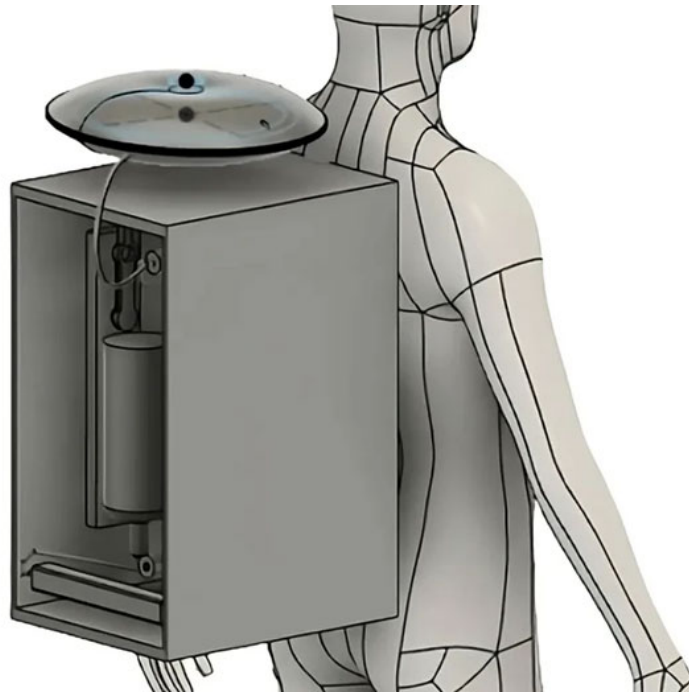


Spacesuits filter urine into drinking water

Scientists at Weill Cornell Medicine and Cornell University have designed a spacesuit that can collect urine, filter it, and return it to the astronaut through a drinking tube within five minutes.

With a special filter bag that can recycle urine, this suit helps astronauts walk in space longer.



The system will collect urine, then filter it and return it as drinking water right in the suit, said Sofia Etlin, a researcher at Weill Cornell Medical College and Cornell University.

NASA's current spacesuit uses MAG (Maximum Absorbency Garment) absorbent diapers to collect urine and feces, and clean drinking water is stored from the IDB (In-Suit Drink Bag) system. However, MAG adult diapers have been complained by many astronauts that they easily leak waste, making them uncomfortable and unhygienic. This causes some astronauts to limit their eating and drinking before spacewalking, even getting urinary tract infections.

With the new spacesuit, the underwear is made from multiple layers of fabric, connected to a waste collection box, and comes in different shapes for men and women. A vacuum pump will suck urine into the filtration system when the urine is discharged, then osmosis, filter the water, mix clean water with an electrolyte solution and pump it back into the suit for the astronaut to drink.

Thanks to an osmosis system to remove water from urine and a pump to separate water from salt, the spacesuit's urine-to-water recycling efficiency is 87%, providing a constant supply of drinking water with plenty of water.

Safety mechanism to ensure astronauts' health.

The urine recycling system has dimensions of 38 cm x 23 cm x 23 cm, weighs about 8 kg, and takes about 5 minutes to process 500 ml of urine. This system currently cannot recycle manure.

According to the scientist, astronauts will usually be provided with nearly 1 liter of water on spacewalks. But this amount of water is not enough for long spacewalks on the Moon. Therefore, recycled urine will supplement astronauts' water supply.

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