

## **Water Filters & Purification**

### **1) Filters vs. Purification**

- a) Filters can remove dirt, grime, fish shit and some microorganisms like giardia, a parasite that causes diarrhea, but not viruses; Generally filters are fine for day hikers. Within the filter category you have Personal Water Filters (Straws or Squeezes) which are more versatile than purification tabs.
- b) Purifiers remove microorganisms by chemical or UV light but do not remove solids. Put them in your First Aid kit and forget about them. **EMERGENCY PURPOSES only.**
  - i) What do they kill?
    - (1) protozoa - single-cell eukaryotes that feed on organic tissue.
    - (2) bacteria - generally harmless, but some cause disease.
    - (3) viruses - non-cellular submicroscopic agent that replicates inside living cells. I think you get the picture after covid
    - (4) harmful chemicals

### **2) To carry water or not... That is the question.**

- a) Personal preference really but somewhat circumstantial based upon the type of trip you're planning.
  - i) Training or SAR work for instance. Looking for a workout? Then carry a ton of water.
  - ii) If you're looking to avoid the weight or maybe you're paranoid about that Alpine Spring water, then bring a filter.
- b) Water sources on your trip? If not, then you need to carry.
- c) The weight of water really isn't conducive to the ultra-lite style, but be necessary for long-trips with scarce water sources.

### **3) Methods of water filtration & purification:**

- a) Boiling
  - i) PROS -
    - (1) eliminates microorganisms including viruses.
    - (2) Good for removing silt from water.
  - ii) CONS -
    - (1) Need to pack a stove, fuel, lighter or matches.
    - (2) Altitude can impact boiling time;
    - (3) Hot water needs to cool before drinking.
  - iii) BEST FOR - backpacking - overnight trips - winter camping
- b) Tablets (chemical treatment)
  - i) PROS - Good ultralight option if low weight is a priority, but still should be considered a backup.
  - ii) CONS -
    - (1) time consuming to neutralize microorganisms.

- (2) Will not filter your water.
- iii) **BEST FOR** - emergency situations; have a few in your pack just in case, but not meant to depend on them during standard hiking.
- iv) **KINDS**
  - (1) chlorine dioxide - popular but time consuming, with wait times from 30 minutes to 4 hours depending upon the level of concern.
  - (2) chlorine - same as the pool formula, just smaller quantities.
  - (3) iodine - will not kill cryptosporidium. Can leave water yellow and funny tasting
- c) **UV light**
  - i) **PROS**
    - (1) rechargeable batteries
    - (2) can treat 3k-8k liters per battery charge
  - ii) **CONS** - Will kill the microorganisms but may not catch that little fish turd, dirt, silt.
  - iii) **BEST FOR** - international adventures or if you want to look cool on your day hike or backpack
- d) **Pump Filters, Personal Filters & Filter Straws (Sip & Squeeze)**
  - i) **PROS**
    - (1) cost effective
    - (2) light-weight; take little space in your pack
    - (3) systems provide multiple storage options
  - ii) **CONS**
    - (1) filter maintenance
    - (2) take more time to filter generally
    - (3) Generally do not catch microorganisms smaller than .2 microns
    - (4) exertion!!!!!!!
  - iii) **BEST FOR** - Personal filters and straws work well for day hiking when you know there will be water sources available along your hike.
  - iv) **KINDS**
    - (1) single step purifiers - example: lifestraw. self contained simplicity
    - (2) purifier systems - include universal adaptors, tubings, bladders etc
- e) **Gravity Water Filters**
  - i) **PROS** - filters large volume for group settings - no exertion!!!!
  - ii) **CONS** - heavier weight; eat up more pack space.
  - iii) **BEST FOR** - small to medium groups or overnight stays.
- f) **Can you combine? YES.** Tablets may certainly be added to filtered water, but in general this isn't necessary unless your drinking from the Merrimack River

**g) SLASR's top picks**

- i) BACK-PACKING - small to medium groups**
  - (1) Platypus Gravity Works - \$89 at Backcountry; \$75 Amazon**
  - (2) Katadyn BeFree Gravity 6L**
  - (3) Katadyn Hiking**
- ii) INDIVIDUAL USE - DAY HIKES - Ultra Light**
  - (1) Personal use filters**
    - (a) Sawyer Mini - \$30**
      - (i) super light**
      - (ii) removes giardia, water-borne bacteria and debris**
    - (b) Lifestraw Personal Water Filter - \$14**
    - (c) Sawyer Squeeze**
    - (d) MSR Trailshot Pocket - \$54 - looks ideal for ultra runners / long distance hikers with known water sources**
  - (2) Purifiers**
    - (a) Camelbak Water Purifier - UV**
  - (3) Best Flow Rate - Katadyn BeFree .6L Water Filter Bottle - \$45**
- iii) Tablets**
  - (1) P&G Water Purifier Packets - \$24 for 12 packets**
    - (a) claim to kill 99.99% of bacteria and viruses**
  - (2) Aquatabs - \$13 for 100 tabs**
    - (a) claim to kill 99.99% of bacteria and viruses**
  - (3) Aquamira - \$15**
- iv) UV purifiers**
  - (1) Katadyn Steripen Ultra - \$130**
  - (2) Steripen Adventurer Opti UV - \$90**