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WHAT ASTRONAUTS EAT IN SPACE

No one delivers pizza in space. It's sad but true. If you want to grow up to be an astronaut someday, don't do it for the fancy meals!

Eating in space presents some unique challenges for astronauts. Why? There's no gravity! If you let go of a piece of food, it will float off and drift around your space vehicle.

What about a cup of water? Forget it! Water won't stay in a cup. It, too, will float out and hang in the air.

To allow astronauts to stay in space for days or weeks at a time, scientists had to invent special ways of packaging and eating foods in space. The first such space foods were soft foods (kind of like baby food!) packaged in tubes like toothpaste.

For example, John Glenn became the first U.S. astronaut to eat in space when he ate applesauce from an aluminium tube during a 1962 Mercury space mission. He had to squeeze the food into his mouth.

Mercury food tube and dry bite-sized snacks with gelatin coating

If that doesn't sound very appetizing to you, you're not alone. Astronauts weren't crazy about it either. Eventually, scientists developed better, tastier foods that were easier to eat.

For example, freeze-drying was a technique that was developed. Food was cooked, quickly frozen, and then dehydrated in a special vacuum chamber. Freeze-dried food didn't need to be refrigerated and would last a long time.

To make most freeze-dried foods, astronauts squeeze water into the food packages and then eat the food after it absorbs the water. Astronauts can use hot water to make hot meals that are tasty and nutritious.

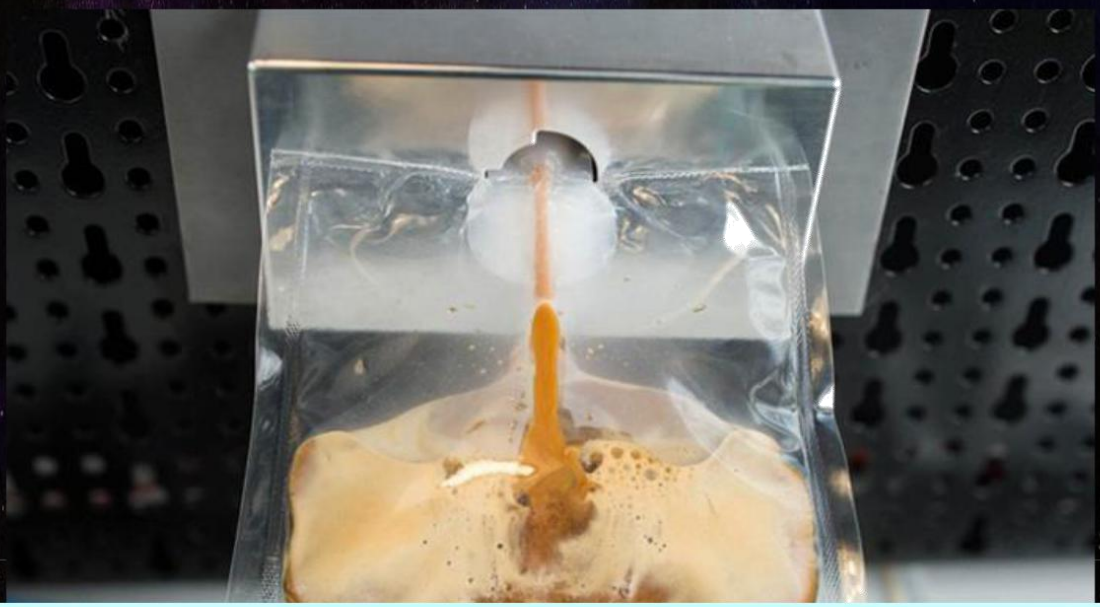
Some freeze-dried foods, like fruit, can be eaten dry. In fact, you may eat astronaut food from time to time without realizing it.

Today, many breakfast cereals include freeze-dried fruits, like strawberries, that are delicious and add colour and flavour.

Astronauts flying modern space shuttle missions now eat many of the same foods they eat on Earth. Food still needs to be dehydrated or prepared in special ways, but space shuttles now have full kitchens with hot water and an oven.

Astronauts can also use condiments, like ketchup, mustard, and mayonnaise, in packets to add flavour. Salt and pepper can be used, too, but they have to be used in a liquid form because otherwise the grains would just float away!

Drinks are also dehydrated and kept in powder form in special pouches. The pouches have built-in straws or special nozzles that let astronauts drink straight from the pouch since gravity makes drinking from a cup a messy idea.



Astronauts now get to drink freshly brewed espresso in space. The diagram above shows exactly how the machine works, replacing the usual plastic piping found in coffee machine with steel that can withstand large amounts of pressure.

To make sure their food doesn't float off, astronauts attach their food containers and utensils to special trays with Velcro fasteners. The trays also fasten to their laps, so they can enjoy a meal while sitting down.

Nutritionists plan astronaut meals to make sure they get all of the nutrients and vitamins they need to perform their important work in space. Some astronauts begin to experience digestive problems after they've been in space a long time.

Experts believe these problems may be caused by a decrease in the number of “good" bacteria in astronauts' bodies. A group of high school students in Jefferson County, Kentucky, is going to help researchers learn more about this issue when the students' experiment flies into outer space on the space shuttle Endeavour.

As part of the Student Spaceflight Experiments Program, the students designed an experiment to test the effect of microgravity on Lactobacillus GG, which is a probiotic that could help future astronauts stay healthier in space.

In total, there are 16 experiments on Endeavour that were designed by students. This is only appropriate since Endeavour is the only space shuttle named by children. Elementary and secondary students competed in a national shuttle-naming competition in 1988.

The winning name — Endeavour — was based on an 18th-century British exploring vessel. The name has caused a bit of confusion at times, though. Many people want to spell it “Endeavor" since that's the American spelling of the word. The space shuttle, however, uses the British spelling with a “u" because that's how its namesake was spelled.

Article adapted from: http://wonderopolis.org/wonder/what-do-astronauts-eat-in-space