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19 Jul 19 · 26 tweets · [MaryRobinette/status/1152277166996017152](https://twitter.com/MaryRobinette/status/1152277166996017152)



Let's talk about peeing in space.

Several people, in response to my NY Times essay, have said that women couldn't go into space because we lacked the technology for them to pee in space.

When the Mercury program was proposed, doctors were worried that people would not be able to urinate or even swallow without the aid of gravity.

And yet, they still made plans to send a man into space.

When Alan Shepherd became the first American man to go into space, it was scheduled to be a fifteen-minute mission.

Up.

Hello space!

Back down.

They made no plans for peeing.

Launchpad delays meant that Shepherd hit a point where he needed to go. Badly.

He asked Mission Control for permission to go in his suit. After consultation with flight surgeons & suit technicians, they gave him permission to do so.

So he wet himself & still went into space.

Later, they solved this problem by developing a sheath, that looked much like a condom.

It worked great in testing, but when the actual astronauts used it, the sheath kept blowing off and leaving them with pee in their suits.

Was this about extended time in the spacesuit?

The sheaths came in small, medium, and large. It turns out, the men were all saying that they needed a Large sheath.

They did not.

Subsequently, the astronauts called the sheaths were called "Extra-large," "Immense," and "Unbelievable."

They had to tape a bag to their ass to poop.

That worked well for Gemini and Mercury. And by well, I mean there was still urine in the capsule and it stank of feces.

Apollo needed a different solution.

Alas, they still had to poop into a bag, but for peeing, they could slip on a condom attached to a valve, turn the valve and have their urine sucked into the vacuum of space.

If you timed it right.

Open the valve a fraction too late, and urine escaped to float around the cabin.

Open it too early and the vacuum of space reached through the valve to grab your manhood.

Apparently, the venting of pee into space is very pretty. It catches the sunlight and sparkles.

For the spacewalks, the Apollo astronauts were back to condoms that collected the pee in a bag in the suit.

Buzz Aldrin was the second man on the moon, but the first to pee there.

During Apollo13, everyone who has seen the movie knows that Fred Haise got sick. Do you know why, though?

After the accident, they couldn't use the regular vent, because it needed to be heated to keep the pee from freezing.

The alternate system caused droplets to float around the ship. Mission Control told them to stop dumping pee.

It wasn't meant to be a permanent ban, but the crew didn't understand that. So they were stashing pee in every bag or container possible.

The fastest option was to store it in the collection bags they wore in their suits. Haise kept his on for hours and hours, basically bathing in pee.

He got a UTI and then a kidney infection.

Finally, a decade later, NASA decides to send women into space. NOW they have a reason to come up with how to handle peeing in space if you don't have a penis.

To launch and for a spacewalk, they developed the MAG

Maximum Absorbency Garment.

It's a diaper.

The men switched over to using those because it was more comfortable and less prone to leave pee floating around the cabin than the condom sheath.

They also developed a zero-G toilet so that astronauts no longer had to tape a bag to their ass.

Peeing or pooping in space is now a lengthy process, involving a fan, a targeting system, and a fair amount of prayer.

Fun pooping in space fact: Without gravity, the poop doesn't break off as it exits your body. You have to reach back and help with special gloves.

Peeing is a little more straightforward. It's basically a funnel, a tube, a bag, and a fan for suction.

Sometimes though, the toilet breaks down. At that point, they return to using "relief bags" taped to their ass and "manual urine containment."

During a malfunction, it is also possible for a giant floating globe of pee to exit the toilet.

Fun fact: Due to chemicals, it is bright purple and acidic.

Fun fact: Poop regularly escapes, which is why you never eat a milk dud found floating in the ISS.

All of which is to say that the reason women didn't go into space had nothing to do with lacking the technology to pee.

We didn't have the technology for men to pee in space when they started either.

And some days, the best solution is still a diaper or a bag taped to the ass

Addendum with some FAQs:

What about Farting in space? - It does not propel you. Astronauts have tried.

What about belching? - Gravity keeps food at the bottom of the stomach. Burps in space tend to be accompanied by solid matter

What about periods in space? - According to women who have been there, "It's just like a period on Earth."

It turns out menstrual blood moves via a wicking action. Gravity can speed that up, but is unnecessary.

Also, tampons exist.

Fun fact: When Sally Ride was preparing to go into space, NASA engineers asked her if 100 tampons would be the right number for a week.

She said, "No. That would not be the right number."

They cut it back to 50...

Fun fact: Gravity creates most of the sense of urgency for peeing, so in microgravity, astronauts can't always tell when they need to go.

It's such a complicated process that they pee on a schedule.

Fun fact: When Yuri Gagarin was on his way to the launch pad, he realized the suit-up had taken so long that he needed to pee. He got out of the truck and peed on the tire.

Every astronaut to launch from Baikonur since has done the same.

Women squat or carry a vial of pee.

Self-promotion Disguised as a Fun Fact: In my novel [#TheFatedSky](#), I have an ENTIRE CHAPTER about a zero-g toilet repair complete with spinning globe of urine.

Alas, I had not yet learned that it should be bright purple so it is merely amber.



FAQ: Erections in space? Officially, it's never happened.

However, according to Mike Mullane in his book, *Riding Rockets*, he woke most mornings on the shuttle with his "wooden puppet friend"

"I had an erection so intense it was painful. I could have drilled through kryptonite."

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