

Keeping Clean In Space



On Earth, we take **hygiene** for granted, but in space, it's a very different situation. Something as simple as turning on a faucet isn't possible in microgravity. This makes keeping clean in space more challenging than it is on Earth.

You may begin your day with a shower. Feeling the splash of warm water is a refreshing way to start the morning. A shower helps wash away thousands of dead skin cells. In space, though, astronauts clean their

bodies with wet wipes that are pre-moistened with soap and water. They wash their hair with a rinseless shampoo designed for hospital patients who cannot bathe. In space, perspiration doesn't roll off the astronaut's body the way it does on Earth. The sweat sticks to the skin and forms thicker and thicker layers. **Ventilation** helps evaporate the sweat while they're exercising and space walking.

Astronauts can brush their teeth, but they have to swallow the toothpaste or spit it into a towel. In weightlessness, salivation becomes more concentrated, which can lead to more **tartar** forming on the teeth. To compensate, many astronauts chew gum and massage their gums to keep their mouths healthier.



Another part of the morning routine for astronauts is shaving. Shaving cream and razors are permitted, but most prefer to use an electric razor. It's easier and neater, given that running water isn't available.



The bathroom, or the Waste Collection System (WCS) as referred in space, operates differently from the facilities on Earth. The WCS comprises a commode, a urinal, fan separators, and an odor and bacterial filter. To keep bodies from floating away due to weightlessness, astronauts fasten a seat belt-like strap or lower a bar over their legs and wedge their feet into footholds. Space toilets flush with air instead of water. A fan helps separate liquids from solids. Liquids are purified and recycled for re-use, just as they are on Earth. Plastic bags inside the commode collect wastes, and are sealed and stored.



Space Shuttle astronauts aren't in space long enough to worry about washing their clothes; they just pack them and bring them home like vacationers do with a suitcase. Astronauts on the International Space Station (ISS), though, throw most of their dirty clothes away. Special clothes they want to keep—nice pants or special shirts—are kept in a bag that is sent back to Earth on a Space Shuttle flight. The remaining clothes are burned. When an unmanned supply ship arrives at the ISS, the supplies are unloaded, and the ship is then filled with trash and other nonessential items, including dirty socks and underwear. As the supply ship returns to Earth, it burns as it re-enters the atmosphere. Incinerating the clothes and other trash is a simple way to take care of a messy situation.

Living in space is similar to living in a camper—close quarters, compromised facilities, and some of the comforts of home are missing. Keeping clean may be challenging, but astronauts have found ways to get the job done.

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