

ANNOTATED MYTHBUSTERS



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Episode 43: Seasickness Cures, Finger in the Gun Barrel, Tailgate Gas Efficiency

- Sticking your finger in the barrel of a gun as it's firing will cause the gun to blow up and leave you safe: **mythbusted**. You can get a barrel to balloon slightly, but it won't explode and you will lose your hand.
- You save more gas with the tailgate down in a pickup truck: **mythbusted**. You save more gas with the tailgate up.
- Seasickness cures: they tested various non-pharmaceutical remedies, a placebo, and an over-the-counter pharmaceutical drug and found that ginger pills were a **plausible** remedy. The pharmaceutical drug worked as well, but made them loopy.

Update: [Tailgate Up or Down Revisited](#)

Finger in a Barrel

Cartoon Myth: If you stick your finger in the barrel of a gun, the gun will explode. The shooter will be injured but you will be fine.

There was a great cartoon done for this myth that featured reinterpretations of Adam's "Am I missing an eyebrow?" quote and Jamie's "Quack, damn you" quote.

Setup

- Shotgun with remote control trigger
- Ballistics gel hand with a skeleton cast inside of it for rigidity. The hand was attached to Buster.
- Ballistics gel bust for the shooter. The bust was made from a cast of Grant.

Tory: "Coming up on MythBusters"

Kari: "Can we get Grant out of this mold?"

The Tests

Test 1 (gel hand): Buster's gel finger was stuck inside the shotgun barrel. The entire hand was blown apart with no damage to the shotgun.

Test 2 (wax hand): They used a stronger ballistic hand made of wax to plug the barrel. The wax hand was blown apart but the shotgun barrel was ballooned slightly.

At this point they declared the myth busted and moved on to trying to replicate the myth. They wanted to get a 'banana peel' result by firing the shotgun.

Test 3 (dirt): Tory stuffed the barrel of a shotgun with dirt. The end of the barrel peeled back slightly, but the shooter was fine.

Test 4 (Steel spike): They welded a steel spike into the barrel. The gun shot the spike out with only minor damage to the end of the barrel.

Test 5 (squib load): A squib load is a bullet that doesn't have enough gunpowder to exit the barrel. Jamie hammered a bullet into the end of the barrel. The end of the barrel bulged, but it didn't banana peel.

Not only was this myth busted, but MythBusters failed at even replicating the result of this myth.

mythbusted While it was cool that they ballooned the end of the barrel, it didn't

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explode, the hand was blown apart, and the shooter was safe.

Seasickness: Kill or Cure

The MythBusters tested various seasickness cures. They wanted to see if any non-pharmaceutical, no-side-effect remedy would work.

Motion sickness is caused by your brain being unable to process conflicting signals from your sense: your eyes tell you that your surroundings are still, but your inner ear and your fine muscle controls are telling you that things are moving.

Test setup

They built a chair modeled after NASA's seasick chair. The chair spun around at 7 rpm while the person in the chair was ordered to move their head to touch tennis balls positioned in front, behind, and to the sides.

Finding the test subject

They had to figure out who in the MythBusters crew was susceptible to seasickness. Adam was a sure bet because of previous seasickness during the Jaws Special. Sure enough, Adam got queasy within 3 and half minutes on the chair. After a half an hour in the chair, Jamie was still fine. Kari and Tory were both fine as well. Grant became the final test subject. He lasted longer than Adam, but he got sick as well.

Remedy Testing

- **Homoeopathic tongue tingler:** They used a unnamed spray that you squirt under the tongue as often as needed. Grant was sick within 10 minutes and vomited some small chunks. Adam was sick within 4 minutes.
- **Wrist straps:** They wore little gray wristbands that are 'Barry Manilow's choice.' Adam was sick within 90 seconds. Grant got sick as well. They've gotten pretty quick with bringing a bucket to Grant.
- **Ginger pills: It worked!* Adam and Grant were both fine.
- **Small shocks on the P6 Accupunture point (on the wrist):** Both Adam and Grant got sick.
- **Placebo:** They told Grant and Adam they were getting an over-the-counter pharmaceutical remedy, but they actually gave them vitamins. Adam's reponse: "I hate this [bleeping] chair" after three and a half minutes. Grant: "This is among the most effective, if not the most effective."
- Over-the-counter pharmaceutical drug: Worked on Adam and Grant, but it made them both a little loopy.

Only thing that worked without any side effects was the ginger pill.

Ginger pills: **plausible**

Tailgate: Up or down?

Myth: Driving your pickup with the tailgate down gives you better fuel efficiency than with the tailgate up.

Update: [Tailgate Up or Down Revisited](#)

Test Setup

Adam and Jamie were each given identical, new model pickup trucks. They both had equal mileage, same tire pressure, and 30 gallons of gas. Jamie drove with the tailgate up and Adam the tailgate down.

The rules:

1. They have to maintain the speed limit
2. All acceleration must be done by cruise control
3. No drafting
4. Windows up, A/C must be exactly the same in both cars

The Test

After 300 miles there didn't appear to be much difference in the gas consumed, but after 500 miles Adam (tailgate down) ran out of gas. Jamie made it another 30 miles before he ran out of gas. This result was the exact opposite of the myth.

Water tunnel visualization

According to the experts, a circular pillow of air forms behind the cab of the truck when the tailgate is up. This "separated bubble"/"locked vortex flow" keep the faster moving air from contacting the truck, and thus reduces drag. With the tailgate down, the bubble breaks down and is no longer able to keep the fast moving air out, increasing drag.

In their scale model with the water tunnel, they were able to see that the increased drag. With the tailgate down, the particles in the water were dropping down and hitting the tailgate.

mythbusted

November 16, 2005 | [Permalink](#)

Comments

I have personally seen a shotgun "banana peel" after someone tried to clear the barrel of a plug of mud and dirt. The shooter was not hurt. The banana peel section of the barrel was cut off by a gunsmith and mounted to a plaque. The shotgun was perfectly functional with a slightly shorter barrel.

Posted by: shotgunwitness | [December 12, 2005 6:05 PM](#)

Do the truck tailgate test with the same truck. Then I will believe your results...

Posted by: Eric | [April 27, 2006 9:12 PM](#)

I don't Believe that having the tailgate down gives worst gas milage. I drive 75 miles a day and I know I get a least 2 to 3 mpg better than tailgate up.

Posted by: john | [May 24, 2006 8:58 PM](#)

To Eric and John:

You're right, they should have done the test twice, switching which pickup had the tailgate down after the first test. That said, Ford did do some wind tunnel tests and proved the "bubble" that forms with the tailgate up creates a more aerodynamic shape for the back half of the vehicle.

Posted by: Chris | [June 1, 2006 5:40 PM](#)

eric - "Do the truck tailgate test with the same truck. Then I will believe your results..."

actually, they DID do it with the same truck. Well, not the SAME truck but it was the same make and model, and they were both brand new.

Posted by: ohnodonho | [June 1, 2006 8:45 PM](#)

My son and I both have seen episode 43. My husband has not and still does not believe us when we tell him what happened during the experiment, and asks why do the leaves in the bed of my truck blow into the cab with my rear cab window open and the tailgate up, and when I have the tailgate down the leaves do not blow into the cab of my truck. Please help us to "resolve" this myth. We have searched all over the eneternet and cannot find a clip of this episode.

Posted by: Carol in KC | [June 4, 2006 12:19 PM](#)

The bubble created with the tailgate up blows the leaves into the truck. With the tailgate down, the air pushes down on the truck, not affecting the leaves.

Posted by: jack | [June 5, 2006 6:32 PM](#)

It makes absolutely NO sense that the drag relieved by the "bubble" is MORE THAN the drag from CREATING the "bubble"! My pickup has the tailgate OFF - try that!!

Posted by: [jerry](#) | [June 7, 2006 1:02 PM](#)

I have studied fluid dynamics and it seems counterintuitive, but with the tailgate up there is a stagnation point that is created. This point causes air to be redirected over the tail. There is less transverse drag force applied to the bed because less of the bed has air rushing over it. The best bet anyone can have for increasing fuel efficiency on a truck is to put a hard flat cover on it. Maybe Mythbusters will re-do the experiment and use a flat cover as well.

Posted by: Chris | [June 30, 2006 12:07 PM](#)

Ginger pills for sea sickness - I want to try them - do they have a specific name or brand -

Posted by: Peter Charles | [July 1, 2006 4:03 AM](#)

Peter,

The Ginger pills do work. Over the past couple of years, I have developed a bad case of airsickness in smaller, private planes (Pipers, Cessnas, etc). Not good when trying to get my pilot's license. The FAA doesn't allow Dramamine (sp?) and after seeing this episode, I tried the Ginger pills when flying over the Rockies into a low pressure center (aka, MASSIVE turbulence). No sickness problems. You can get any brand in the vitamin section of any store. I would assume, the more mg, the better.

Posted by: Mike K | [July 5, 2006 7:37 AM](#)

They didn't give a brand name or anything else for the ginger pills, but they did say that crystallized ginger candy doesn't work nearly as well. It should be the pills. I also would have liked a name/source. I'm guessing a local health food store should carry them.

Posted by: Sheila | [July 5, 2006 9:51 AM](#)

I have used Ginger for many stomach ailments in the past, but never for motionsickness. I find the best non-medicated, and non-invasive method for stemming off motion sickness is a magnet on the wrist. No, not a refrigerator magnet, a health magnet, such as Nikken.

Posted by: Kim | [August 2, 2006 11:10 AM](#)

The tailgate issue is true, but only at a certain speed. As with the A/C test, below a certain speed, in the tailgate test that being the seperated bubble effect, will not be applicable and the up tailgate will be inefficient. No tailgate is the most efficient. Less area for drag, and no low speed negative effects.

Posted by: crash | [August 4, 2006 12:02 PM](#)

The Shotgun:

the secret is mass!! If there is too much mass (bullet + blockage)for the charge to accelerate and push out the muzzle before a catastrophic pressure build-up in the barrel is reached, the barrel may blow up. The dirt probably had more mass than the steel spike; therefore the barrel was damaged more. Also, the barrel of the Carcano is thicker than that of the shotgun. Busted? Definitely, but the mass of the blockage is the key.

Posted by: Glen Leinbach | [August 19, 2006 4:06 PM](#)

I wish politicians and famous people would encourage people to put their tailgates up. Not only would it make the roads safer by helping secure loads it would save on the use of oil. Maybe even help reduce gas prices.

Thanks,
David.

Posted by: [David Scott | August 23, 2006 1:12 PM](#)

will you try the tailgate tests again with diferent truks spasificly pickup trucks adn have vertualy the same rules

Posted by: caleb | [September 22, 2006 7:06 PM](#)

The 'separated vortex' bubble now seems plausible. The bubble rotates top aft, bottom forward. Leaves & trash move to the front of the bed (and into the open back window), slipstream air goes over the top & out. Now the 1/3 tonneau cover from the tailgate forward that I read about makes sense! It traps the 'bubble' forward. My aluminum topper sticks up about an inch above the cab top, and that inch creates enough turbulence to whack 3MPG off my bare-truck mileage on the highway!

Posted by: David Lomax | [September 25, 2006 9:25 AM](#)

Late in the 70's and early 80's when there was a gas shortage (?) Datsun / Nissan did an aerodynamic study on pickups with and without canopys / covers. Their finding found a tonneau cover best for fuel mileage increase and also that for every 6" above the roof (as with a canopy) there was an average loss of 4 mpg.

Posted by: W. Laflen | [September 28, 2006 8:59 PM](#)

Had a 76 1/2ton GMC that got 3/4 mpg better with the tailgate down. Same route Sac to Redding 15. The bed was 6 1/2 feet. My F350 ford gets better milage with the tailgate up.

I think the difference is in the length of the bed and cab height/shape. We are assuming freeway speeds. Curious as to what cameras you use for your high speed bullet tests?

Posted by: David Campbell | [October 1, 2006 6:12 AM](#)

Magnet for motion sickness? Sure they work. Don't forget that, on the show, Grant said that a vitamin pill was the most effective. In other words, the placebo effect absolutely works for motion sickness. If you believe a magnet works, it will. If you believe marshmallow fluff works, it will. That's why any real medical test includes a placebo: some number of people are helped by sugar pills.

Posted by: Tom | [December 8, 2006 12:41 PM](#)

Ginger is the perfect treatment for anything that causes nausea. Buy a ginger root at your local grocery story. They can be found in the produce section near the garlic. Slice it up, simmer in water for 15 minutes, and strain. Add honey to sweeten the taste. There is no set recipe for amounts, you can make it as strong or mild as you like. We've used this remedy for years... it stops vomiting instantly!

Posted by: Terri Millard | [April 8, 2007 9:40 AM](#)

My dad had bug pray can in his car and it exploded through his window! I think you might be able to try this myth again. BIG Fan, Mia.

Posted by: Mia Thomson | [April 26, 2007 2:55 PM](#)

re: dramamine -- this is an over-the-counter drug, and it is as legal to possess as aspirin or ibuprofen, and my grandma takes it every time she flies. if ginger isn't your thing (or you want the added benefit of dramamine -- it puts you to sleep), don't be discouraged that someone is claiming you can't take it on the plane. anyway, if you believed that person and didn't want to risk it, you can buy it in any gift shop in the airport and take it before you get on the plane. that said, ginger is awesome. you can save \$\$ on ginger by buying bulk ginger powder and empty gel capsules and stuffing your own. works for any kind of nausea, not just

motion-sickness.

Posted by: jr | [May 16, 2007 1:06 PM](#)

I sometimes wonder why you two guys are still in one piece. Just don't put that gorgeous redhead girl in danger again like the soda bottle launch trick.

As for this episode, I'm surprised Jamie (with his knowledge of firearms) didn't know what REALLY used to blow up shotgun barrels and sometimes their receivers. Generally the receivers are pretty strong but the bolt is blown back under certain circumstances.

Such as an excited hunter mistakingly putting a 16 gauge shotshell into a 12 gauge chamber. Then following up with a 12 gauge in the same chamber thinking it was unloaded.

As for not making a fire without matches, I certainly hope none of you ever get lost. The bow technique works very well but ONLY if you have a TAUT bow so you can hold everything in one place.

As for lighting a fire with gunpowder, that used to be a common trick but NOT with percussion rifles. Flintlocks do much better as their ignition powder and flint spark are exposed. Watch the old Disney series "Tales of Andy Burnett" and see how it's done.

Sticking a finger into the muzzle of a barrel is sort of a myth. But in "Support Your Local Sheriff" James Garner did that to Walter Brennan and fooled him into not firing.

I think that myth started with the 1911 Colt .45 Automatic Pistol. If you can grab an assailant with one hand and push the slide back by the muzzle one-half inch the gun will not fire.

This is similar to the agent who captured Lee Harvey Oswald in the theater by grabbing Lee's gun and jamming the hammer with his finger in between the hammer and the frame.

As for sea sickness, you did not do it the Navy way. The first meal out to sea is Pork Roast and/or Pork Chops. There is something about pork that settles the inner ear. Of course if you are Jewish or Muslim, you may have to put up with three days of heaving.

Since I'm a retired Naval Architect you can call on me anytime for advice or myths, such as ghosts on ships, etc.

Posted by: Dick Landgraff | [June 11, 2007 10:09 PM](#)

does waxing a truck make a difference in fuel economy

Posted by: Kerry Richards | [November 17, 2007 4:39 PM](#)

TAILGATE MYTH:

I was surprised by the results. But once the science was explained in detail, I could see the truth. Wish Adam and Jamie would do the test again with various variables: Small "Compact" trucks (ranger, S-10 etc...), tailgate down, up and OFF.

Then another test with Tonneau covers, aluminum cap and fiberglass cap ("topper" for you West Coasters - *W* sign)

And one last test: Those tailgate replacements with the vents in them (some are metal, others are just netting).

I drove across country in ranger with tailgate off (laying down flat in truck) and I never got above 24mpg (on a 4cylinder, 5speed) which books out at 27mpg on line & 27/28 by former owner.

I now keep my tailgate UP all the time. And looking to buy soft (fabric) tonneau cover.

Kari is a HOTIE!

Posted by: Boston DAVE | [January 28, 2008 8:48 PM](#)

I can definitely vouch for the ginger pills working for seasickness. I don't get sea sick very easily but went on a cruise a few years back and the seas were VERY rough. I started not feeling well that night at dinner. didn't know what was wrong...my cousin gave me a ginger pill. i took it and 15 min i felt back to normal! they definitely work. But it's more of a cure for the nausea than anything.

Posted by: Joy | [February 11, 2008 7:28 AM](#)

"re: dramamine -- this is an over-the-counter drug, and it is as legal to possess as aspirin or ibuprofen, and my grandma takes it every time she flies. if ginger isn't your thing (or you want the added benefit of dramamine -- it puts you to sleep), don't be discouraged that someone is claiming you can't take it on the plane. anyway, if you believed that person and didn't want to risk it, you can buy it in any gift shop in the airport and take it before you get on the plane. that said, ginger is awesome. you can save \$\$ on ginger by buying bulk ginger powder and empty gel capsules and stuffing your own. works for any kind of nausea, not just motion-sickness.

Posted by: jr | May 16, 2007 1:06 PM "

Dude, the guy was talking about getting his private pilots license. The FAA doesn't allow PILOTS to use drugs! He wasn't talking about passengers.

Posted by: Bob | [March 11, 2008 8:00 PM](#)

RE: Shotgun. Apparently the Mythbusters aren't overly informed on shotgun manufacturing techniques. The cartoon image of the peeled back barrel is what would happen with an old shotgun made with a "twist" barrel, sometimes called a Damascus Twist. That method has not been used since the late 1800's when they switched from black to smokeless powder in the cartridges. The reason the twist method was abandoned was the higher pressures of the new powders cause the barrels to deform or explode. If you could find an old twist barrel that someone would sacrifice, you might try this again.

Posted by: Paul | [May 26, 2008 1:40 PM](#)

Seasickness: I have been told not only by my very wise mother but also by a tai chi instructor on a Chinese fitness show said to put salt in your navel. Balances out your Chi energy. the heavy yin energy created by the brain and the motion is counter-balanced by the yang of the salt -on a side note yang is actually the same word for salt.

Test the myth- Brian

Posted by: Brian | [July 3, 2008 12:20 PM](#)

"yang is actually the same word for salt."

That's not correct, the Chinese character for yang literally means sun (as opposed to yin, which can mean the moon, to indicate the opposite). Salt is a totally different character and in Mandarin Chinese (pinyin) is written "yan".

Posted by: Jimbo | [December 22, 2008 11:00 PM](#)

Old news people, keep ypur tailgate's up

ecow.engr.wisc.edu/cgi-bin/get/me/363/gandhi1/pickup.pdf

Posted by: Bob | [July 12, 2009 8:43 AM](#)

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