end up flipping all by itself

549

00:38:31,000 --> 00:38:33,000

instead of actually going in a stable direction around.

550

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

That's what we have to overcome.

551

00:38:35,000 --> 00:38:39,000

Because Susie is so much bigger than her scaled-down cousin,

552

00:38:39,000 --> 00:38:42,000

the team decide to attach four rockets.

553

00:38:42,000 --> 00:38:47,000

That's 400 pounds of thrust at the magic 40-degree angle.

554

00:38:48,000 --> 00:38:52,000

Once they're on, the igniters are put in and wired up in series.

555

00:38:54,000 --> 00:38:55,000

Why?

556

00:38:55,000 --> 00:38:59,000

If one fails, none of them go. So that's why we wired them in series.

557

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

Everything's ready. Jamie's going to give the swing a starting push

558

00:39:04,000 --> 00:39:06,000

and then retreat to safety...

559

00:39:09,000 --> 00:39:12,000

before Eric fires the rockets.

560

00:39:12,000 --> 00:39:15,000

Three, two, one...

561

00:39:15,000 --> 00:39:16,000

Whoa!

562

00:39:24,000 --> 00:39:26,000

Well, dinner 360 just...

563

00:39:28,000 --> 00:39:32,000

Slowed down, it's clear that only one side of the rocket's ignited

564

00:39:32,000 --> 00:39:36,000

and that sends Susie into a gut-brunching spin.

565

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

But Eric reckoned that was impossible.

566

00:39:40,000 --> 00:39:44,000

I mean, he said, quote, we rigged them up in series

567

00:39:44,000 --> 00:39:46,000

so that if one failed, they'd all fail.

568

00:39:46,000 --> 00:39:48,000

But that didn't seem to be the case.

569

00:39:48,000 --> 00:39:51,000

It looked like two failed and two worked.

570

00:39:52,000 --> 00:39:55,000

This time Eric puts just one rocket each side.

571

00:39:55,000 --> 00:39:58,000

Then there's less that can go wrong.

572

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

With the wiring confirmed, Susie's ready for another wild ride.

573

00:40:05,000 --> 00:40:08,000

One, three, two, one...

574

00:40:10,000 --> 00:40:13,000

...

575

00:40:14,000 --> 00:40:16,000

But maybe not that one.

576

00:40:19,000 --> 00:40:21,000

Okay, stay put.

577

00:40:21,000 --> 00:40:24,000

So what went wrong this time?

578

00:40:26,000 --> 00:40:30,000

The high speed shows that one side fired off just before the other.

579

00:40:30,000 --> 00:40:35,000

It's a fraction of a second, but it's enough to throw Susie into a crazy twist.

580

00:40:36,000 --> 00:40:39,000

But why are they using two rockets anyway?

581

00:40:39,000 --> 00:40:43,000

Well, Grant and Tori made a stellar model when we were in the shop

582

00:40:43,000 --> 00:40:47,000

and they had it completely figured out with where they wanted their rockets

583

00:40:47,000 --> 00:40:49,000

and exactly the angle they wanted.

584

00:40:49,000 --> 00:40:51,000

They wanted just one rocket on her chest

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00:40:51,000 --> 00:40:54,000

and that seemed to be what propelled her around in 360.

586

00:40:54,000 --> 00:40:58,000

I'm actually not sure why it got modified on the way here.

587

00:40:59,000 --> 00:41:02,000

Whatever the reason, they now unmodify it.

588

00:41:02,000 --> 00:41:06,000

And attach Eric's single biggest rocket dead center.

589

00:41:07,000 --> 00:41:10,000

But because they're worried about Susie's weight,

590

00:41:10,000 --> 00:41:13,000

they opt for a launch angle of 60 degrees.

591

00:41:13,000 --> 00:41:15,000

Three, two, one...

592

00:41:18,000 --> 00:41:22,000

Third time unlucky, but it's not all bad news.

593

00:41:23,000 --> 00:41:26,000

Even though the rocket fired its full ignition,

594

00:41:26,000 --> 00:41:30,000

she didn't spin, she just stayed in one direction, which is ideal.

595

00:41:30,000 --> 00:41:33,000

That means all we need to do is probably drop the angle a bit

596

00:41:33,000 --> 00:41:36,000

and she'll go forward instead of being just pushed down.

597

00:41:36,000 --> 00:41:39,000

They dropped the angle to 40 degrees.

598

00:41:39,000 --> 00:41:42,000

Now everything matches the scale test.

599

00:41:43,000 --> 00:41:48,000

While the fire marshals stand by, Jamie does a final head count.

600

00:41:48,000 --> 00:41:52,000

With the light fading, it's now or never for this myth.

601

00:41:52,000 --> 00:41:54,000

OK, we're good.

602

00:41:55,000 --> 00:41:58,000

Jamie gives her one last push.

603

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

And three, two, one...

604

00:42:06,000 --> 00:42:08,000

And she's over.

605

00:42:11,000 --> 00:42:15,000

At last, using the results of the scale model tests,

606

00:42:15,000 --> 00:42:18,000

simulate Susie finally goes the distance.

607

00:42:19,000 --> 00:42:22,000

That's a full wrap on the chain.

608

00:42:22,000 --> 00:42:25,000

Now there's proof that amidst the smoke,

609

00:42:25,000 --> 00:42:28,000

she really did go up and over the bar.

610

00:42:31,000 --> 00:42:36,000

And her chains, while the high speed shows that they were straight the whole way around.

611

00:42:37,000 --> 00:42:41,000

A perfect demonstration of a swing set 360.

612

00:42:44,000 --> 00:42:46,000

For a minute there, I didn't think it was actually going to work.

613

00:42:46,000 --> 00:42:49,000

No, I didn't think it was going to work most of the time.

614

00:42:49,000 --> 00:42:51,000

But how cool was that when she was going...

615

00:42:51,000 --> 00:42:53,000

It ends up on the top of the swing set.

616

00:42:53,000 --> 00:42:59,000

I don't know, by cool, if you mean absolutely terrifying when they started spraying smoke and fire towards us.

617

00:42:59,000 --> 00:43:01,000

Only 15 feet away.

618

00:43:01,000 --> 00:43:03,000

Yeah, cool.

619

00:43:03,000 --> 00:43:06,000

So in the final analysis team, what is the final verdict?

620

00:43:06,000 --> 00:43:09,000

The myth that you can do a full 360 of the swing set, busted, plausible or confirmed.

621

00:43:09,000 --> 00:43:10,000

Totally busted.

622

00:43:10,000 --> 00:43:12,000

Not possible, busted.

623

00:43:12,000 --> 00:43:15,000

Busted, but the rockets were spectacular.

624

00:43:15,000 --> 00:43:17,000

Well, hopefully that's our job.

625

00:43:17,000 --> 00:43:19,000

Tickstrap Rock, it's on Do Everything.