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Food & Water Safety in Remote Environments

A practical guide for travellers to remote and wilderness destinations

Getting sick from food or water is the most preventable health problem travellers face. This guide explains the risks and what you can do — no medical background needed.

WHAT'S INSIDE

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- Boiling, filtration, chemical treatment & UV
- Safe drinks — common misconceptions covered
- Food safety in the field and overseas
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- Traveller's diarrhoea — treatment and when to seek help
- What to carry in your kit

Why food and water safety matters when you travel

Traveller's diarrhoea — an upset stomach from contaminated food or water — affects somewhere between 20% and 60% of people travelling to high-risk destinations. In a city, it's unpleasant. In a remote environment with no nearby toilet, no medical care, and a full day of activity planned, it can be genuinely serious.

The good news is that the most effective prevention strategies are simple and free. The main ones: know where your water comes from, don't eat food that's been sitting out, and wash your hands.

Water — the basics

In most remote and wilderness destinations, you cannot assume tap water is safe to drink. Even water that looks completely clear can contain bacteria, viruses, and parasites that will make you very sick. The appearance, smell, and taste of water are not reliable guides to its safety.

The main bugs to know about:

Bug	What it causes	Where it's found
Bacteria (E. coli, Salmonella, Campylobacter)	Diarrhoea, vomiting, fever	Most untreated water sources globally
Viruses (Hepatitis A, Norovirus, rotavirus)	Diarrhoea, vomiting, jaundice	Sewage-contaminated water, mainly in developing countries
Giardia	Prolonged diarrhoea, bloating, fatigue — often weeks after exposure	Rivers, lakes, streams worldwide including wilderness areas
Cryptosporidium	Watery diarrhoea, stomach cramps — can last weeks	Surface water everywhere, including apparently clean wilderness streams

How to make water safe

There are four main methods for treating water in the field. Each has strengths and weaknesses — the best approach often combines two methods.

1. Boiling

The most reliable method. Bringing water to a rolling boil kills everything — bacteria, viruses, Giardia, and Cryptosporidium. You don't need to boil it for 10 minutes — reaching boiling point is enough at most altitudes. At high altitude (above 3,000m), boiling point is lower (around 90°C at 3,000m), but it still kills all pathogens — so boil for 1 minute at altitude to be safe.

→ Boiling is the gold standard. If in doubt and you have fuel, boil it.

→ Boiled water can become re-contaminated from a dirty container or dirty hands — treat the container as carefully as the water.

2. Filtration

Water filters physically remove bacteria and parasites like Giardia and Cryptosporidium by forcing water through a fine membrane. They do **not** reliably remove viruses (which are smaller than the filter pores). In most wilderness settings in developed countries, this is fine — virus contamination of wilderness water is uncommon. In developing countries or areas with human sewage contamination, you need to add a chemical step or use UV to cover viruses too.

Filter type	Good for	Limitation
Squeeze or straw filter (e.g. Sawyer, LifeStraw)	Backpacking, day trips — lightweight and affordable	Does not remove viruses
Pump filter	Group use, can treat larger volumes	Heavier, slower, requires maintenance
Gravity filter	Base camp use, treating large volumes passively	Slow, bulky
Hollow fibre with pre-filter	Most versatile for wilderness use — removes bacteria and protozoa reliably	Does not remove viruses

3. Chemical treatment (iodine or chlorine tablets)

Chlorine dioxide tablets (e.g. Aquatabs, Katadyn Micropur) kill bacteria, viruses, and Giardia. They are lightweight, cheap, and effective — a great backup to carry even if you're using a filter. Chlorine dioxide is more effective than plain iodine tablets and doesn't leave the same taste.

→ Wait time matters: chlorine dioxide takes 30 minutes in clear water, 4 hours if the water is cold or turbid.

→ Chemical treatment is less effective in cold, cloudy, or silty water — pre-filter through a cloth or let sediment settle first.

→ Iodine tablets: not recommended for prolonged use, in pregnancy, or for people with thyroid conditions.

4. UV light (SteriPen and similar)

UV devices (like the SteriPen) kill all pathogens including viruses by disrupting their DNA. They are fast (60–90 seconds per litre), don't add taste, and work well for individual use. They require batteries (or charging) and don't work well in cloudy water — pre-filter first.

→ UV is excellent for clear water. Not reliable for turbid or heavily silted water.

→ Carry spare batteries or a backup method — if the device fails, you have nothing.

Best practice for high-risk destinations: Filter first to remove sediment and large particles, then treat with UV or chemical tablets to kill viruses. This two-step approach handles everything.

Safe drinks you don't need to treat

→ Commercially bottled water with an intact seal — check the seal before buying.

→ Drinks served boiling hot (tea, coffee, soup) — the heat makes them safe.

→ Carbonated drinks in sealed cans or bottles.

Common mistakes — these are NOT safe:

Alcohol does not make water safe to drink. Even full-strength spirits mixed with contaminated water are not safe — the alcohol concentration after mixing is far too low to disinfect.

Ice is made from water. In a high-risk destination, treat ice in drinks with the same suspicion as tap water — unless you know it was made from treated water.

Food safety

Most food-related illness comes from food that has been left at the wrong temperature, handled with contaminated hands, or washed in untreated water. You don't need to avoid all local food — you just need to make good choices.

Generally safe

→ Food that is piping hot and freshly cooked — heat kills most pathogens.

→ Fruits and vegetables with an intact skin that you peel yourself.

→ Bread, rice, and other dry staples that are freshly prepared.

→ Food from busy stalls with high turnover — it's not sitting around.

Be more careful with

→ Food left at room temperature for more than 2 hours — especially in hot climates.

→ Salads, raw vegetables, and garnishes washed in local tap water.

→ Seafood and shellfish, especially raw or undercooked — particularly in areas with sewage in the sea.

→ Unpasteurised dairy products (fresh milk, some soft cheeses).

→ Street food that has been sitting under heat lamps or covered flies.

→ Buffet food that has been sitting out — the temperature "danger zone" is 5–60°C.

In a wilderness or camping setting

→ Keep raw meat separate from everything else. Use separate utensils.

→ Cook meat until there is no pink in the middle and juices run clear.

→ Wash cooking utensils with hot soapy water and treated water — not river water.

→ Store food in sealed containers to prevent contamination from animals, insects, and rain.

→ Don't eat foraged food unless you are absolutely certain of the identification.

Hand hygiene — underrated, absolutely essential

Faecal-oral transmission — getting someone else's gut bugs into your mouth — is how most food and waterborne illness is spread. The single most effective thing you can do to prevent this is wash your hands.

→ **Wash hands with soap and clean water:** after going to the toilet, before preparing food, before eating. This is not optional — it is more effective than any medication.

→ **No water?** Hand sanitiser with at least 60% alcohol is effective against bacteria and most viruses. It does NOT work against Cryptosporidium — for that, you need soap and water.

→ **Treat toilet hygiene seriously in wilderness settings:** bury human waste at least 60m from water sources and 15cm deep. In snow environments, pack it out where required.

If you get sick — traveller's diarrhoea

Even with good precautions, you can still get sick. Most traveller's diarrhoea is self-limiting — it gets better on its own within 3–5 days. The most important thing to do is stay hydrated.

Staying hydrated

Diarrhoea and vomiting cause you to lose fluid and electrolytes faster than you can replace them just by drinking water. Oral rehydration salts (ORS) — sachets you dissolve in treated water — are the most important thing to carry. They replace what's being lost. You can also make a rough substitute: 1 litre of treated water, 6 teaspoons of sugar, and half a teaspoon of salt.

→ Carry ORS sachets (Gastrolyte, Hydralyte) — cheap, lightweight, and essential.

→ Keep drinking even if you feel nauseous — small sips frequently.

→ Avoid alcohol and coffee until you're recovered.

Medications

→ **Loperamide (Imodium):** Slows diarrhoea but doesn't treat the cause. Useful when you absolutely need to function (long travel day, no toilet access). Don't use if you have a fever or blood in your stool.

→ **Antibiotics:** Azithromycin 500mg daily for 3 days is the current recommended antibiotic for moderate-severe traveller's diarrhoea. Discuss carrying a course with your GP before departure — especially important for remote destinations where medical care is far away.

Seek medical care if you have: blood or mucus in your stool · fever above 38.5°C · vomiting that prevents you keeping fluids down · signs of dehydration (dry mouth, dizziness on standing, dark urine or no urine) · symptoms lasting more than 7 days · or any doubt about your safety.

Quick reference — water treatment options

Method	Kills bacteria	Kills viruses	Kills Giardia/Crypto	Best for
Boiling	✓	✓	✓	All situations — most reliable
Filtration (hollow fibre)	✓	✗	✓	Wilderness/developed countries
Chlorine dioxide tablets	✓	✓	✓ (4 hrs)	Travel backup, developing countries
UV (SteriPen)	✓	✓	✓	Clear water, individual use
Filter + UV combined	✓	✓	✓	Best for high-risk destinations

What to carry in your kit

→ **Water treatment:** Filter (e.g. Sawyer Squeeze) + chlorine dioxide tablets as backup. UV pen if travelling to areas with high virus risk.

→ **ORS sachets** (Gastrolyte or similar) — carry at least 10.

→ **Loperamide (Imodium)** — for emergencies when you can't stop.

→ **Azithromycin** — discuss with your GP; prescription required. Worth carrying for remote destinations.

→ **Hand sanitiser** — 60%+ alcohol, 100ml minimum.

→ **Soap** — small bar or concentrated liquid.

→ **Collapsible water bottle or bladder** — allows you to treat and carry water separately from untreated sources.

Sources: Wilderness Medical Society Clinical Practice Guidelines on Water Treatment (Backer et al. 2024) · CDC Yellow Book 2026 — Food and Water Precautions · Smartraveller.gov.au

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