

Suggestions for Hiking at Elevation, With Special Attention to Equipment and Supplies (Keeping in Mind the Near Sea-Level Resident Who Plans to Hike 14ers, Notably Mt. Harvard)

If you already have significant outdoors experience at elevation, then you can probably skip this document. However, what follows may prove useful to those less experienced with the outdoors in general, and hiking at elevation in particular. If hiking Mount Harvard is your first such experience (or the first in a while), then please read on.

To be clear: I am NOT a professional outdoorsman; however, my wife and I live at altitude (~8450 feet [~2750 meters]), I have been camping, backpacking, and hiking for over five decades, doing field work for over four decades, I have led field trips for almost this long, and relatively recently I trekked the Inka Trail to Machu Picchu and summited 14er Mt. Columbia, (both in 2017) and Mt. Harvard several times (most recently in 2018). Consequently, I have experience that may be useful to those less experienced in the 'outdoors' department.

What follow are among my thoughts, ones that I have divided up topically, if idiosyncratically. Some of what I share below is opinion / personal preference, but I have tried to indicate when this is the case, as well as the reasoning behind my view.

Special attention is given here to equipment / kit you will need (or want) for your hike. Having kit in advance of your arrival is wise (so that you may try it out and / or break it in – see 'Other Considerations – New Gear'), but there is an excellent equipment provider in Buena Vista (The Trailhead), if you discover you are missing something. Once on the trail, however, your options are limited for acquiring anything missing or replacing / repairing anything that has broken or is malfunctioning.

Altitude Adjustment:

Here as elsewhere, almost all sources recommend a few (2 or more) days' stay at elevation (greater than 7,000 feet [~2,150 meters], for this destination) in advance of your trek. Similarly, if the elevation is unfamiliar, a few moderate hikes at this sort of elevation may also be advisable.

Altitude sickness does not affect everyone, but it is real and its symptoms should be taken seriously. You actually have a bit of a head-start if you fly to Colorado (commercial aircraft cabins are pressurized to the equivalent elevation of 8,000 – 8,500 feet [2,400 to 2,600 meters], but most of us don't do extensive stair climbing while flying). Some people intrinsically have no problems adjusting to altitude. If you do (or don't know whether or not you do), especially for those of you coming from sea level, I want to highlight 5 things:

1. Hydrate
2. Hydrate
3. Hydrate
4. Go easy on the booze and caffeine (they dehydrate) and on heavy exertion during the first few days (you may not have the oxygenation capacity), and

5. Don't smoke anything (it risks decreasing lung capacity, which you will need while hiking).

If you have a reaction no more serious than minor headache, poor sleep, occasional shortness of breath, disorientation, nose bleeds, or loss of appetite, then be patient (it can require a few days to adjust), and take a pain-reliever like ibuprofen (Advil®) for the headache. (See 'Medical Needs and Wants', below, for this and other considerations.) For anything more severe or that lasts more than a few days, bottled oxygen (or oxygen concentrators), medical assistance, or descent to lower elevation (or some combination of these) may be needed to help with altitude sickness. (See also the comments under 'Hydration and Associated Equipment', below.)

On a recent trek of the Inka Trail to Machu Picchu, most members of our group were coming from near sea level and used a prescription medication called acetazolamide (Diamox®), a medication that most found effective (side-effects as a diuretic notwithstanding). My wife and I were not using this drug, and I am not making a recommendation, but if you have concerns about elevation, consult with your physician or nurse practitioner about this medication.

In the US, the remarkably effective Andean antidote to altitude sickness (the coca leaf) is not available legally, even in Colorado.

Clothing:

Principles: The principles here are simple: you want to stay reasonably warm (but not overheated), and dry (both from the inside-out (your sweat) and from the outside-in (e.g. rain)), and not abrade / blister your skin. This last item is also largely, but not exclusively, about your clothing. (See also 'Medical Needs and Wants', below, especially with respect to sunscreen.)

Approach: Temperature adjustment comes largely with layers, which you add or subtract to suit your comfort. For major thermal adjustments, I wear light-weight hiking trousers that can be converted to shorts by zipping off their lower legs; I zip these back on if I get chilled. (For ease of changing without removing hiking boots, I strongly prefer hiking trousers not only with zippers that go around the leg to detach and reattach the lower legs, but also with secondary zippers that go up and down the outside of each leg from the cuff. Ditto pockets lined with webbing for easy drainage – if they should get wet. And I prefer LOTS of these pockets EXTERNAL to / able to puff outward from the legs, a built-in belt, and a button rather than a snap in front to help support your trousers when your pockets are laden, which mine invariably are.)

The outermost layer available to you should be waterproof (or at least highly water resistant) and, ideally, windproof. Some will also want equally waterproof / water-resistant rain trousers. I doubt I will bother bringing mine in the Summer: my normal hiking trousers dry quickly, it is most important to keep your core rather than your legs warm and dry, and, unlike my better half, I'm reasonably cold tolerant (and it likely will get chilly at elevation). You will know your own needs better than I do.

Your innermost layers (T-shirts, socks, trousers, underwear) should wick away moisture (i.e. your sweat). This usually means specialized synthetic blends or, for the old fashioned, silk or wool (which I actually prefer for my socks). And **NOTHING** (and I mean nothing) **that clings to your body while you are hiking should be made of cotton**: not your socks, not your T-shirts, not your undergarments, not your trousers. I love cotton, and I often wear it as an outer layer while I hike or camp, but it doesn't wick for s*&^, and it can chafe and blister the living daylights out of you – sometimes in places that are rather sensitive, especially for males of the species. And there is no sensation of cold quite like a cocoon of wet cotton. A physician outdoors enthusiast, HR78 Classmate, and dear friend says 'Cotton is death'. This is perhaps a bit over-the-top, but you don't want to get hypothermia any more than you want to get heat exhaustion.

In short, be very conscious of and careful how you use cotton on this hike (see 'Additional Layers' below).

Additional layers (Gloves, Winter Cap, Full-Brimmed Hat, Bandana, Wicking Inner Shirts, Long Sleeved Outer Shirts, Fleece, Two Pairs of Socks):

This is largely up to you and what you find comfortable. Gloves (water-resistant ones) can be helpful, especially in the early morning or near the summit, but are not required. Ditto a warm winter cap for the start of the day, when it is likely to be chilliest. I also recommend a hat with a full brim (or cap with a built-in neck and ear coverings – Aussie and French Foreign Legion style) while hiking: the Sun is especially strong at elevation. (My brimmed hat also has mosquito netting tucked into the crown for quick deployment, if needed.) And I also wear a bandana knotted around my neck (for added Sun protection, a quick wipe of the brow, a refreshing dip in cool water, or protection, 'bandito' style, from airborne dust - not expected to be an issue on this hike).

When not wearing long-sleeved wicking T-shirts, I start out my hiking day with a long-sleeved shirt of some kind (usually cotton or a cotton blend - it is good Sun protection, too) atop my short-sleeved wicking T-shirt. I wear a quilted fleece vest as well, though you may want to have a long sleeved, light-weight jacket (possibly a puffy, lightweight down-filled jacket.) I have always found a vest sufficient in Summer.

And I wear **two pairs of socks** (one fine, one coarse) in my boots, in part for warmth, but mostly so that any friction is between the finer and snug inner socks (in my case, silk) and coarser outer socks (in my case, wool) rather than between my skin and my socks. To minimize chafing between skin and boot, at least one pair of socks (usually the outer pair) should be taller than the top of your boot. (Note: some manufacturers make a double-layer sock, which I like with running shoes, but have never found ones tall enough for boots. If such 'high top' double socks exist, they might work well.)

Footwear:

I'm a purist: sturdy leather boots with good gripping soles (usually Vibram®) and ankle support to hike, sandals (also with good gripping soles) for camp (but most of us won't be camping). Some (including my spouse) prefer a lighter-weight (often

GoreTex®) boot for hiking, but whatever you do, I recommend something with ankle support: the Horn-Fork Basin Trail to Mount Harvard, especially the last third or so of the ascent, is mostly an extended stair climb on highly irregular stairs.

A long time ago, I climbed / hiked Malaysia's (Sabah's) Mt. Kinabalu (at 4,101 meters / 13,455 feet, the highest peak between the Himalayas and Papua New Guinea) in boots. It is a 2,700+ meter (~9,000 foot) stair climb and, while I was humbled as I was passed on the trail by little old local ladies carrying baskets full of goods on their backs and wearing flip-flops on their feet, I would not have survived in such flimsy footwear; most of us won't survive this way while hiking in the mountains of Sabah, of Colorado, or of anywhere else. The same applies to sandals and sneakers on this trail: These can work, but do you REALLY want to risk ruining your trip this way? The choice is of course yours.

And please do break-in your footwear well in advance: otherwise it may be your feet that get broken in during the trip....not fun. If you are planning to wear older boots (as I often do), check the condition of your soles and their adhesion to the uppers (as I have often failed to do, thus walking right out of my soles on more than one occasion, and requiring some emergency repair with duct tape (see 'Additional Considerations', below)).

If you plan to wear shorts at any time while hiking (and even if you don't), you might want to consider getting anklets (the shorter form of gaiters). These will prevent scree, debris, seedpods, etc. from falling into your boot tops or stabbing your ankles and shins. (In the Rockies, North American needle-and-thread grass – aka 'screw grass' – is a bane, and gaiters, anklets, and / or long trousers pretty much keep this stuff from working its way into your legs.) This same result can also be accomplished by judicious deployment and periodic cleaning of your socks; however, depending upon trail conditions, these socks may not survive the experience without anklets.

Daypacks:

On the trail you will need to have a few personal belongings, and you will want to have along a small pack to carry what you may need quickly or want to keep safe on the trail (camera, raingear, lunch, snacks, water, etc.). I recommend something about 20 liters in size (more or less), that has a waterproof lining, and that is kitted-out with a back-hugging pocket to take a water bladder (e.g. Osprey®, Platypus® or Camelback®) attached to a mouth tube (see 'Hydration and Associated Equipment', below). These pockets – usually with openings and guides for the mouth tube – have become standard equipment on almost all recent backpacks.

On my daypack I like having waist / hip and sternum / chest belts (for adjustable support), and outer pockets, including on the waist / hip belt halves themselves, as well (so I don't need to take off my pack or ask someone else to extract absolutely anything that I want to access). And I carry a waterproof cover for my pack too (which I almost never deploy, but want for insurance. Up to you to decide if you want to carry one of these as well.)

Hydration and Associated Equipment:

I have already whined about staying hydrated. This is especially important while exerting yourself at altitude (e.g. hiking), and all the more so in a reasonably dry climate, which you likely will experience during this hike. You will need to provide your own drinking water BEFORE ARRIVING AT THE TRAILHEAD. I will be carrying at least 1 gallon [4 liters], and you will need something in which to carry your potable water. I again recommend a water bladder that fits into your daypack. The tubing attached to mine has a valve to turn the water on and off, as well as something you compress / bite lightly to allow the water to flow into your mouth. The valve is a must, but for convenience I like having both attachments.

In addition to (or instead of) a water bladder, you may also want to carry one or more heavy-duty, 1-liter water bottles. I prefer Nalgene® bottles to metal: they don't dent, I've never had one crack (even when dropped great heights while full), and they don't absorb or lose heat anywhere nearly as quickly as metal ones. I DON'T recommend the cheapy, thin-walled plastic bottles (usually polyethylene terephthalate: PET) in which water is usually sold: they won't survive well on the trail (they puncture easily).

I also will carry my water-filtration kit (one with a very fine ceramic filter), which I will only use if running unexpectedly low on water and I need to refill at a stream. (I don't want to risk water-borne health problems - notably Giardiasis - hence the filter.) And I'm not a fan of water purification tablets: water so treated is usually safe to drink, but it tastes terrible. You want no disincentives to hydrating.

Snacks:

I plan to 'carbo-load' at dinner the evening before the hike, and go light on breakfast the morning of the 'Climb'. I find, however, that my caloric needs go way up when I hike extensively and, unlike my usual, modest portions and reasonably 'clean' preferences in fare, on the trail I crave and consume sweet, salty, starchy, and oily snacks (dried fruit and nuts, trail mix, granola, chocolate, etc.). I usually bring along some of my favorites (in Nalgene® bottles and in Ziploc® bags: I dislike wrappers and the volumes of litter generated by single-serving snacks). In particular, I bring along my personal trail mix, which has proved very popular with fellow trekkers and local folks on several continents.

Bring what makes sense to you. If you prefer fresh fruit, then I recommend ones that are hydrating (like citrus) rather than dehydrating (like apples, which also can bruise badly while hiking).

Hiking Poles or Sticks:

As I get older (and my knees more damaged and 'noisy'), the extra stability that comes with a hiking pole or two has been welcome. The options are basically either a single wooden pole or collapsible metal or composite ones. These latter, especially in pairs, can both help you hoist yourself up and ease yourself down irregular stairs and paths such as those on this hike. If you use such poles, your hips and knees will thank you.

Medical Needs and Wants (Prescription Meds, First-Aid Kit, Blister Kits, Pain Reliever, Sprain Bandages, Joint Supports, Petroleum Jelly, Sunscreen, Insect Repellent, Antibiotics, Fever Suppressants):

If you are on any kind of prescription medications, obviously bring these along – or chat with your physician or nurse practitioner about whether or not to do so.

I also recommend bringing along a first-aid kit. (One for every three to six people should suffice.) This kit should include material for basic cuts and scrapes (disinfectant, topical antibiotic, simple bandages). In addition, I recommend having along some sort of Moleskin® or blister packs (in case you get unlucky with your boots in the blister department or know you are prone to such problems, in which case apply these pre-emptively first thing in the morning to the likely sore points). Also, have along some sort of pain reliever: you will be using muscles and pounding joints you don't normally use (or at least not to the extent you will be using them on the trail). I tend to prefer Ibuprofen (Advil®, which is a non-steroidal anti-inflammatory drug – NSAID - and unlike aspirin, is not a blood thinner). And I recommend carrying an Ace Bandage® or two, just in case of a minor sprain. (If you usually wear joint supports when you exercise, bring these along as well: I use elastic supports for both of my knees and both of my elbows.) Any condition more severe than these will probably need medical help, whether quick first-aid on the trail or something more advanced brought in (slowly) after a satellite-phone call.

Old runner's trick: those prone to blistering on their toes may also wish to bring along a small tube of petroleum jelly to apply to their toes – especially between them – at the beginning of the day, just before putting on their (inner pair of) socks.

I also HIGHLY recommend having good quality, unexpired, high SPF (25 or higher), non-water-/ sweat-soluble sunscreen. With so much less atmosphere above you than near sea level, the Sun can be brutal. Avoid the lobster look: especially to the back of your neck, your hands, your nose, your ears, your forehead, your pate (if yours, like mine, shows), and your legs and feet – notably the tops of your feet and backs of your knees (if any of these is to be exposed...)

Biting insects are unlikely to be a big problem, but do bring along insect repellent. For efficacy, I prefer the kinds that contain DEET (*N,N*-Diethyl-*meta*-toluamide or diethyltoluamide. Be careful though: many plastics will begin to melt / frost if you get DEET on them, including touching them with the DEET on your hands after you have applied it to your person...) Others have had success with other products – including placing fabric-softener dryer sheets (like Bounce®) about their clothing.

Anyone feeling unwell or unfit on the day of the hike should seriously consider whether or not participating in this specific event is a good idea.

Other Considerations:

Cameras: Before you travel, if you plan to take pictures (Who wouldn't?), make sure all of your equipment is in good working order and that you have the necessary media (film, memory cards) and power sources (spare disposable batteries, charged fixed

batteries, recharger that can be used on the trail). Some bring heavy cameras; I use an iPhone, and for multi-day treks (which this is not) I carry a solar recharger with USB ports that I use to recharge an auxiliary battery (which I then use to recharge my camera / phone at night).

Telephony: There may be some limited cell-phone service on the trail; however, it will not be reliable. For safety of the group, there will be walkie-talkies (for internal communication) and a rented satellite phone (for any emergency requiring external assistance).

Personal Hygiene and Toiletries: We should aspire to be what in my family is called 'camping clean': perhaps a bit dusty, but no residue of human waste on anyone. Without overnighting on the trail, this should be relatively simple to achieve. There are no toilets beyond a stop before the trailhead, so bring a camping trowel to bury excreta (at least 100 feet [30 meters] from any stream), some toilet paper, and soap for minor washing up with some of your water. All other waste is to be packed out: please carry a plastic bag to facilitate the transport of any such litter and food wastes.

Some may want to carry hand disinfectant (e.g. Purell®), and having a small bottle for every 3 to 6 people is probably wise. (At home, in a bid to minimize my contribution to anti-bacterial-resistant bacteria, I tend to avoid this product unless in places with vulnerable populations, such as at hospitals or nursing-care facilities.) Others find baby wipes useful, but I don't like creating the associated waste, which must then be hauled and discarded.

Optics: If you need them, make sure you have your prescription eyeglasses and / or contact lenses. If you wear the former, consider wearing a strap to keep them on your head as you hike. I also recommend having spares of whatever you wear: How sad to go on such a trip and see nothing because you lost or broke your only pair of specs? If you are not wearing prescription photosensitive and polarizing lenses (my personal favorites), then consider bringing along sunglasses too.

For those interested in bringing the distant in close (sites, peaks, birds, animals, plants, fellow travelers, etc.), lightweight binoculars or monoculars may be helpful. I carry one of the latter – one small enough to tuck into one of the pockets in my daypack waist / hip straps. I use this monocular frequently.

Illumination: During the first hour or so of hiking, a light of some sort may be needed. In the 'flashlight / torch vs. headlamp' debate, I come down squarely in the headlamp camp: they can do everything that a flashlight does while keeping both hands free. If you're tempted, get a headlamp with as many lumens as you can afford.

New Gear: If ANYTHING you plan to bring with you has been newly acquired or recently lent to you for this trip, then prior to traveling, give it a valid 'dry run' to make sure it is in working order: it's usually tough to replace or repair on the trail. (And who wants to carry useless weight?)

Tethering / Strapping Down: If you have any sort of 'stuff' that you expect to hang off your person or your daypack (water bottles, bags, sandals, hiking poles, clothing

layers that you have shed, etc.), then I recommend getting straps, light-weight nylon cord, or carabineers (or some combination of these). You can then attach items firmly to your person or your pack.

Ziploc® Bags: I always have a stash of these when I hike and camp (mostly quart [~1 liter] and gallon [~4 liters] size, but some as large as 2.5 gallons [~10 liters]) to keep dry material that should stay dry (changes of clothing, food, cameras, phones, optical gear, toilet paper, toiletries, maps, wallet, passports, etc.) and to sequester materials that I don't want to mix in with my clean belongings or abandon on the trail (food scraps, other peoples' litter, etc.) 'Burp' the air out of them before you stash them in your daypack to maximize available pack space.

Maps, Compasses, and Stuff: I strongly dislike not knowing where I am, so I carry a compass (BTW: magnetic declination at Mt. Harvard in 2018: ~8.5 degrees East) and topographic maps: physical (paper, folded in a Ziploc® bag) for certainty and digital (on my iPhone) for convenience.

The key paper maps covering the area are the US Forest Service's **San Isabel National Forest** map (1:126,720 – ISBN 978-1-59351-120-3 for 2006 edition), and four of the US Geological Survey (USGS)'s 7.5 minute quadrangle topographic maps (**Mt. Harvard** – especially, **Mt. Yale**, **Harvard Lakes**, and **Buena Vista West** (1:24,000, 40 - 80 foot contour interval, depending upon the individual map. Each of these quadrangles is of course in Colorado. The trail profile - posted separately - was constructed primarily from these maps.) There also exist good, plasticized, folded topographic hiking maps: **National Geographic Trails Illustrated, Buena Vista Collegiate Peaks** panel (**Map 129**: 1:40,680 – ISBN 978-1-56695-325-2 for 2016 edition) covers all of the Collegiate Peaks and **Outdoor Trails Maps 14ers Series** (1:30,000) **Map 8** (ISBN 978-1-946906-07-6 for 2017 edition) covers Mounts Yale and Princeton, whereas **Map 7** (ISBN 978-1-946906-06-9 for the 2017 edition) covers Mounts Harvard, Columbia, Oxford, and other neighboring 14ers.

Digitally, I use a mapping App called **Avenza** on my iPhone. (It is also available for Android phones.) The App is free, but requires you download maps (each of them already georeferenced / georegistered) to your phone. Some maps may be downloaded for free, but most map downloads incur a modest fee (typically, \$US 0.99 to \$US 1.99, though some are much more expensive. Each of the USGS topographic maps noted above was free and is resident on my iPhone.) The Avenza App locates you on each map using the GPS function on your phone (so turn it on in conjunction with the App), but, once loaded with maps, can operate in Airplane Mode, thus drawing very limited power from your phone's battery. Avenza works like a charm: all over the globe, whether in wilderness or on city streets, I always know where I am more precisely than needed (to within a few tens of meters) and consequently can always answer for myself and others the eternal question 'How much farther must we go?' If you are tempted, download the App and needed maps well before the hike.

I also carry a Swiss Army knife (but I almost always do) as well as a role of duct tape, which has saved my bacon more than once when I have walked out of the soles of my hiking boots, and for longer hiking hauls, carry spare boot laces.

Other Resources Specific to Mount Harvard (Websites) or That Include Same (Book):

- <https://www.14ers.com/route.php?route=harv1&peak=Mt.+Harvard+and+Mt.+Columbia>
- <https://www.summitpost.org/mount-harvard/150370>
- Roach, G. (2011): Colorado's fourteeners: from hikes to climbs (3rd Edition), Fulcrum Publishing (Golden, CO), 376p. [ISBN 978-1-5591-746-3]

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