HIKING OVER 60

A Modern Guide to Hiking Gear and Techniques for Active Adults

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PREFACE

If you're over 60 years old or getting close to it, it can be overwhelming to learn about the latest skills and gear that day hikers and backpackers use. If you hiked when you were younger or you're just starting out, the gear, clothing, footwear, navigation aids, communication tools, and best practices that most hikers use have undergone significant changes over the past 20 years.

One of my motivations in writing Hiking Over 60 is to help new hikers and backpackers, as well as more experienced ones, cut through the noise and come up to speed on what modern hiking has become. While it's true that hiking is "just walking," hiking culture, best practices, gear, and technology have evolved in ways that make it more accessible than ever for mature hikers. My goal is to help you navigate those changes so you can join the hiking community with confidence and the requisite know-how to hold your own and help others.

As we age, our bodies can require adjustments or modifications to the adventures we undertake, the physical aids, and the hiking gear we use. As I've gotten older, I've had more than my share of physical challenges to manage and overcome, including foot, knee, and hip pain that are the result of ageing, gravity, and too much sitting hunched over a laptop for the past 40 years. This is something that younger hikers can't fully appreciate.

Hiking across Scotland was a transformative experience.

When I was 50 years old in 2010, I hiked coast-to-coast across Scotland. At 180 miles, it was the longest hike I'd ever undertaken and I'd spent nearly a year preparing for it, learning how to navigate cross-country, testing out new hiking gear and clothing, and backpacking in New Hampshire's White Mountains to acquire the conditioning and experience I'd need to be safe and self-sufficient in mountainous terrain.

It was a fantastic experience, with all the things I love about hiking: exploring new terrain, a physical challenge, a test of my self-sufficiency, and chance meetings with other hikers along the way. That long walk also gave me the time to reflect on my life and I realized that my career in the software and Internet industry wasn't giving me the same satisfaction that it had when I'd started 22 years earlier.

Career Change

When I got home to Boston, I quit my job and ended my career in high-technology. The industry had matured and become cutthroat, with an emphasis on making quarterly revenue targets to enrich investors. By then, the culture in start-up companies that I'd come to cherish, like mentoring junior staff, forming deep relationships with customers, and radical innovation, had largely disappeared. The boundary between work and life had been replaced by 80-hour work weeks and answering email at home at night and on weekends. Something had to change.

By then, I'd been dabbling with a new blogging software platform called WordPress, which now, 15 years later, powers 45% of the websites on the World Wide Web. I'd been chronicling my hikes and reviewing the hiking gear I was testing out in preparation for Scotland. I decided to expand my blog, SectionHiker.com, with a focus on educational content about hiking and backpacking, including gear reviews where I explain how to use new products and their strengths and weaknesses.

I wanted to make SectionHiker.com into a website that reflected my work values, helping and empowering people through honesty and engagement and addressing the needs of beginner hikers as well as seasoned veterans. It can be difficult to cut through the marketing hype that permeates the outdoor industry, so my goal has always been to help people understand what is real and what is BS. That formula has worked well and my readers appreciate it. Today, SectionHiker.com is a popular website focused exclusively on hiking and backpacking.

I still believe in publishing online content that helps people and through one-to-one interactions in person. I'm proud of the community of hikers that has grown up around SectionHiker.com and thrive on the interactions that it drives..

As a seasoned gear reviewer, day hiker, and backpacker I believe you'll benefit from my gear recommendations, including physical support aids like trekking poles, insoles, ankle and knee braces, and compression wraps and sleeves. I've used many of these products over the years and distilled the best-of-breed solutions to help you get out on the trail and keep you there.

Day Hiking

Hiking Over 60 is focused on day hiking because the know-how, experience, and gear you use for day hikes form the basis for all other types of hiking you may try, from supported hut-to-hut hikes abroad, climbing all of the 14,000-foot peaks in Colorado, or thru-hiking the Appalachian Trail. Everything builds on simple day hiking techniques and gear for comfort and safety.

Day hiking is also far more accessible than most other forms of hiking and something you can do wherever you are. It's easier to schedule, lower cost, and easier to find hiking partners. Of the 10,000 miles of hiking I've done in the past 15 years, I estimate 60 percent of those miles have been on day hikes.

How to Use This Book

Hiking Over 60 is divided into two parts.

1. **Part I** is a quick overview of Hiking Fundamentals that explains the basic skills, gear, and best practices you need to get out on the trail. Learning to hike requires practice and experimentation, so you'll want to try the techniques and skills covered, treating the book as a reference that you can revisit as your skill set and experience evolve. Veteran hikers can also learn from the information presented and brush up on new or outdated skills.
2. **Part II** is an in-depth Hiking Gear Guide that covers hiking footwear, clothing, trekking poles, physical support aids, including braces and compression sleeves, backpacks, GPS navigation tools and apps, safety and communication devices, and lighting. This is key information for beginners and even veteran hikers are likely to find useful information here.

Hiking Gear Recommendations

I recommend many products in the text of the book, particularly in Part II, the Hiking Gear Guide. Anytime you see products that sound

interesting, google the products to learn more about them. I only list brands or products that I feel are worth recommending to fellow hikers.

If you're interested in reading more gear reviews, gear guides, and FAQs about a wide range of hiking topics, I'd encourage you to visit SectionHiker.com and sign up for my newsletter which summarizes the articles I publish each week.

Acknowledgements

I have benefited from the feedback of many other individuals and organizations in developing the content for Hiking Over 60: A Modern Guide to Hiking Gear and Techniques for Active Adults.

My editor and hiking friend Dave "Greenie" Greenslit provided excellent style, formatting, and content suggestions that helped refine the presentation and material. Dave is an accomplished backpacker who's section hiked the Appalachian Trail and has contributed articles to SectionHiker.com in the past. Now retired, he was a reporter, sports editor, and copy editor for the Worcester Telegram & Gazette for over 30 years.

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I also benefited from many interactions with other hikers as a volunteer hiking leader and instructor for the Appalachian Mountain Club, the Green Mountain Mountain Club, Leave No Trace, and as a professional guide for Andrew Skurka Adventures.

Finally, I'd like to thank the readers of my website SectionHiker.com for many years of inspiration and camaraderie. Hike on!

INTRODUCTION

The 2023 Annual Outdoor Participation Trends Report published by the Outdoor Industry Association estimates that 60 million Americans go hiking annually. Of that total 26.3%, or close to 16 million of them, are over the age of 55. (Outdoor Industry Association, 2023). If you've been hiking lately that shouldn't be a surprise, because it's common to see mature adults out hiking on the trails today.

While those of us who are over 60 may sometimes feel like we're still in our 40s, there are other days when we feel the march of time. By this stage of life, we've all lived a little, and have the wear and tear to prove it. While we may have more aches and pains, and perhaps a bit less strength and stamina, hiking over 60 is not only doable, it's a fun activity that can actually improve your physical fitness, mental health, and general well-being.

Whatever is preventing you from getting out on the trail, regardless of whether you are picking it up after a hiatus or starting from scratch, I'm going to help you overcome obstacles and meet any challenges so that you can don your hiking shoes and get going. With the right gear, planning, and attitude you can hit the trails anytime and at any age.

How can I say this with such confidence in your abilities? I'm a dedicated hiker and backpacker who's over 60 years old. And just like you, I've needed to adjust my techniques and equipment to suit my age, current physical abilities, and overall fitness. From backpacks and supplies to shoes and socks, having the right knowledge will make your hikes safer and fun.

I also want to put to rest any misconceptions and allay any fears you may have about hiking. Questions such as how safe it is, whether we're capable or not, and if our bodies will be able to overcome challenges that time and life have brought us are common; I hope to show you that hiking is a safe, fun activity even in maturity, and that there are

many ways to move past obstacles through knowledge, fitness, and supportive tools and systems.

Why Go Hiking?

Today more than ever we hear about the need to exercise. The digital age has made sitting a way of life for many of us. If you are fortunate enough to live in a walkable area, you already have a great way to get started hiking by simply stepping outside your door and going for a stroll. If you often drive to the gym or a safe place to walk, why not drive to a nature path or conservation area near you? You don't need dramatic terrain, large changes in elevation, or any special equipment to get your body tuned up and to prepare for more vigorous adventures in the future.

Hiking can be accessible on a modest budget. You can probably get started with footwear you already own, like a supportive pair of sneakers or low, sturdy walking shoes. Keep in mind that as you progress to more challenging hikes, you may need to start upgrading your gear and clothing.

Among the benefits derived from hiking are a general increase in health and fitness coupled with improved mental functioning and emotional resilience. Although this is true for people of all ages, for those who are 60 or older, hiking can have particularly positive effects on overall well-being. Before you begin, assess your general strength and current activity level so you find the best starting point. This also gives you a chance to make sure that you will choose hikes that are suitable for any restrictions or limitations you may have. If you need walking or stability aids, for example, you may prefer sticking to well-used, level paths without roots and loose rocks. Those of us who've had joint issues or even replacements may find that moderate hiking can help with post-injury rehab and strengthening.

Hiking can improve your overall health and stamina.

Physical Benefits

Physically, hiking can increase bone strength and support bone density. It's several steps up from walking as a weight-bearing exercise due to the uneven terrain. Going up and down and over uneven surfaces is more challenging and requires more muscle and dexterity than walking on a flat surface. If you are new to hiking or a little out of shape, it's important to start slowly, gradually increasing the length of your hikes, the difficulty of the terrain, and how much elevation you cover. While hiking can help strengthen your knees, ankles, and hips, doing too much too soon can potentially lead to injury.

As you get started, you may find that you need footwear with better arch and ankle support, or trekking poles to provide extra stability. Over time, traversing natural surfaces can increase your proprioception—your awareness of the position and movement of your body and the ability to sense the ground you are walking on. Hiking increases your overall fitness while improving strength, balance, and coordination,

and offers other benefits you will enjoy that are common to any sort of well-rounded exercise program including:

- better circulation and improved respiratory function.
- lower blood pressure and reduced cholesterol.
- weight loss and decreased risk for diabetes.

Based on studies reported in the journal *Circulation*, people over age 60 who walk three to four miles per day (that's 6,000-10,000 steps) or get at least 75 minutes per week of more vigorous exercise, such as hiking, have a significantly decreased rate of cardiovascular disease than their peers who walk less or not at all (Searing, 2023). This translates to as much as a 40-50 percent decrease in the risk of heart problems. Hiking also aids your immune system by increasing your fitness level, giving you more exposure to vitamin D, and creating a better sleep regimen.

Mental Health Benefits

Working out at the gym is not the same as walking through the woods or across open fields. Hand-in-hand with its physiological pluses, hiking and getting out into nature, can reduce stress and its effects, alleviate depression, and foster creativity. Studies have also shown that walking in nature holds restorative mental benefits compared to walking in urban or populated spaces.

When we walk in a natural setting, our mental processes can slow down as we become absorbed by the interesting surroundings and focus more on placing one foot in front of the other. This gives your brain some much-needed restorative time. Urban or crowded settings, on the contrary, require directed attention at an almost continuous rate. For example, you must constantly remain aware of things like traffic, other pedestrians, and sudden noises and movements. This means that your brain stays on high alert with no restorative gains (Berman, et al., 2008).

Need some help overcoming symptoms of depression and anxiety? Go hiking! From the increased intake of fresh air to the physical exertion to even the sights and sounds around you, hiking is a wonderful way to settle nerves and reduce stress. Being surrounded by green spaces

can calm your nervous system and reduce your fight-or-flight response. This environment in turn creates a release of endorphins, those happy little hormones that make us feel good. It also increases your sensitivity to the hormones serotonin and norepinephrine which ease feelings of depression.

How can hiking improve your sleep? The combination of all the above factors can dramatically improve sleep patterns. The benefits of exercising outdoors increases your exposure to vitamin D from the sun which plays a role in your sleep-wake cycles. Healthy sleep is vital to maximize brain function; it lets your body recover from physical exercise, boosts your immune system by reducing stress, and allows for better overall rest which helps you adapt to new situations and activities.

Strengthen Social Connections

At a certain age, it can be tough to maintain social ties. Yet we know how important keeping those connections and making new ones are to our emotional well-being. Hiking with others is a great way to meet new people with a similar interest as well as to gather the whole family for an adventure everyone can appreciate.

Instead of sitting at home wishing you felt like going for a hike, make a date with a hiking buddy. It's easier to get out the door and go for a hike when you make plans with someone else. Try looking up resources online to find existing local groups. Once you get started and meet new hikers, you'll find it easy to network and find regular partners.You can even start a group yourself with family, neighbors, and co-workers.

Can I Really Do It?

In short, yes, even though those of us over 60 may have lost some of the physical fitness and function of younger bodies. Maybe quite a bit has changed, like knee or hip replacements. But regular hiking is not only possible, but will actually help you gain strength and maintain or improve function.

For example:

- If you suffer from arthritis pain, regular hiking can help reduce it by reducing inflammation and increasing blood flow to the affected areas.
- If you suffer from knee, back, or hip pain, hiking can help you strengthen your glutes, quads, hamstrings, and knees, while the use of braces, compression sleeves, and straps can help reduce muscle or joint pain.
- If you have poor balance, walking over uneven surfaces such as roots and rocks can help you retrain your body to micro-balance, while using trekking poles can provide stability and reduce anxiety about falling.
- If you've lost bone and muscle mass, regular hiking and carrying a backpack can help rebuild and strengthen the muscles and soft tissue that compensate for lost bone density.
- If you suffer from poor circulation or Reynaud's, a full body activity like hiking helps stimulate blood flow while proper gear and clothing can help protect your extremities from cold.
- If you have bunions, metatarsal plain, tendonitis, or flat feet, you can alleviate some or all of your discomfort by wearing hiking shoes with wide toe boxes, extra padding, insoles, and compression socks.

At the very least, you can alleviate symptoms of discomfort with conditioning and support from the right gear. Simple things like reducing the amount of weight you carry and updating your gear with lighter shoes, layers, and trekking poles can make a significant difference in wear, tear, and comfort. Look for any ways to further reduce weight, such as carrying a water filtration system rather than a hydration pack or full water bottles. Even the way you pack your gear can make a difference; lightweight packs with well-adjusted, comfortable straps or in a fanny pack can redistribute the weight and make walking easier.

Whatever you believe is stopping you, there is someone out there with the same concerns who is actually hiking!

PART I:
Hiking Fundamentals

If you're a hiking novice or your hiking experience is a little rusty, the introductory Chapters 1-6 cover basic skills and techniques (listed below) to help you get out on the trail. The material in Part II, the Hiking Gear Guide, will be much more meaningful once you get your feet dirty and have a little trail experience. More experienced hikers may want to skip right to Part II, the Hiking Gear Guide.

- Hiking Footwear
- Hiking Clothes and Layering
- Food and Water
- How to Use the Bathroom Outside
- Trip Plans
- Basic Navigation Skills
- Blister Prevention and Treatment
- Emergency Communication Devices
- Gear Selection
- The 10 Essentials
- Leave No Trace

CHAPTER 1:
First Steps

We all know that walking is good for us and also a great lifelong activity. But hiking is a different experience than walking on roads and sidewalks. The surfaces of hiking trails are often uneven and you'll probably need to step over or around obstacles like roots and rocks. This requires paying more attention to where you place your feet although that will quickly become second nature the more you do it.

Hiking is more challenging than walking due to uneven terrain.

Hiking Footwear

One of the biggest changes to hiking in the past decade has been the widespread adoption of lighter weight footwear. While some hikers still use old-school leather hiking boots, most hikers opt for footwear made with lighter weight synthetic materials that requires very little break-in time and dries faster when it gets wet.

Most of today's hikers and backpackers fall into one of three footwear camps: those who use mid-height hiking boots, hiking shoes, or trail runners. While it's true that some still use full-height leather hiking boots, they're a minority and finding full-height boots is increasingly difficult because companies have stopped making them.

Mid-height hiking boots, or mids for short, are hiking boots with uppers that just cover the ankles but do not reach as high up the leg as full-height hiking boots. They're similar to full-height boots in every other respect and often have a waterproof/breathable membrane to keep your feet dry on wet trails.

Some hikers also opt for hiking shoes which do not cover the ankle and lace up like street shoes, but have large lugs in the sole, like snow tires, for extra traction on dirt and gravel. These are also available in waterproof and non-waterproof versions.

Trail running shoes, designed for hiking and running on unpaved surfaces, have large lugs like hiking shoes but are even lighter weight and usually less durable. They are increasingly available in waterproof versions, but the non-waterproof models dry quite quickly and are cooler to wear in hot weather.

The pros and cons of these lighter weight footwear choices are covered in depth in Part II, but the biggest difference between them and full-height hiking boots is durability, because none of them can be resoled. When their soles wear out, you have to throw them away.

I'd encourage you to try mids, hiking shoes, and trail runners as you gain more hiking experience to figure out which you like best. Finding the right footwear may take you a while, but persevere and never put up with shoes or boots that hurt or fit poorly. Be patient; you may have to try six or more pairs of shoes of various types and styles until you discover what works for you. Certain retailers and shoe manufacturers, including REI, let you try shoes outdoors and return them even if used.

Footwear Fit

With hiking footwear, a proper fit is essential. You want to make sure that the toe box of your shoes is wide and roomy enough to let your toes spread out and wiggle. The shoes should be long enough to prevent your toes and toenails from jamming against the front of the toe box, especially when walking downhill. Keeping your toe nails short also helps in keeping them, since a long toenail banging against the inside of your shoes is likely to fall off.

Insoles

For extra support and comfort, you may want to purchase third party insoles or orthotic inserts if you already use them in your other shoes. Most of the insoles that come pre-installed in hiking footwear offer very little support or padding and experienced hikers often replace them with sturdier and more durable ones.

Hiking Socks

Hand-in-hand with your footwear is your choice of socks. For fabrics, go with wool, wool blends, or synthetic socks rather than cotton; cotton socks easily get wet from perspiration, and dry slowly which can lead to blisters and other issues.

Choose the weight and type of sock that works for you depending on comfort and the season. Make sure your footwear fits comfortably with the socks you choose.

Dressing in layers lets you regulate your warmth level and reduce perspiration.

Clothing

When hiking, your body generates more heat than you realize and you can begin to perspire if you're wearing too much clothing. While perspiration helps your body cool, it can also chill you in colder weather. You can avoid this by wearing thin clothing layers, also known as "dressing like an onion," that allow you to regulate your temperature better than if you were to wear one or two multi-purpose garments. If you're too hot, you just take a layer off.

It takes some experimentation with different garments to develop a layered hiking wardrobe. You will want to try different base layers (underwear, shirts, pants), mid-layers (sweaters), insulating layers (down or synthetic jackets), and waterproof jackets (rain coats) until you develop a layering system that suits your needs in most conditions.

Talk to your friends about their preferences and take advantage of retailer return policies. Many hikers develop a "hiking uniform" or a

limited wardrobe that they cycle through and wear on all of their hikes because it is finely tuned to their metabolism.

As with socks, it's best to stay away from pure cotton materials which will hold moisture rather than wick it up to the next outer layer and pull it away from your skin. Many people prefer wool base layers and mid-layers because they stink less if left unwashed between hikes compared to synthetic clothing, even though synthetic clothing is far easier to care for and lasts longer.

Food and Water

A common mistake that novice hikers make is taking too little or no water and food on hikes. A simple guideline is to carry about a liter of water for every two hours you expect to be on the trail. The amount can vary depending on the weather, the difficulty of the terrain, and your fitness level; learning how much water you need in different conditions is important. Pay attention to what your body needs for both water and food. Even if you are heading out for an easy hike on a flat trail, a few snacks like energy bars or some snack mix tucked away can make the difference between losing steam partway versus having enough energy to make it back with relative ease.

How to Use the Bathroom Outside

Another concern many folks don't think about until it's necessary is that they will have to pee and poop in the outdoors. There are low-impact methods that hikers are encouraged to use to relieve themselves that are safe and keep the trail clean.

If you need to take a poop and you're not near a composting privy or toilet, you dig a hole, called a cathole that is 6-8" deep and 4-6" in diameter, and deficate in it before covering it up with soil.

This allows the poop to biodegrade, prevents animals from digging it up, and keeps it from disturbing others. Be aware that it can be difficult to dig a hole in certain types of soil and terrain. For example, if the soil is full of rocks and roots it may take a little time and a few tries to find a good spot.

When digging a cathole, select an inconspicuous site at least 200 feet

(70 steps) from the nearest trail, campsite, or water source, and avoid areas with visible signs of water runoff that might erode your cathole and carry your waste into the local water supply. The best sites have deep soil and good exposure to sunlight to aid in decomposition. If you are with a group, make sure to disperse everyone's cathole locations, using a single cathole for each poop. Let a companion know that you're taking a bathroom break and take note of obvious landmarks so you don't become lost when you make your way back to the trail.

Trying to dig holes with a stick is far less effective than you might think. Bring along a small, sturdy trowel to dig your cathole. In areas where regulations or conditions do not allow burying human waste, be prepared to pack your poop out. Carry extra well-sealing baggies or special human waste disposal bags along with your trowel. Waste disposal bags contain enzymes and polymers that treat human solid waste and stay securely sealed so that they can be disposed of in trash receptacles. These are required in many National Parks and backcountry areas, so check out the rules before you head out. You don't want to get caught with your pants down.

When you are done, use as little toilet paper as possible. Although in many places you can bury your waste with the biodegradable toilet paper on the bottom of the hole, it is better to have a separate bag for packing out your used toilet paper. Place used sheets in Ziploc-type bags to prevent leakage and reduce odors. If you prefer, use a wet wipe and put it in the bag, never the hole. After going, you want to get clean and dry to avoid the painful chafing that may otherwise develop. Many hikers carry and use lotion or diaper rash cream to prevent later irritation. All done? Fill the cathole with the original soil you dug up and smooth it over.

When urinating, move away from the trail or picnic sites and pee on rocks, gravel, or soil instead of vegetation. This will not only reduce the odor for others, it will protect plants from being chewed on by animals looking for salt. Rather than carry in and pack out wads of toilet paper, you can either drip dry or use a pee rag. The drip dry method works for some but many find that it results in damp and smelly underwear after a long day of hiking. A pee rag or pee cloth is used by many hikers as a zero-waste alternative to toilet paper. While

you could make do with any scrap of fabric or a bandana that you use then tie onto your pack to dry in the sun and air, even after rinsing they can still retain a urine odor.

A purposefully designed and hygienic piece of cloth takes this concept to another level of convenience and cleanliness. A popular version of this is the antimicrobial Kula Cloth, specifically designed to dry quickly and reduce odor and bacteria when used to wipe urine (and only pee). Made of non-toxic and eco-friendly materials, the outer surface is leak-proof while the inner side consists of silver-infused polyester, bamboo viscose, and organic cotton.

For urinating discretely, try using a urinary director. This is a device that allows you to remain standing while peeing and to channel the urine down and away. They come in both disposable and reusable versions. The disposable ones are not safe to bury, so you will still need to pack them out. Be sure to practice in the shower a few times before using it outdoors.

Human waste disposal bags are often required along river corridors and desert areas; check local regulations when hiking in these areas to see if they are required. In desert-like areas, feces decompose very slowly; the bacteria carried in it may remain alive for a year or more. Knowing why poop bags are required in so many places has encouraged hikers to carry them even when they aren't required, simply to reduce impact. As visits to desert areas continue to increase, so will the amount of poop in the ground. Do the desert a favor and consider using human waste disposal bags.

Recommended Peeing and Pooping Products

If local regulations permit you to bury your waste rather than packing it out, bring biodegradable toilet paper, either pre-torn into sheets or on rolls without a core to keep their bulk to a minimum.

If you would prefer a pee rag, I recommend the popular antimicrobial Kula Cloth. If you'd rather pee standing for convenience and discreteness, the Freshette Reusable Pee Funnel is a popular option.

For digging a cathole, try the titanium TentLab Deuce DirtSaw Trowel. A simple gardening trowel also works but will be heavier.

If local regulations require that you carry out all solid waste, CleanWaste GO Anywhere Toilet Waste Bags contain a powder that gels and solidifies waste, preventing spills and leaks.

CHAPTER 2:
Trip Plans and Navigation

As your fitness increases, so can your hikes and the types of gear you'll need. Remember that the longer and farther you go, the more you want to focus on preparation, the right clothes, and a bit of local knowledge. Once you feel confident that you are ready to set out, you can decide what kind of hiking you want to do.

Hiking takes practice and conditioning. You'll have more fun if you build up your stamina before tackling harder routes.

Trip Plans

Whenever you go hiking, it's important to leave a trip plan with someone before you head out. The plan should have the details of your

anticipated route plus information such as where you parked your car, when you expect to return, and who to call if you are overdue. Even for a short hike, this is an important step, something that even very experienced and self-sufficient hikers do.

Make sure you include:

- When to contact authorities if you are overdue, and at what point the call should be made.
- Who to call, including phone numbers. Dialing 911 is usually recommended because someone will always answer, and their operators know how to contact local Search and Rescue resources for assistance. Especially in rural areas, ranger stations or conservation offices may be closed after hours and unreachable.
- Where you parked your car so that rescuers can check to see if you are still out on the trail.
- A description of your route, including trail names and mileages, and escape routes when applicable. This is good if, for example, you plan to hike above tree line and are fully exposed to weather conditions.
- Mention any tracking, communication, or GPS equipment you may have as many of these items work both for you and for those trying to find you. You might even arrange a system of check-in messages that you send at certain times of day or when you reach your destination to let your friends and family know you're ok.

Here's a sample trip plan that illustrates the information you'd give to a family member or trusted friend.

Sample Trip Plan

Trapps Loop, Mohonk Preserve - Trip Plan

- Parked: East Trapps Trailhead, Mohonk Preseve (3142 Route 44, Gardiner, NY)
- Subaru Crosstrek, Red, plate XYZ123 NH
- Cell Phone: (698) 765-4321
- Start Time: 8:30 am

Route

1. The Undercliff Trail - 2.5 miles
2. The Overcliff Trail - 2.7 miles

Total Distance: 5.2 miles

If you don't hear from me by Wednesday 6/12 at 7:00 pm (cell service may be limited), call 911 to report an overdue hiker. Tell them I'm an experienced hiker and fully equipped for day hiking with a first aid kit, headlamp, fleece hoody, rain gear, a down puffy, and water filter. I have an inReach Mini 2 satellite communicator. I don't require any daily meds, don't have any drug or food allergies, and have no physical limitations.

I'm with another experienced hiker: Mel Audy, cell: (123) 456-7890.

Basic Navigation Skills

Even though you aren't heading out for a backcountry backpacking trip, you should still be confident in your ability to perform basic navigation. If you miss a trail marker or need to make an unplanned detour it's easy to get confused. Knowing how to figure out where you are and where you want to be, plus how long it will take you to get back on course, could be the difference between getting home for dinner or spending an unplanned night in the woods.

Trail Markers: Signs and Blazes

Many maintained trails have painted trail markers, called trail blazes, on trees along them. Above the treeline, they're often large piles of rocks called cairns. These trail markers are not designed to babysit you along your route but rather to be an aid to reassure you that you are on the right path, particularly where paths can be vague or hard to follow.

Some areas have little in the way of blazes and only have signs at major trail intersections (often called "junctions") to maintain a feeling of being out in the wild.

When you come to a trail junction, locate it on your map to identify your current location.

Trail Signage

Trail signage varies from area to area and state to state. Trail signs generally show the distance to the next trail or destination, the elevation at that site, and other useful information such as potential

trail closures and rules for the trails in that area (for example, "Dogs must be leashed"). When you see a sign, look at your map and find that location to check where you are and how much farther you need to go. Called "staying found," experienced hikers routinely check their maps at all trail junctions or landmarks so they can pinpoint their current location.

Navigation Aids

You should also have a map of the hiking area you're in. A physical map is the best choice because a GPS device or phone can run out of power. Unlike the maps on a GPS device or smartphone, a physical map provides a much larger view of an area, including major landmarks and intersecting trails, which can be very helpful in determining your location if you wander off your planned route.

While compass use has fallen off with the increased popularity of smartphones with built-in GPS functions and trail apps, it's a skill I recommend learning and one that experienced hikers use in conjunction with a GPS. While a GPS is good for showing you where you are on a map, a compass is easier and faster to use while moving from one location to the next, especially when you step off trail and travel cross-country.

When you first start hiking, it's best to pick popular, well-blazed, and signed trails for your hikes and to stay found by checking your location on a map whenever you come to a landmark or a trail junction. As you gain confidence and experience, you can augment your navigation toolkit with a GPS device, a smartphone GPS app or a compass.

The best way to learn how to use these devices is in a class that combines hands-on lessons indoors with outdoor practice sessions. REI, guide services, and most hiking clubs, run regular GPS and compass navigation classes which are worth attending. Afterwards, you need to practice these skills frequently to master them. But the first step is mastering how to stay found with a paper map alone. Everything else builds on that foundational skill.

Check Before You Go for Local Knowledge

Trail maps (physical and digital), guidebooks, and locals may all have different names for the same trails and wilderness areas. Double-check your information so you don't get taken by surprise when the path you find is labeled as something other than what your map says. Trail names, distances, and descriptions in hiking apps are often crowd-sourced and not as reliable as paper maps or guidebooks. If you plan your hike using a guidebook, take a picture of relevant pages with your smartphone so you can refer to them during the hike without having to lug a heavy guidebook along.

Know Your Speed

Knowing your hiking speed is useful for calculating your approximate location given how long you've been walking. You can figure out your average speed by recording how long it takes you to cover a known distance along a trail. This will change somewhat as you traverse different terrain, but over time you'll get a good feel for how fast you hike. For example, most people can hike about 2 miles per hour over flat terrain and 1.5 miles per hour over hills, although even this can vary based on the locale, the quality of the trail surface, weather conditions, your physical fitness, and how much gear you carry.

What To Do if You or Someone Else Gets Lost

Before you head out, discuss a plan with your fellow hiker(s) about how to avoid getting separated. You might agree to the following rules of the road:

1. Review the route on a map at the trailhead before the hike starts and call out significant landmarks or tricky turns along the route. Each hiker should have his or her own basic navigation gear and map.
2. Stop and wait for the rest of the group at all trail junctions and stream crossings.
3. If you stop for a pee, tell your companions, and leave your pack on the trail perpendicular to where you stepped off. This will

alert people that you're off-trail and provide a last known point of location.

4. When possible, designate a sweep (last person). This should be a capable hiker whose job is to make sure that slower hikers don't get left behind by alerting those ahead to wait or slow the pace. If there is no designated sweep, keep the hiker behind you in sight or wait until they catch up and can see you.

If you do get lost, stay calm. Try to remember where on the route you were when you last saw someone. If possible, get back to that location. Use any communication device to try to make contact. If you have a whistle, frequently found on the sternum strap of your pack, blow it at regular intervals to help guide assistance to you.

If daylight is failing, use your map and tools to retrace your steps back to the trailhead. If you can't do that easily, stay where you are. You left a trip plan for just this type of occurrence, so you can rest assured you will be found by people retracing your route.

Group hikes provide a wonderful opportunity to learn tips and tricks from other hikers.

Advice to Beginner Day Hikers

Speaking of fellow hikers, the list below contains 10 tips from experienced hikers to their novice companions:

1. Be kind to yourself. It takes time to get into hiking shape and learn hiking skills. It's a journey, not a destination. You'll never stop learning.
2. Hikers aren't made in the gym. The best way to physically prepare for hiking is to get out and hike and gradually increase the difficulty of your routes to build muscle memory. Hiking is a full-body exercise that requires coordinating all your parts.
3. A hike that leaves you exhausted and aching is not necessarily a "good hike." Consistent moderate hikes are better for gaining strength, avoiding injury, and enjoying the hike. Be honest: know your abilities and limitations. Make sure your planned hike matches that description.
4. Always bring a paper map. Every time you come to a sign or pass a landmark or turn onto another connecting trail, note your location on the map. That way, you'll never get lost.
5. Learn by observation and imitation. Go on hikes with more experienced hikers and watch what they do: when they drink water, when they snack, when they add or remove clothing, etc. You'll learn a lot about how to pace yourself, use your gear, and how to follow a route.
6. Use your tools. Trekking poles are a great tool that can make hiking easier on your body, especially for older hikers. They help you keep your balance on uneven trails, reduce impact on your knees when hiking down hills, and allow you to set a good steady pace coordinated with your arms. Knee, leg, or wrist braces can reduce impact on joints and compression sleeves can help with circulation issues or problems like carpal tunnel.
7. Learn how to stay hydrated. Figure out how you like to carry water and how much to bring for different routes, distances, and weather conditions. Drink when you get thirsty or when you haven't had water for a while. Your body is a machine; water is the oil.

8. Experiment with different articles of clothing so you can stay comfortably cool or comfortably warm without sweating. That might require stopping frequently to put on or take off a layer or adjusting your speed, so your body generates more or less body heat.
9. Get used to going to the bathroom outdoors. Number 1 and Number 2. Figure out how you want to do it, where, and what you want to bring along so you can clean up afterward.
10. Be fully present. Get off the phone, look around, listen to the birds, watch the little creatures, and enjoy the sunshine. The outdoors is a great place to unwind, be with your thoughts, or enjoy the company of others.

CHAPTER 3:
Safety on the Trail

Your plan is to hike safely. You've already read about the importance of leaving a trip plan with someone you trust, hiking with a partner, how to dress in layers, and the reasons for starting out at a level you can easily accomplish. Even so, it's worth explaining additional ways to keep yourself and your partners safe on the trail. When you are out in nature, if things go wrong, you need to know what to do.

Preparation

Before you start your hike, you will want to learn about ways to be safe once you do head out. Are you familiar with the area you've chosen? What is the parking situation like? Where is the nearest town? Is it hunting season and should you wear blaze orange-clothing?

If the area is very remote, definitely make sure you have a hiking buddy so you can look after each other. You should also get information as to what services are nearby, and how well gear like your cell phone or GPS navigation apps will work once you're on the trail; at least you will have your trusty map. If there are no services nearby, should you carry a satellite tracking device or messaging device? These let you summon help when you're out of cell phone range and allow two-way text messaging to let people know that you're ok or are going to be delayed.

Make sure you are fit enough for the trip you've planned. Shorter hikes can help you identify strengths and weaknesses in your current abilities; make sure your trip plan reflects those parameters. Strength training and aerobic exercise can boost your physical fitness for the trail

even faster by combining them with regular, short day hikes. This kind of overall conditioning also keeps you safer by reducing risk of injury from sprains, strains, and other mishaps. The more aerobically fit you are, the less likely it is that you will get winded or lose steam before reaching your destination.

If you have had any joint replacements, suffer from circulatory issues, or have problems like back pain or plantar fasciitis, you want to make sure you give yourself support. Minimizing flair-ups and strain with trekking poles, orthotic insoles, knee or back braces, compression sleeves, and whatever else you might need is important. Practice using those supports while hiking until they feel natural and comfortable.

Blisters: An Ounce of Prevention

Since you are truly relying on your feet to get you there and back again, take extra care to avoid any issues. Even if you have properly broken-in your footwear, you can still get blisters. The same is true for using trekking poles; if you aren't yet proficient in using them, you might want gloves to avoid blisters on your palms. This ounce of prevention is well worth it.

Although carrying blister remedies in your first aid kit is a must, preventing them from happening is one hundred percent more effective. You can tend to a blister on the trail and even treat and protect it, but it's still there. One way to prevent recurring blisters is to apply medical tape, like Leukotape P or KT Kineseotape, over the potentially troublesome area before you put your socks on. These tapes adhere to your skin better than Moleskin or Band-Aids and prevent the friction that causes blisters.

How to Treat Blisters and Hot Spots on the Trail

A hot spot is a precursor to a blister and manifests itself as a painful or tender spot on your foot. When you feel one forming, often as the result of abrasion, it's best to stop and immediately reduce the friction causing it. If the hot spot is very painful already, cover it with a Band-Aid or a small piece of gauze and a strip of medical tape.

Hot spots and blisters happen when friction from your footwear

(or other gear) causes the outer layers of your skin to separate from the inner layers, a process called "shear." When the layers separate, the resulting void is filled with fluid, creating a blister. This fluid leaks in from neighboring tissue and is designed to cushion the wound and accelerate healing. Left alone, the fluid will reabsorb into your skin as the layers bond together and the blister heals.

If you have a blister that hasn't popped yet and isn't too painful to walk on, it's best to keep it intact to prevent an infection. Covering it with a small Band-Aid will often reduce the friction that caused it so you can continue hiking.

If the blister hasn't broken but is too painful to keep hiking on, popping it and draining the fluid or blood inside is usually your best bet. Clean the skin on top and around the sides of the blister with a sterile alcohol wipe. Sterilize a needle or the tip of a pocket knife with an alcohol wipe or a butane lighter and poke a small hole in the side of the blister, releasing some of the fluid or blood within. The pain will dissipate quickly. Cover it with a Band-Aid and continue on your way.

Recommended Blister Prevention and Care Products

Many hikers preemptively tape blister-prone areas on their feet like heels with special medical tapes used by physical therapists, including Leukotape P and KT Tape. These products prevent friction even when your feet get wet.

Lubricants such as HikeGoo and GurneyGoo Anti-Chafing Cream can also be used to protect the skin from blister-causing friction and moisture.

ENGO Blister Prevention Patches are adhesive patches applied to the inside of your shoe. They have a slippery side that helps eliminate friction with your sock and are very effective in preventing blisters on your heels and the balls of your feet. Each ENGO patch can last for months making them a hassle-free alternative to taping.

Injini Toe Socks are also very effective in preventing toe blisters because they "wrap" each toe independently.

If you do get a blister and it's popped by itself or you've popped it with a needle, I recommend covering it with a Band-Aid HydroSeal hydrocolloid gel bandage. These special bandages absorb liquid or blood discharged by the blister and puff up to create a protective cushion. They prevent infection and accelerate healing even if you continue hiking. You can apply them on a blister that has been drained and covered fully or partially by skin; the bandage will remain on for up to a week and will fall off naturally.

Preparing for the Unexpected

Hiking trips don't always go as planned, so it pays to equip yourself with a bit of extra gear or food. If you get lost or injured, you may need to fend for yourself for quite a while before assistance arrives. Backcountry emergency response times are much longer than those in urban areas. On average, it takes emergency responders an hour to reach someone for every 15 minutes of hiking they are from a trailhead

parking area. For instance, if you have an accident after hiking 1 hour from a trailhead, you should should expect it to take 4 hours for emergency responders to find you.

The best defense is to carry a few items for emergencies. Mishaps do occur, but you can prevent them from ruining a hike with a little preparation.

- Your hike may take much longer than you expect and the sun may go down. Temperatures will drop, so be sure to pack extra layers to stay warm. Bring a headlamp in case you have to hike or wait for rescue in the dark. Your phone isn't a good flashlight and you'll waste the battery.
- You can get lost even if you're carrying a paper map. Carry you trip plan with you so you can remember where you parked your car and the trails you followed to get to your current location.
- You can run out of clean drinking water. Pack a water filter or purification system in case you need to rely on a natural water source.
- The weather can change unexpectedly: hail, lightning, or even snow. Bring a waterproof top layer, a hat and a pair of gloves to help you stay warm.
- You or a member of your party can have a health emergency or injury that prevents being able to walk out independently. That's when your trip plan and the ability to contact someone for help are key; if you don't get home at the expected time, and can't call out, at least you can be found.
- If you need to wait for a rescue, having a foam sleeping pad or sit pad will help you stay warm if you need to lie down or sit until help arrives. The earth is surprisingly cold, even in summer, and you can become hypothermic if you sit or lay on the ground without insulation.
- You might come across someone else who needs help. Refer to the above tips. If a person is badly injured, one of you should remain while help is sought.

How to Minimize Lightning Risk

If you are in a field, on an exposed mountain top, or open ridge above the treeline, get out of the open to avoid being the high point. You can further protect yourself by squatting on top of your pack, a foam sleeping pad, or on a boulder that sits on top of other boulders.

Communication Devices

Cell Phone

Texting or calling 911 on a cell phone is the most effective way to summon search and rescue assistance in locations that have cell tower access. This should be tried before contacting search and rescue (SAR) services with a satellite messenger or personal locator beacon. Most states have well-defined protocols for summoning SAR assets that start with a call to the 911 dispatcher. Texting uses less cell phone battery power than a voice call and can often get through with a weak signal. If you are lost, the dispatcher may be able to ping your phone to get a GPS fix on your location. That information can then be relayed to rescue personnel so they can find you fast.

A GPS satellite messenger lets you call for help even if you're out of cell phone range.

GPS Satellite Messengers

Satellite messengers provide the ability to send a text message or email communication via a satellite communications link in areas where a cell phone signal or landlines are unavailable. They operate over private networks and require a subscription fee, like a cell phone. When you push the SOS button on one of these devices, their dispatchers will contact SAR on your behalf to render assistance, even if you are outside the United States. The best satellite messengers provide two-way communication similar to texting. Satellite messengers have become popular in recent years and can also be used for non-emergency communication with friends or loved ones.

Personal Locator Beacon

A personal locator beacon will send an SOS message via satellite over a public network. They are less expensive than satellite messengers

because they run on free public satellite links, but they are one-way communication devices that can only signal for help. People carry a satellite messenger or a personal locator beacon, but generally not both.

Safety advice

While seeking and following helpful advice is great, don't be intimidated by others. Wear, carry, and use what works best for you. Do your research, make a plan, and then just go. You are stronger and more capable than you know.

- If you're concerned about about hiking alone, walk with or near other hikers. Often just being in the vicinity of other people can quell worries.
- Make sure you have left your plan with someone and they are expecting you to check in at a certain time.
- If you have to leave the trail early and need a ride to your car, hitchhiking may be the only option. If you get to a road alone, wait a while to see if other hikers exit nearby so you can band together.
- Practice with your gear before heading out. Make sure it fits you and is comfortable. This way, you can keep moving steadily along the trail rather than needing to stop to readjust or repack over and over.
- Be ready for "Plan B." When hiking, sometimes things don't go to plan. Stay calm and figure out the best next move.

Loud Whistle

A simple whistle that hangs from your backpack straps for easy access is a great way to let wildlife know you are coming and to help people find you should you become lost. Most day packs come with one on the sternum strap. If you need to get someone's attention, you can blow your loud whistle for longer than you can yell without losing

your voice. They're also very handy to use when you lose sight of a hiking partner but know he or she is nearby.

Useful Tools

All these items will help you under normal hiking circumstances, too, but you'll be very glad you have them if something goes wrong.

- A headlamp, in addition to being a source of psychological comfort, allows you to safely move around outdoors at night. Your cell phone makes a pretty poor flashlight and won't last long.
- Bring a water filter or purification method in case your primary hydration method breaks or fails. Try chlorine dioxide tablets; one tablet makes one liter of water safe to drink in 15-20 minutes.
- Pack spare batteries for all of your vital electronic devices or carry a multi-purpose power pack with different recharging adapters. These are for use in case you need them; you should still avoid wasting the power in your devices.
- It's handy to carry a small multi-tool for basic gear repair. Often having two knife blades, a mini-screwdriver, and scissors, multi-tools can also be helpful for applying first aid or making minor repairs to gear.
- A compass doesn't require batteries to point the way (if you know how to use one). You can find an inexpensive one that is easy to read and reliable. Another item that needs no batteries and works with your compass is a physical map. Get a water-proof one if it's available.

First Aid on the Trail

It's a good idea for all hikers to take first aid classes, and even better if you take a 16-hour Wilderness First Aid certification class. In addition to self-diagnosis and self-care, understanding how to assess someone on the trail and stabilize them until help arrives can make a huge difference in the outcome. It's very useful training and will make

you more confident and self-sufficient when hiking, whether you're out solo or in a group.

Even if you don't want to dive into a wilderness first aid course, you should have some basic training to know how to stop bleeding and dress a wound, how to splint a limb and make a sling, how to perform CPR and recognize signs of choking (and how to help). At the very least, always carry a simple first aid kit with you to take care of little things before they become bigger issues. The most common issues you will come across are sprains, strains, blisters, cuts and scrapes, and insect bites. Hikers with known severe allergic reactions should carry at least one epi-pen and teach a second person in the group how to use it in case they can't.

Make Your Own First-Aid Kit

Most commercial first-aid kits are way overpriced and only have a few band-aids, pill packets, and gauze pads inside. It's much more cost effective to assemble your own first aid kit so you can tailor it to your needs and resupply it from your medicine cabinet.

Along with adhesive bandages, a roll of gauze (which can wrap wounds and also be used to make a sling), tape, tweezers, and non-stick pads, here are some items you may want to include in your first-aid kit.

- Alcohol wipes: to clean wounds.
- Anti-allergy medication: To reduce allergic reactions to insect stings and other substances.
- Anti-inflammatory medication: To help reduce pain and swelling.
- Anti-diarrhea medication: To help stop the runs and prevent dehydration.
- Aspirin: Can be recommended if someone experiences heart palpitations or similar troubles as well as for pain and headaches. Make sure they are not allergic before administering.
- SAM splint: A lightweight split that can be shaped as needed for many common injuries.

- Blister bandages: Padded and slippery to increase comfort, accelerate healing, and prevent additional irritation after blisters have occurred.
- Blister prevention tape: Protective tape that is applied to the skin over hot spots to help reduce friction and prevent blisters before they occur.
- Gauze pads and bandaids of various sizes.
- Medical tape.
- Medical exam gloves: Protects both caregiver and patient against transfer of potentially infectious material.
- Safety pins: Useful in fashioning slings.
- Small pair of scissors.
- Electrolyte tablets or powder: Can be added to water to help with rehydration if you or a companion haven't been drinking enough.
- Water purification tablets: To sterilize water used for wound irrigation.

With any luck, you won't ever unpack your kit. But if you need it, you'll be happy it took up a bit of space in your pack.

Wildlife Encounters and How to Deal with Them

When we go hiking, we are entering the world of nature. That includes plants, insects, and animals. Many experienced hikers say that they've never seen any wild animals while out on the trail. Squirrels, birds, chipmunks, maybe the occasional rabbit, but nothing serious. Although you may not see them, they are there and have probably seen, smelled, and heard you.

The types of wildlife you might encounter vary depending on what part of the country you hike in and what type of terrain you have. For large, potentially dangerous animals there are coyotes, black bears, brown bears, moose, elk (caribou), bison, cougars, bobcats, and possibly lynx. There are venomous snakes, scorpians, wild boar, and alligators. One thing they all have in common is that they would rather avoid seeing humans altogether.

While avoidance is the goal, there are possible risks involved should an encounter occur. Knowing the correct steps to take to either avoid contact or prevent negative interactions is good information to have. The best way to avoid confrontation is to be aware of what critters might be out there (local knowledge) and to make it clear that you are there, too. None of these animals want to see you, much less harm you. It's when we stumble upon them by surprise or accidentally threaten them or their offspring that issues can arise.

Snakes

Most areas have few harmful varieties, and snakes are generally shy and wish to be left alone. You might encounter snakes in the early morning when they may be basking on the trail to get warm. Or you may find them simply moving from one place to another. If you see a snake on your path, stop. Back away at least 6 feet and wait until the snake continues on its way. If you have to keep going, swing off the trail and give it a wide berth. Do not antagonize the snake by poking at it or throwing things; it may perceive you as a threat and move towards, rather than away from you.

When hiking in brown bear/grizzly territory, each member of your party should carry their own bear spray.

Bears

Although certainly considered to be the most dangerous animal a hiker may encounter, bears would prefer to avoid human contact. They are curious but very shy and are not regarded as dangerous unless threatened or protecting food sources or cubs. Avoiding known bear country or areas with obvious food sources, like large berry patches or good fishing, is the best way to stay safe. Let the bears know you are there: Talk while hiking. Or sing, or whistle. Stay on the trail and avoid hiking off-trail in bear country. If you're unfamiliar with an area, check with the authorities or local hikers to see if there are have been recent bear problems. Keep all food well sealed in your pack to reduce aromas, and stash food securely and away from a campsite.

Black bears: Black bears can be found in Alaska, Canada, and most of the contiguous US. Though populations are largest toward the northern half of the country, they can be found as far south as northern Mexico. They're the type of bear you're likely to encounter when hiking east of the Mississipi River. While they are shy and likely to run away if you encounter one, they are best avoided and kept at a distance.

Brown bears and grizzlies: Brown bears, also called grizzlies when found in inland areas, are present in the Rocky Mountains, Canada, and Alaska. They are much larger than black bears and can be more aggressive if they feel threatened. When hiking in their territory, every hiker in your group should carry a separate bear spray canister at the ready. It's your parachute and everyone needs to have their own and be familiar with how to operate it in an emergency.

How to resolve a bear encounter peaceably

The National Park Service (NPS, 2018) has recommendations to resolve a bear encounter peacefully:

- DO continue speaking calmly so the bear knows you are a person and not prey. Standing your ground and slowly waving your arms also helps a bear identify what you are. Back away while moving sideways. If you can, take a detour around the area. If you can't move, stay far enough away to allow the bear an escape route.
- If you are hiking with children, DO pick them up immediately and reassure them so they do not scream, which could sound like a prey animal in distress.
- DO hike in groups. Several people are noisier and smellier than just one and therefore more effective at deterring bears. (When hiking in brown bear and grizzly territory a group of four or more hikers is recommended.) The bear will usually move away before you see them, but if they do, you will seem like a very large animal. If you are alone, make yourself bigger by standing on a rock or moving to higher ground while you move away.
- Do NOT panic; Although they may bluff and start a charge they will most often turn away. Most bears do not want to attack you, they just want you to go away.
- Do NOT allow the bear access to your food, either by offering some as a way to get past or by dropping your pack. This will only encourage the bear to come back to you or to approach other humans.
- Do NOT run or climb a tree. Prey runs, and all bears can run and climb trees faster and better than you can.
- Do NOT get near or between a mama bear and her cubs, even if you want a precious photo.
- If attacked, cover your neck with your hands and lie on your stomach.

Bison, Moose, Elk, Coyotes, Cats, Wolves, and Boar

These animals can be very territorial, especially during breeding and birthing seasons. If you use common sense, leave them alone, and give them room to go about their day, they will leave you to do the same. While bison, elk, and coyotes can seem casual and benign, do not underestimate their speed and power. The last three—cats, wolves, and boar—are more seldom seen when hiking, though they may be nearby and are definitely aware of you. Again, leave wild animals to the wild: give them plenty of room and avoid antagonizing behavior.

CHAPTER 4:
Trip Planning and Gear Selection

Regardless of whether you are day hiking, going overnight, or backpacking for several days, you should plan your trip. A day hike does not require as much planning as being out on the trail for several nights, but there are still some steps you can take to optimize your adventure and experience fewer surprises. Hiking trips start well before you ever get to the trailhead. Becoming a good trip planner is an important skill and becomes more vital on more challenging routes.

Decide on Your Route

Plot the route on a map or in a digital mapping app. Double-check the route with a guidebook or paper map; digital mapping tools can significantly underestimate distances. It is important to check your route with a physical map or trusted online map; many apps rely on crowd-sourced trip reports and may not use the correct trail names. Estimate how many hours your route will take you to hike. Be realistic: By now you should have a good idea of your average mileage covered per hour. Remember that the rate can change with weather conditions and increasingly difficult terrain or elevation.

Check the weather forecast and decide whether or not it will affect your plans. Heavy rain or melting snow can raise the level of river or stream crossings and make your route unsafe. It's often safer to let water levels fall or figure out an alternative route that is less risky.

Check what time sunrise and sunset are for the day or days you are out. Then figure out the total hours of daylight and how many hours

you will hike. Multiply your average mileage by how many hours you will be on the move, then add time for rest periods. Set a conservative turnaround time that will get you back to the trailhead, well before nightfall. Depending on the trip, plot out alternate routes where you can hike out if weather or trail conditions warrant an early exit.

Depending on your plans, you will need to check your chosen area for any backcountry regulations and wilderness area rules. Search for recently posted trip reports and trail condition updates prior to heading out. It's better to know if certain trails along your route are closed before you make the trip.

Gear Selection

Food and clothing—two of the basic necessities of life! Determining what and how much of each category you need to pack depends on the length of your hike, the time of year. Let's look at each in turn.

Food - What Kind and How Much?

For day hikes, carry enough food or snacks to keep you satisfied and your energy level good. Bringing a little extra can also be useful in case your hike takes longer than expected. Keep it simple: a peanut butter and jelly sandwich, nuts, seeds, dried fruit, energy bars, and similar types of food are lightweight. Trail mix with chocolate is a hiking favorite because it contains grains, nuts, seeds, fruit, a bit of salt to help with electrolytes and hydration, plus a little something sweet to boost your energy.

Water - Should I Carry or Filter?

If you are only heading out for a half day, you can easily carry the water you need. For anything longer, you are going to want to learn how to identify clean water sources and ways to filter or purify natural water from streams, rivers, lakes, or ponds. There are all kinds of lightweight filters and purifiers available for day hikers, which we'll cover in the chapter on hydration in Part II.

There are several ways to carry water with you, such as reusable

water bottles made from lightweight materials like plastic or aluminum. Alternatively, there are hydration reservoirs you can fill and carry in your pack with a hose that reaches to your mouth.

Even for short trips, it's a good idea to have some form of filter system or water purification method on hand in case you are delayed or find you need more water than you carried. Some systems are very compact and lightweight, including purification straws, drops, and tablets you can use directly with your water bottle.

I can still remember the first time I used a water filter on a day hike. It was on West Hunter Mountain in the Catskills in New York. Before that, the length of my hikes had been limited to the amount of water I could comfortably carry. But learning how to use a filter gave me the freedom to hike much longer routes.

For longer hikes bring a water filter in case you need to refill your bottles.

Sun Protection

Overexposure to the sun can happen even on overcast days or in cold weather. For those of us over 60, extra care is needed to protect our aging and possibly already damaged skin.

Apply sunscreen before you head out, and reapply every few hours

or after getting wet. Avoid using it on your forehead, as sweating can make the lotion run into your eyes. Wear a sunhat to protect your face, forehead, and the back of your neck. There are many sun protection lotions available. Try several to find the strongest SPF (skin protection factor) that doesn't irritate your skin or feel too sticky or oily.

Clothing that is UPF (ultraviolet protection factor)-rated is widely available, too. It protects from both UVA and UVB rays. The clothing with the highest degree of sun protection (UPF) is made with polyester and nylon, while clothing made with cotton, rayon, and other cellulose-based fabrics is the least protective.

Insect Protection

Besides the minor itchiness and irritation that many insect bites cause, more and more often we hear about tick- and mosquito-borne diseases that can be quite serious. In particular, Lyme disease is a bacterial infection from tick bites that affects multiple systems in the body and can lead to neurological issues.

DEET and Picaridin are the most effective insect-repellent lotions or sprays and last longer than natural insect repellent products. Unfortunately, DEET dissolves plastic and synthetics, so I do not recommend using it with electronics or outdoor gear. Picaridin Insect Repellent, which I do recommend, is just as effective and is available as a lotion or spray.

You can also protect yourself from ticks and mosquitoes by spraying your hiking clothes with Permethrin. One treatment lasts for 6 washings and is very effective at killing insects that land or crawl on your clothing. A company called Insect Shield has developed an industrial application of Permethrin that will last for 70 washings and you can send your clothing to them for treatment. Many clothing manufacturers, including Ex-Officio, Outdoor Research, Buff, Railriders, Sea-to-Summit, and L.L. Bean, sell clothing that has been pretreated with Insect Shield. It is popular with hikers in regions where diseases like Lyme are prevalent.

Non-chemical bug-proofing techniques are also helpful, such as tucking your shirt into your pants, your pants into socks, wearing long

sleeves, and using light-colored clothing so that you can more easily see and remove ticks on you.

Make a Trip Plan

As noted earlier, always write out a plan for your trip, including directions to the trailhead, anticipated stopping points, estimated trip duration, and a list of the trails you plan to follow. A plan can ensure that you have considered a variety of scenarios and reviewed your route thoroughly. That will make it easier for you to track your progress and make adjustments if necessary.

The following list of items will inform the route you plan to take and are worth researching beforehand:

- Weather forecast and seasonal weather trends.
- Trail conditions, recent trip reports, and other local knowledge.
- Routes and major landmarks, including distances and elevation.
- Special gear needs.
- Water sources, water crossings, and water levels.
- Estimate times using local guidebooks and maps.
- Sunset time and turnaround time.
- Bail out options (places to exit the trail before your original destination.)
- Parking spot: location and distance to trailhead.

Some of the above items are also in the written plan that you leave with an individual designated by you to contact the authorities if things go awry, you're overdue returning, and you need assistance.

Pack Your Gear

The hiking gear you pack on a day hike will vary a little depending on the terrain, weather, duration, remoteness and the distance of your hike. On shorter, easier, and less remote hikes, you probably need fewer items, while on longer day hikes in more challenging conditions, you'll want to carry more. These needs will be determined by your trip plan which is why it's important to do your homework before a hike, even a short one.

When I plan a trip where I'm the leader, I'm hiking with friends, or when I hike alone, I'm always thinking about risks and how to mitigate them with the gear I have in my backpack and the knowhow I've developed over the years. As a last resort, you always want to be prepared to spend the night out if necessary, even if it's uncomfortable.

Unexpected things occur on hikes and you need to be self-sufficient since it can to take a long time for Search and Rescue to arrive if you need assistance. Search and Rescue resources are very limited in the United States and abroad and many are staffed by volunteers, so you don't want to activate them unless you're in a true life and death situation. Some states and locales will also charge you for frivolous rescues that could have been prevented by proper planning and carrying the right hiking gear.

The 10 Essentials

So how do you decide what to pack? Many hikers base their gear selection on a checklist first developed in the 1930's, called the 10 Essentials. It includes 10 categories of gear and food that can help you respond to unexpected events or emergencies and if necessary, survive a night outdoors. Here are the categories and some suggested items you can carry for each.

1. Navigation: Map and compass, GPS, a watch.
2. Sun Protection: Hat, sunglasses, sunscreen.
3. Insulation: Sweater, hat, gloves, rain jacket.
4. Lighting: Headlamp.
5. First Aid: Band-aids and gauze pads, aspirin, ibuprofen, tylenol, anti-allergy, electrolytes etc.
6. Fire Making Kit: Matches, lighter, fire starter cubes.
7. Repair Kit and Tools: Knife, multi-tool, scissors, duct tape.
8. Nutrition: Sandwich, trail snacks,
9. Hydration: Water bottles, hydration system, water filter.
10. Emergency Shelter: Emergency bivy, foam sit pad.

So what's an actual day hiking gear list look like? Here's a look inside my backpack so you can see what I carry. Most of my day hikes

last a half to a full day in length, so I carry the 10 essentials, in addition to a few other gear categories like emergency communication gear, my toiletries, a backpack and trekking poles. With the exception of food, water, and my smartphone all of the items listed "live" in my backpack between hikes so it takes very little time for me to get ready for a hike. If I take a shorter or less demanding hike, I just carry everything rather than unpacking it all because it's easier to keep it all together.

Philip's Day Hiking Gear List

1. Navigation: Waterproof or paper map, compass, GPS Smartphone Apps, a watch.
2. Sun protection: Wide-brimmed hat, sunglasses, sun gloves, long sleeve shirt.
3. Insulation: Fleece pullover, rain jacket, windbreaker, rain pants, fleece hat, (down hoodie and insulated pants if it's colder.)
4. Lighting: Rechargeable headlamp, battery charger, USB recharging cords.
5. First Aid: Self-assembled first aid kit in a Ziploc including footcare products.
6. Fire Making Kit: Lighter packed in my first aid kit.
7. Repair Kit and Tools: Swiss army knife with scissors, safety pins.
8. Nutrition: Sandwich or two, fig bars, (snack bars, dried fruit and nuts for longer hikes.)
9. Hydration: 1 liter bottle, water filter, 70 oz platypus soft bottle, water purification tablets.
10. Emergency shelter: Big plastic bag that I use as a waterproof pack liner, (foam sleeping pad if its colder.)

Additional:

- Backpack: 25-30L in capacity.
- Communication: Smartphone, whistle, GPS Satellite Messenger.
- Toiletries: Toilet paper, diaper rash cream, poo trowel.
- Trekking poles.

Most day hikers carry very similar gear although the brands and features differ. Have I used it? Yes, most definitely. I filter water, layer my clothing, and navigate on almost every hike I take. I've self-rescued after ankle sprains twice, been forced to hike after dark when hikes lasted longer than expected, repaired gear with safety pins, and patched cuts, scrapes, and blisters. I've also used some of my gear to assist other hikers I've come across who've had medical emergencies, were feeling ill, or were just plain lost. Most hikers are very generous when it comes to helping others who need aid and I believe that being a good samaritan pays off eventually when you need it the most.

Why All the Planning?

Even experienced hikers can make planning mistakes or forget items. Generally, most are nothing more than an annoyance, and some may even be downright embarrassing. At worst, you will probably only create some discomfort, extra expense, or inconvenience for yourself. By reading stories of other hikers' bloopers, you can become a bit more aware of things that might slip by when planning.

> *"The time I parked my car seven miles farther down the trailhead from where I'd expected to find it, so I had to keep walking when I thought I'd finished my hike."*
>
> *"The time I found that the trail I'd planned to hike had been washed away two years earlier and was closed by the Forest Service. That required a complete trip reroute."*
>
> *"Times when high-water crossings have forced me to make extended detours. A little local knowledge and closer attention to crossings on the map could have avoided this."*
>
> *"When I underestimated the impact of my planned hike due to a physical limitation and was forced to get off the trail and figure out a way back to my car in a very rural area."*

"Assuming I'd easily be able to hitch-hike for a ride the 10 miles to where my car was, but never got a ride."

"When I ran out of water on a hot day, when none was available nearby, and had to beg a passing hiker for some of her extra water.

With experience, the number of such trip planning mistakes will drop, but you still need to be a good planner and pay attention to what you're doing. Particularly if you're hiking outside your comfort zone, trip planning mistakes can have real consequences.

Environmental Assessment Checklist

Remember, where you are going, the terrain, the time of year, and current weather conditions can have a major impact on the route you choose, what you wear, and what gear you pack. Below are some of the items you want to consider:

Insect Activity

- How bad are the mosquitoes? Is Picaridin lotion sufficient or should I cover up with long pants, a long-sleeved shirt, hat, and head net?
- Are ticks a concern? Should I wear Insect Shield or Permethrin-treated clothing? Is insect repellent advised?

Trail Conditions

- How exposed is the trail to wind? Should I bring a windbreaker or extra insulation?
- How well-maintained is the trail? Is it overgrown so much that I want long pants? Does the trail cross rocky areas, pass through boulder fields, or traverse open fields?
- Is it wet and muddy, or dry and dusty? Do I care if my shoes and socks get wet or should I wear waterproof ones? Will I

have to wade across streams? Do I want to have microspikes for better traction on ice?
- How much elevation gain is there? Should I bring trekking poles to assist with rough terrain and to save my knees on the descent?

Navigation

- How well-marked is the trail? Is it blazed or are there obvious cairns to mark the route? If not, do I need extra maps or to download additional maps to my GPS/phone navigation app?
- Can I navigate using line-of-sight or is a compass or GPS necessary?

Temperature

- How cold will it be? Should I bring extra insulation, a hat and gloves, and face protection?
- Will I want extra water? Should I bring electrolytes to prevent dehydration?
- How much sun exposure is there? Will I need sunscreen, a wide-brimmed hat, a sun hoody, or thin gloves to prevent my hands from getting burned?

Precipitation/Humidity

- Is there rain in the forecast? Will I need any additional rain gear like a brimmed hat to keep rain off my face and glasses?
- How high will the humidity be? Should I wear light clothing that dries rapidly and bring extra water? Should I bring any extra clothes in case mine get soaked, such as socks or a spare base layer?

Water Availability

- Can I pack enough for myself? Are there water sources along the route where I can obtain water?
- Do I need a water filter or water purifier?

Daylight

- How many hours of daylight are there? Will I have enough time to finish the hike while it is still light?
- Am I prepared to hike in the dark or spend the night out if I'm tired or feel it is too dangerous to continue? What does my trip plan say?

Stream or River Crossings

- Are there stream or river crossings on my route? How wide are they? Where are the nearest bridges or alternative crossing points.
- Has it rained recently or has snowmelt brought water levels higher?
- Are there any recent trip reports about water levels?
- Should I bring water shoes for the crossings or just use my hiking footwear?

Potential Storm Danger

- Are thunderstorms forecast? What about heavy downpours or snow squalls?
- Is there cover in the event of lightning or am I completely exposed?
- Does it storm/lightning at a fairly regular time each day?

Dangerous Vegetation and Wildlife

- Are there plants along the route that can harm me, like poison oak or cow parsnip? Should I wear protective clothing or can I detour around these areas?
- Has there been recent tree damage to the trails and are they still open and safe to hike?
- Are there wild or domestic animals we need to be cautious around? What gear should I bring to protect myself from animal encounters?

Remoteness

- How accessible is the area in case of an emergency? How long will it take for help to arrive?
- What gear or supplies should I pack in the car in case of a breakdown?
- What are the road conditions on the way to the trailhead?

CHAPTER 5:
Types of Hikes

When you think of hiking, do you imagine a few hours out on the trail? Maybe you want a full day out, with a break for lunch. Perhaps a hike includes an overnight or two. There are many different types of hiking and each has its unique challenges and rewards. It's up to you what you want to do and how much time, energy, and preparation you want to put in.

Day hikes are easier to fit into your schedule and can last from a few hours to a full day.

Day Hiking

Day hiking is the most common type of hiking and is a great form of recreation. Day hikes are typically short, lasting anywhere from an hour to a half or full day, and can span just a few miles to a dozen or more. Day hikes are easier to fit into your schedule than overnight or multi-day backpacking trips which require much more planning and preparation. They also provide an excellent opportunity to work on your physical conditioning and to practice using your gear.

List Hiking

Many day hikers are list hikers who set out to hike all the trails, visit all the waterfalls, climb all the mountains, or visit all the fire towers in an area. This can be tremendous fun and quite social because it provides access to a local community of hikers pursuing the same goal.

For example, thousands of hikers climb the 48 peaks over 4,000 feet of elevation in New Hampshire's White Mountain National Forest or the 46 high peaks in New York's Adirondack Park. There are hundreds of these lists throughout the United States and internationally: check out Peakbagger.com for a partial list.

The White Mountains 4000-footer Grid List requires hiking all 48 four-thousand footers in each calendar month of the year (48 x 12). I finished my 576th summit on Mt Isolation at age 64.

There are also trail lists where people hike all of the trails in a region, such as the 900 miles of trails in the Great Smoky Mountains National Park or the 1450 miles of trails in New Hampshire and Maine's White Mountain National Forest. One thing that makes these lists challenging is that the hiking trails are usually non-contiguous, requiring the exploration of many new areas. This makes list-hiking a fun way to discover types of country you may not usually encounter along with each area's unique set of challenges and rewards.

High-Pointing

High-pointing is a popular type of list hiking where you hike to the highest point in each of the 50 states in the US. Not only a goal to achieve on its own, high-pointing is a good way to get out and learn a lot about the whole country and its geography. Depending on where you are, high-point adventures can last for one day or up to a couple of weeks.

Winter Hiking

Winter hiking lets you build on your day hiking and backpacking skills as you adapt to colder temperatures and the challenges the season presents. Snowshoes and traction aids like microspikes and crampons help keep you steady on the trail along with your trekking poles. You will need to learn how to stay warm as conditions change, both when you're moving and at rest. Snow, ice, sleet, and strong winds are just some of the potential hazards you could face, so be sure to learn which tools to use and under what conditions. There's no reason to quit hiking when the days get cold, provided you're willing to learn the skills needed to stay safe in possibly hazardous situations.

Backpacking

Backpacking is any type of hiking adventure that will encompass one or more nights and typically cover a longer distance. Unlike car camping, where you may set up a site to use for your whole trip and therefore have the luxury of being able to bring items that are not

strictly necessary (so-called luxury items), backpackers need to carry all of their gear with them: food, water, shelter, supplies, and clothing. Backpacking trips can range in length from a day or two to a few weeks, or, for the more adventurous explorers and thru-hikers, even longer.

Additional gear is needed when you are planning to spend more time on the trail. You will need to think about sleeping insulation, padding, and shelter, appropriate footwear, meal prep and water purification, a cooking stove, and potential safety concerns and first aid needs that you probably wouldn't consider when out for only a few hours. Even choosing the right size and type of pack can make or break your time out.

Hiking from hut to hut lets you day hike a route but still sleep indoors at night.

Hut-to-Hut Hiking

This is a great option if you don't want to camp outside or carry a heavy backpack. You can hike from one overnight lodging to another along a predefined route, meaning that you only need to carry a day pack while traveling from point A to point B. Hut-to-hut hikes typically last from several days to a week or more and give you the opportunity

to sleep comfortably, perhaps have a hot shower, and even get great meals along the way.

Popular in the Swiss Alps and Europe, these adventures are gaining popularity in the States. Some tour companies even provide daily baggage transfers, and options like going from inn to inn or even castle to castle, so you can bring along clean clothes and more creature comforts while staying in plush overnight lodgings.

Section Hiking

Section hiking is a great way to experience a long-distance backpacking trail without committing the time needed to hike the trail end-to-end (thru-hiking). Section hikers day hike or backpack a portion of a trail, for a single day to a few weeks at a time. Later, they can return to hike another section of the trail, thereby breaking trips that may take several weeks or even months into one or more days at a time. Section hiking is great for people who work and want to fit hikes into their weekends and vacations. It's also a great way to hike during a time of year when the weather is best for your chosen location.

Thru-hiking

Thru-hiking is an extended type of backpacking trip that covers an entire long-distance trail, such as the Appalachian Trail, the Pacific Crest Trail, or Vermont's Long Trail, the first National Scenic Trail in the United States. Instead of breaking up a trail into sections, you set out to travel the whole distance in one outing. These trails can be hundreds or even thousands of miles long, and can take weeks or sometimes months to complete. The goal of thru-hiking is to finish the trail within a set period of time and they are usually completed before the onset of winter or rainy seasons.

Some thru-hikes, like the Appalachian Trail, are trips where you sleep outdoors most nights. Often, you can hike into nearby towns to buy more food. Others include stops at villages with inns and hostels so you can get refreshed and rested before continuing. The famous and popular *Camino de Santiago* is a centuries-old pilgrimage with a wide variety of routes and multiple starting points throughout southern

Europe, including France, Spain, Portugal, and Italy. The ultimate destination, regardless of where you begin, is the Santiago de Compostela, or St. James of the Field of Stars, in northwest Spain. People have been making this historic pilgrimage since the 10th century! Most hikers on the *Camino* stay in local accommodations along the chosen route.

Choose One, or Combine Styles

Hiking is a versatile activity that caters to a wide variety of ages, physical types, and levels of ability. Whether you're a seasoned hiker or a beginner, there's always something new to learn, new places to explore, and new hiking partners to meet. As you hike more, you can mix and match different types and styles. Try doing short day hikes in the winter and go for longer outings in the milder months. Pick a few weekends to give backpacking and camping a go, then join a longer guided hike in a new location. Hiking is a wonderful hobby that you can grow into; the beauty of hiking is that it's different every time you go out. So, pick a trail, set your eye on the horizon, and take the first step into the great beyond.

Who, Where, and When

While plenty of people solo hike, the buddy system works best for safety, company, and an extra pair of hands should you need one. But sometimes, even with those closest to us, interests may vary and schedules can be hard to sync.

Hiking Clubs

A fun way to get out and hike with others is to join a local hiking group or club. It's an opportunity to meet people who share your interest and get a chance to speak with other, possibly more experienced, hikers who may be able to offer useful tips. A local club might gather in one location and head out together, whereas members of a club who live farther apart may choose to meet at a certain point on the trail that is accessible to everyone. This is a nice way to have a little time hiking alone while still gaining all the benefits of being part of a group.

While hiking is a popular activity, individual locations tend to have a relatively small group of dedicated folks who hike a given area frequently. Once you get out there, you will probably run into the same people again and again. By chatting with them, you can hike together for a while or make plans to go out on a certain day. National organizations such as the Sierra Club or the Appalachian Mountain Club and sites like Meetup.com are all resources to investigate. An added benefit to going out with groups and clubs is that you have hiking buddies and maybe even trained trip leaders.

There are state and national parks, forests, and scenic trails all over the country meaning most areas have trails near enough that you can head out for day hikes with relative ease. Information on these places can be readily found on the internet as well as at local information centers. Hiking guidebooks and apps like Alltrails, FarOut Guides, and GaiaGPS include suggested routes, GPS-enabled maps, levels of difficulty, and trailhead directions and are easy to buy online or download to your phone. Remember that these may not be up-to-date, so it's best to use multiple sources of information, if you can, when planning a hiking outing.

Guided Trips

Guided trips are a way to hike in places, states, and countries you may not ordinarily visit. You'll travel to the trailhead or other starting point where a guide, who is experienced in the area, will be your group leader. There is generally a predetermined route so your trip planning is much easier. The guide will know about the terrain and trail conditions and can share information about the rocks, plants, trees, and animals in that vicinity. They will also have the training to keep everyone safe, administer basic first aid, and call for help if necessary. Guided hikes can open up the whole world for hiking.

Solo Hiking

As mentioned, many people enjoy solo hiking, either out of personal preference or because it is often difficult to find hikers of the

same skill level who want to hike where and when you want to go. Just remember to keep yourself safe.

But solo hiking increases your risk level, especially when you are in wilderness areas that lack cell phone service. You need to mitigate the consequences of hiking alone by taking some extra precautions in your trip preparation. The most important of these is writing up a detailed trip plan and leaving it with a person you trust who is expecting you back at a certain time.

When Not to Hike, and Why

There are several different factors that go into planning when and where to hike. While I want to encourage everyone to hike any time of the year, there are some exceptions. When planning, you want to take into consideration the short and long-term weather forecast, as well as become familiar with the highs and lows for each season in the area you'll be hiking. In the northeastern US, for example, the month of May can be a beautiful month with moderate temperatures, minimal insects, and trees and plants starting to bloom. It can also bring a surprise late-season snowstorm. Similarly, conditions can change as the elevation of the terrain you plan to hike changes, with bare ground in the valleys and deep snow up higher.

Understanding the seasonality of an area is important when choosing a hiking location. Northern locations can have late storms, spring black flies, summer horse flies, and ticks. Southern locations can have stifling heat and humidity, and are prone to seasonal storms that may include hail, heavy rain, high winds, and even tornadoes. Winter comes in fast in the western mountains, and heavy rains are common in the Midwest. If you are hiking coastal areas, there is the potential for high tides which can block your route or strand you offshore. In the mountains, changes in weather can be quick to occur, wind can pose a risk from windchill—how cold the ambient temperature feels to your body regardless of what the thermometer says.

There are also seasonal conditions, such as the spring thaw that may affect the accessibility or desirability of hiking in certain areas. Rising water levels due to snow melt can make rivers or streams too dangerous to cross. Plus, saturated soils are extremely prone to damage

from erosion caused by foot traffic. Spring also presents challenges with conflicts between people wanting to get outside and animals wanting to make nests and raise their young. Human interference at crucial moments can devastate a brood or litter's success. Particularly where endangered species are found, trails may be closed to allow parents to settle and time for young ones to grow. Even if not officially closed, the more you know about an area the more you can avoid disturbing the ecosystem.

Trail Conditions

What is the best way to find out about current trail conditions and whether a hiking trail or route is safe to follow? When planning a day hike, it's hard to overestimate the importance of local knowledge. Locals or folks who hike an area frequently will always be the best informed and offer the most up-to-date conditions. Trail conditions can change far more quickly than the information from maps, guidebooks, or even weather forecasts.

Use social media or contact clubs to find people who hike in your area and may have up-to-the-minute news about which areas are best to avoid. Check apps for hikes; they can be a great resource, especially regarding trails that are currently closed or even hazards blocking the path.

Below are some examples of when local knowledge can help you avoid needing to significantly alter a planned outing:

- Trail and seasonal road closures and conditions.
- High water crossings and flash flooding events.
- Frozen lakes, ponds, and stream crossings.
- Rerouted water courses and bridge washouts or removals.
- Localized bad weather patterns, such as seasonal thunderstorms or high wind.
- Snow depth.

CHAPTER 6:
Practice "Leave No Trace"

Most hikers adhere to a system of ethics or guidelines to make informed decisions about how to behave outdoors and minimize the adverse impact that our activities have on wildlife, plants, the environment, and other people. This idea is generally referred to as "Leave No Trace" and has seven guiding principles:

1. Plan and prepare.
2. Travel and camp on durable surfaces.
3. Dispose of waste properly.
4. Leave what you find.
5. Minimize campfire impacts.
6. Respect wildlife.
7. Be considerate of others.

These guiding principles are not strict rules but offer hikers a way to consider the impact of their behavior so that others can enjoy it in the same way, as undisturbed as possible. While it is a given that everything we do outdoors impacts the animals, rocks, soil, plants, air, or water in an area, these seven Leave No Trace principles can help guide our actions to minimize our impacts and preserve what was there before us.

Plan and Prepare

In earlier chapters, I emphasized the importance of planning and preparing for hiking trips so that they can be safe and enjoyable. Inadequate planning often leads to less enjoyable or dangerous experiences and possible damage to natural resources.

- Research the regulations and any special concerns at your destination.
- Check the weather forecast and prepare for adverse conditions.
- Avoid peak visitation times to help reduce crowding.
- Break large groups into smaller ones to reduce environmental impacts.
- Repackage your food to minimize waste.
- Use a map, compass, or GPS to avoid marking a trail with cairns, tape, chalk, or paint.

For example, if you plan to hike in an area with sensitive plant life, there may be special regulations that require you to stay on the marked trail to avoid damaging rare plants that would be trampled if you walked over them. Many negative impacts can also be minimized by breaking larger groups into smaller ones and distributing impacts across multiple locations.

Travel and Camp on Durable Surfaces

We often take the ground we walk on for granted, but many beautiful places can be loved to death by large numbers of people and concentrated use. We can mitigate such impacts by:

- Concentrating use on pre-existing trails.
- Walking on durable surfaces, including rock, gravel, dry grasses, or snow.
- Avoid creating new trails or shortcuts around mud or puddles.
- Use pre-existing campsites rather than creating new ones.
- Disperse use to avoid creating new trails or herd paths.

Trail use is recommended whenever possible because they are designed to be durable with repeated use. Hikers should avoid creating new trails, shortcuts, or herd paths that scar the landscape. When traveling off-trail, which is inevitable in trailless areas or when searching for a place to go to the bathroom, hikers should avoid trampling delicate plants and travel in smaller groups.

Dispose of Waste Properly

If disposed of improperly, trash and human waste can severely impact user experiences and habitats. It doesn't take many discarded doggy poop bags or mounds of toilet paper to mar a wilderness tableau. As a hiker, it's important to anticipate what kind of waste you will generate and how to mitigate it by carrying it out with you or disposing of it properly to minimize your impact.

- Pack it in, pack it out. Leave no trash behind.
- Bury feces in catholes dug 6-8 inches deep, at least 200 feet from water, camp, and trails. When finished, cover and hide the cathole.
- Bury toilet paper deep in a cathole or pack it out along with hygiene products, which are seldom biodegradable.
- Urinate 200 feet from trails, campsites, high-use areas, and water sources.
- After washing yourself or your dishes, carry used water 200 feet away from streams or lakes and use as little biodegradable soap as possible. Scatter strained dishwater.

While proper waste disposal requires some upfront planning, it's easy to create a bathroom kit that you always carry in your hiking pack to have what you need to poop, pee, or pack out trash. It could be as simple as some toilet paper, a cathole trowel, a small tub of lotion, a plastic bag for packing out non-biodegradable waste products like wipes, or one or two wagbags (poop disposal bags) if you hike in areas in which carrying out all human waste is required.

Leave What You Find

While collecting pretty rocks or picking flowers on hikes is tempting, consider how these actions will impact the appearance or experience of other visitors and wildlife. If everyone did it, there would be little left to enjoy. Similarly, altering what you find by building rock cairns creates a man-made structure where none existed before. While this is a fun activity, particularly for children, it disturbs the solitude and awe others experience when visiting a wild place. It can also cause

confusion: If you find rock cairns on a trail, particularly in open and rocky areas without trees, leave them be. They may have been placed by trail builders to mark the trail for other hikers to follow.

- Preserve the past: leave historic or cultural artifacts where you found them.
- Do not build structures or rock piles.
- Don't transport non-native species.
- Leave plants and animals the way you encountered them.

Minimize Campfire Impacts

For day hiking, which has been the focus of this book, there's seldom any need to create a campfire, particularly if you've come prepared with proper clothing and emergency gear. But it's still worth explaining the impact campfires can have if used for entertainment purposes and not a real need.

- Campfires can cause lasting impacts, such as burn scars on the ground and rocks that are unsightly and announce previous use. If you need to cook or warm liquid, use a lightweight stove instead.
- Use established fire rings where fires are permitted. Don't relocate rocks to create a new fire ring or leave piles of campfire wood, partially burned or not, for the next visitor.
- Keep fires small, preferably using small sticks already on the ground. Never peel tree bark or collect branches from living trees, as this can affect their health and announce a previous human presence in an otherwise pristine natural area.
- Burn all wood and coals to ash rather than leave partially burned remains. Put the campfire out completely with water and disperse the ashes.

Open fires, especially in areas where they are banned, can be devastating if they get out of control. If you do burn wood, use only locally sourced wood since firewood is a common carrier of invasive species and should only be collected locally. Do not transport wood from another location.

Respect Wildlife

When visiting outdoor spaces, recognize that you are a visitor and that your presence can disrupt local birds and wildlife. Human impacts on wildlife can result in aggressive or invasive animals and the need to relocate or euthanize agitated animals.

- Observe from a distance. Do not approach.
- Never feed birds or animals. It can damage their health, alter their health, and expose them to predators.
- Store food and trash properly so animals cannot gain access to it.
- Control pets at all times or leave them at home.
- Avoid wildlife during sensitive times when mating, nesting, or during winter.

While it's tempting to get a selfie with an wild animal to post on social media, it's best to give any animals you encounter a wide berth so as not to disturb their natural behavior pattern. Large animals can also become quite dangerous and attack you if they feel threatened by your presence. When hiking with a dog, keeping it on a lead is best unless it can be absolutely managed by voice control alone. Dogs roaming loose can seriously disturb nesting birds and small animals and frighten or intimidate other visitors.

Be Considerate of Others

People visit natural places and wild areas for many reasons, and it's important to respect their needs and experiences. Many wild areas also permit use by different user groups in addition to hiking, such as mountain biking, trail running, or horseback riding, so all users must accommodate the needs of others in addition to their own.

- Respect others and be mindful of their experience.
- Yield to other trail users.
- Greet other visitors.
- Take breaks off the trail so others can pass freely.

- Avoid making noises and turn off man-made sounds such as radios, music, or telephones.

Summary

Leave No Trace is a framework to help inform our interactions with nature, wildlife, and other people in natural settings, particularly those without supervision. This includes front country areas, such as local parks or conservation areas, and backcountry areas, including scenic trails, national and state parks, and national forests. This set of guidelines helps people consider the impact of their outdoor activities and how to mitigate negative outcomes. While there will always be people who don't consider the greater good, if most do, there is hope that we can preserve our wild places for future generations to enjoy.

PART II:
Hiking Gear Guide

Part I gave a solid overview of what you need to get out hiking. Now it's time to dig into the details. I've covered what to wear, catering to fitness levels and other individual challenges, plus how to stay safe and sound while on the trail. I've even discussed how to go to the bathroom outdoors and the tools to make the process easier.

Part II will cover specific descriptions of gear plus how and when to use it, and which items work best for different situations. Plus, I'll provide suggestions and techniques to keep you well-organized, prepared, and comfortable. In addition, I recommend best-of-breed products that I feel stand out and are worthy of consideration if you're shopping for new items.

My gear recommendations are based on first-hand experience using the products. As the lead author and gear reviewer for SectionHiker.com, I've reviewed over one thousand hiking and backpacking products since 2007 and you can find many of those reviews still on my website. I know many of the people at gear manufacturers who design new hiking products and regularly give them feedback on how to make it better for my readers.

I'm not sponsored by any gear manufacturers, on purpose, because I don't want that type of business relationship to bias my gear reviews, recommendations or independence. If I recommend a piece of gear or clothing, you can rest assured I believe it's best-of-breed and a worthy investment.

The Lightweight Hiking Gear Revolution

On of the biggest changes in hiking gear and clothing in the past decade has been in the realm of weight reduction. Many pieces of hiking gear and clothing weigh less than they used to because they're made with lighter weight materials, they incorporate better technology, or because they've been designed for a narrower set of needs. You see it across every category from headlamps and backpacks, to water filters, footwear and jackets.

This is good news for mature hikers because it makes hiking more accessible than ever. Gone are the days when you have to carry a crushing amount of weight to go hiking. While there is a learning curve to using new types of gear, it's my hope that this book will help you understand what's possible and necessary to hike safely, so you can enjoy the independence and freedom of hiking outdoors.

CHAPTER 7:
Hiking Footwear

To ensure a great start to your hiking adventures, you want your feet to be comfortable, dry, and well-supported. Therefore, it's best to think of hiking footwear as a multi-faceted system that includes several components:

- Footwear
- Insoles
- Socks
- Gaiters
- Tape and lubricants

Together, these components complement each other to provide a comfortable working solution, though I can't guarantee it will be 100% blister-free. The goal is to find the combination that works best for you and your type of hiking.

Footwear Terminology

The footwear industry has created a language of its own for describing footwear sizing and features. Here is a set of terms that you'll frequently encounter with trail runners, hiking shoes, and boots.

- **Drop**: The difference between the height of the sole at the heel and the height of the sole at the toe. Measured in millimeters, zero-drop and lower-drop shoes require more flexibility in the calves and Achilles tendon which can take a while to develop if you haven't used them before. If you get zero-drop shoes, start slowly and gradually build up the distance you hike in them.
- **Heel counter**: A reinforced area, usually found on hiking boots, that wraps around the heel and increases stability.
- **Membrane**: A waterproof and breathable layer situated between the shoe's outer material and internal liner. For example, Gore-Tex is a type of waterproof/breathable membrane.
- **Midsole**: This is the cushioning layer on trail runners, between the outsole and the shoe's uppers.
- **Outsole**: The textured rubber on the bottom of a shoe that provides grip and traction on dirt, mud, rocks, and roots.
- **Rocker**: Soles that are curved upward in the forefoot making it easier to walk forward or climb hills.
- **Rock plate**: A firm piece of material inserted between the midsole and the outsole of trail runners that protects your feet from sharp objects.
- **Shank**: A hard piece of plastic or metal embedded in the midsole of a boot or shoe that adds rigidity to the sole, helps distribute the load, and protects your foot from sharp impacts.

- **Toe box**: The section of the shoe that surrounds the toes, providing space and protection. Wider toe boxes allow room for the toes to spread out and relax. Narrow toe boxes can cause discomfort, injuries, and even foot deformities over time.
- **Toe cap:** A thick rubber or plastic bumper at the front of footwear that protects your toes and toenails from impacts.
- **Stack**: Overall height of the sole from the insole to the floor. Shoes with a higher stack height tend to have more midsole cushioning than lower stack shoes.

Hiking Footwear Types

There are four major types of hiking footwear in use today:

- Trail runners
- Hiking shoes
- Mid-height hiking boots
- Full-height hiking boots

These are compared below, including their pros and cons.

Trail runners are lightweight running shoes designed for hiking and running on uneven and rocky trails instead of roads.

Trail Runners

Trail runners are low-cut shoes designed for walking and running on unpaved trails. They have softer rubber soles with lugs that improve your grip in mud or when walking across rock surfaces. They are usually made with synthetic mesh in the uppers, which is not waterproof but is highly breathable and dries quickly when it gets wet. Many trail runner styles have extra wide toe boxes to allow more freedom for the toes and have softer uppers that reduce blister-causing friction.

Pros:

- Soft uppers cause fewer blisters.
- Lighter weight, so you use less energy to hike.
- Mesh uppers drain quickly and shoes dry much faster.
- Many models have wide toe boxes that let your toes splay out and relax.
- Available in different drop and stack heights including maximally cushioned.
- Soft soles provide a good grip on rocky surfaces even when wet.
- Cooler and more breathable so that perspiration dries more quickly.
- Wearable out of the box, with no break-in period necessary.
- Men's and women's models and sizes are available.

Cons:

- Lugs and midsole cushioning wear out faster than hiking shoes, mids, or boots. You can expect 250-400 miles per pair.
- Can't be re-soled.
- Upper mesh gets torn up with use and may compromise the shoe.
- Mesh uppers with large pores let in dust and fine grit; in those environments, look for shoes with very fine mesh.
- They can be cold when wet, though you can add warmth with waterproof socks.

- Less protection underfoot and along the sides.
- Insoles are generally low quality but this is true for most hiking footwear.
- Accumulate rocks and sticks unless used with gaiters.

Recommended Trail Runners

Altra Running makes zero-drop trail runners with extra-wide toe boxes and gaiter traps which secure gaiters behind the heel instead of requiring an instep strap that runs under the arch. The Altra Lone Peak has a moderate amount of cushioning and a wide toe box. The Altra Timp has much more cushioning and a wide toe box.

The HOKA Speedgoat has a thick midsole that provides extra comfort for people who want more cushioning. They're great for people who want to lessen the impact of hiking on their joints, hips, ankles, and feet.

The Salomon Speedcross and XA Pro 3D are trail runners with higher drops and a quick-lace option, allowing you to pull your laces tight instead of tying them.

Hiking Shoes

Hiking shoes have low uppers that end below the ankle. They're more durable than trail runners and offer better protection. They have thicker external toe caps and harder, less flexible soles that provide more support. Generally heavier than trail runners, they're often available in waterproof and non-waterproof versions, including wide sizes, for men and women.

Hiking shoes have low uppers and thicker, protective soles.

Hiking shoes are perfectly good for day hiking: I wore Merrell Moabs (see below) myself for many years. They are much more durable than trail runners and usually cost less too.

Pros:

- Good protection in the toe box, front, sides, heels, and soles.
- Good heel and midsole support. Some even have shanks.
- Firm sole provides good protection underfoot.
- Many are available with waterproof/breathable membranes.
- Require little to no break-in.
- Lifespan of 500-600 miles.
- More durable uppers often combine mesh and leather.
- Men's and women's models and sizes, some are offered in wide widths.

Cons:

- Heavier than trail runners but lighter weight than hiking boots.
- Waterproof/breathable models dry more slowly.
- Less ventilated than trail runners.
- Can't be re-soled.
- Less nimble than trail runners.
- Stiffer uppers can lead to blisters.
- Accumulate rocks and sticks unless used with gaiters.
- Harder sole means not as grippy on wet rock or when climbing/scrambling.

Recommended Hiking Shoes

The Merrell Moab is the most popular low hiking shoe sold today. It has leather and mesh uppers with protective rubber toe caps and a nylon shank to protect the bottom of your foot in rough terrain.

KEEN Targhee Hiking Shoes are leather hiking shoes known for their burly construction and wide toe box. They have thick rubber toe caps and internal shanks to protect your feet.

The Danner 2650 (the length of the Pacific Crest Trail in miles) is a lightweight leather and textile hiking shoe that has the durability of a hiking shoe with the ventilation of a trail runner. They have a protective shank in the sole, thick rubber toe caps, and Vibram soles.

Mid hiking boots provide more ankle protection than hiking shoes but are lighter weight and less confining that full height hiking boots.

Mid-Height Hiking Boots

Mid-height hiking boots or "mids" are a cross between hiking shoes and full-height hiking boots, with uppers that come just over the ankle. This provides a little more support as well as ankle protection, so you don't get bruised when you bump against hard surfaces with the side of your foot. They offer better protection in the form of sturdier external bumpers and stiffer, reinforced soles. Mids were originally designed to eliminate the need for gaiters, which have a similar protective function and keep pebbles and tiny bits of wood or grit from entering your shoes. Mids are slightly heavier than hiking shoes, yet still lighter than full height hiking boots.

Pros include all the same as for hiking shoes, with a few additions:

- More upper foot and lateral protection from scraping against rocks and bruising ankles than hiking shoes or trail runners.

- Accumulate less trail debris; gaiters generally are not needed.
- Warmer, so good for cooler weather.
- Men's and women's models and sizes, including some wide widths.
- Lighter weight than full-height hiking boots.

Cons include all the same as for hiking shoes, with a few additions:

- Dry more slowly than hiking shoes or trail runners.
- Warmer than trail runners and hiking shoes, so can be hot in summer..
- More break-in is needed compared to hiking shoes.

Recommended Mids

The Merrell Moab Mid is the mid version of the Merrell Moab hiking shoe. It has a leather and mesh upper, large toe caps, and a nylon shank.

The KEEN Targhee Waterproof Mid and the Oboz Bridger Waterproof Mid both have leather uppers, large toe caps, heel counters, nylon shanks, and waterproof/breathable membranes.

The HOKA Kaha GTX mid is a cross between a high cushion trail runner and a mid hiking boot with a waterproof/breathable Gore-Tex membrane. It has leather uppers, a thick midsole, large lugs, and a Vibram Megagrip sole.

The Lowa Renegade EVO GTX Mid is a burly mid with leather uppers, a reinforced toe box, a waterproof/breathable Gore-Tex liner, and Vibram soles.

Full height hiking boots are almost always made with a waterproof/breathable membrane and can take a long time to dry when made with leather.

Full Height Hiking Boots

Full height hiking boots have high uppers that come above the ankle a little higher than mids. While they do provide some support for your ankles, they also limit their mobility so you rely more on your hips, knees, upper calves for propulsion than your lower calves and ankles. In the past, most full height hiking boots were entirely made of leather; now lighter and cooler synthetic versions are available. They are almost always made with a waterproof/breathable membrane and can take a long time to dry. Although the heaviest type of hiking footwear, full height boots offer the best protection.

Pros:

- Maximum front, upper, and side protection.
- Good midsole support – most have a shank.

- Hard soles with beefy lugs.
- Sole can last up to 600-750 miles.
- Extra height provides more ankle protection from rocks.
- Stay drier in wet and muddy conditions.
- Some can be re-soled.
- Warmest.

Cons:

- Heaviest footwear requires more effort to hike.
- Take a longer time to dry.
- Full leather boots often require 50 miles of break-in.
- When made with leather, uppers can be very stiff and cause more blisters.
- Warmest, so may create more sweat.

Recommended Full Height Hiking Boots

The Zamberlan Vioz GTX is a full-grain leather hiking boot with a waterproof/breathable Gore-Tex liner. It has an internal shank for added rigidity and foot protection, with a forward-rockered Vibram sole for climbing steep slopes. Handmade in Italy, these boots can be resoled.

Danner Mountain 600 Leaf Hiking Boots are full-grain leather boots that require very little break-in time. They have a large toe box so your toes can splay out and a midsole shank for added protection. The boot's lugs are made with Vibram Megagrip and provide excellent traction on wet or dry surfaces. These boots can be resoled.

Salomon's Quest 4 Hiking Boots blur the line between more traditional hiking boots and trail runners, combining the best attributes of both. They have leather and textile uppers with Gore-Tex waterproof/breathable membrane, a wide toe box, a beefy toe cap, aggressive lugs, and a stiff heel counter to resist pronation and ankle rolls. Surprisingly lightweight, they take very little time to break in. They cannot be resoled.

The Great Ankle Support Debate

There's a running debate among hikers about the importance of ankle support for hiking and whether hiking boots and mids are better at preventing ankle sprains than hiking shoes or trail runners because their uppers extend above the ankle.

There are so many factors that might contribute to rolling one's ankle when hiking that it's difficult to pin down a single root cause. For instance, if you have weak ankles, poor balance, or weak eyesight, those factors could predispose you to ankle sprains no matter what footwear you use. The bottom line is that the footwear you choose comes down to personal preference, although I would encourage you to experiment with the different types available so you can decide for yourself.

I think the biggest difference between full height hiking boots/mids versus hiking shoes/trail runners has more to do with the muscles that you use when hiking than ankle suppport. When you wear full height boots or mids, your larger leg muscles, the quadriceps, hamstrings, and glutes do most of the work in propelling your legs forward since your ankles' range of motion is constrained. But when you wear hiking shoes or trail runners, your ankles are unencumbered and can move much more freely, up and down, and side to side.

This increased range of motion can improve your balance, strength, and agility, particularly when hiking over uneven ground. Medical research in aging adults has shown that the lack of ankle mobility is one of the leading indicators of fall risk as we age (Hernandez-Guillen, 2021.) So rather than limiting your ankles' range of motion, you may be able to improve it by switching to hiking shoes or trail runners.

Other Footwear Options

On the extreme end of things, some people hike barefoot, in sandals, or on the opposite end, wearing mountaineering boots. I'm not going to cover those here, but you'd use them when hiking in very hot conditions with generally easy terrain or cold ones with a lot of snow or very rugged terrain.

Insoles

Most of the insoles that come in hiking footwear are cheap foam inserts that offer little in the way of extra cushioning, support for your arches, or to correct heel alignment issues like supination (rolling out) or overpronation (rolling in). The factory insoles in your footwear can be easily replaced to make your shoes more comfortable, offer greater stability, and help prevent overuse injuries like plantar fasciitis, which can sideline you for months. Insoles can also help address fit issues in footwear, such as loose heels. You can also replace them when they wear out, so if the shoes are still fine, you can get new insoles to make them feel like new.

Insoles can prevent many foot injuries with extra padding for impact areas and structural support.

People with particularly high arches will benefit from insoles that are designed to support the length of the arch, and people with flat feet will benefit from gentler support with a softer footbed. While using custom-made orthotic insoles is an option, many people use off-the-shelf insoles which are easily fitted in shoes; all offer a wide variety of options to suit a range of sizes and issues.

Why Are Insoles So Important?

Hiking over the irregular surfaces found on trails can put a lot of pressure on the fascia in the arch of your foot, which can cause inflammation leading to a painful condition called plantar fasciitis. If you already tend toward this issue or if you know you have foot structure that makes you susceptible, a more supportive insole will be a good upgrade as plantar fasciitis can take months to fully heal. In addition to taking anti-inflammatories, the only way to fully heal is to stop hiking until the pain goes away.

Just as when buying new hiking shoes, I recommend that you try different insoles until you find something that gives you the support and protection you need. If you buy your insoles at REI, you can return them within a year if you are a member, even if they've been used. If you already use insoles in your other shoes, certainly use them in your hiking footwear.

As we age, other foot conditions can arise, such as metatarsal pain in the ball of your foot, or Morton's neuroma, which causes a tingling in the toes and can feel like your sock is bunched up in your shoe when it's not. The additional support provided by insoles can alleviate or prevent the discomfort created by these conditions and others.

Recommended Insoles

The Currex RunPro is a zero-drop insole that preserves the drop of your existing footwear without altering the offset between the height of the heels and the forefoot. It's also thin enough to fit into low volume trail runners.

Superfeet Insoles are available in various arch heights, widths, thicknesses, and underfoot cushioning, including models specifically designed for men and women. Their thinnest insole, the Run Support Low Insole, works well with trail runners without overwhelming their reduced volume, while the All-Purpose High Arch is good for people with high arches who prefer hiking boots. Superfeet has a 60-day guarantee and return policy.

Tread Labs makes durable insoles that target specific conditions, including plantar fasciitis, flat feet, overpronation, high arches, supination, wide feet, Achilles tendinitis, and posterior tibial tendinitis. Their insoles are also modular, with separate cloth top covers and heel and arch supports so that you can replace the top covers when they wear out without throwing out the entire insole. Tread Labs has a 90-day return policy for insoles in any condition.

Gaiters

Gaiters go over your foot and cover the gap between your footwear to just above your ankle (low gaiters) or to your upper calf (high gaiters). They are designed to keep things out of your boots, including snow, sticks, and stones that can cause discomfort, friction, or blisters.

Low gaiters keep sticks and stones out of trail runners and hiking shoes.

Low gaiters are designed for trail runners and hiking shoes, while high gaiters work best with mids or hiking boots. Most low gaiters are made with polyester and spandex, so they fit snugly around your calves and don't slip down. High gaiters are almost always made with a waterproof/breathable fabric and are held up above the calf with a drawstring or strap.

All gaiters have front hooks that attach to your laces. Some have a Velcro patch in the back that attaches to your shoes or an instep strap that runs under your shoe if it has one. They both work fine.

Recommended Gaiters

Altra Trail Gaiters are optimized for use with the rear "gaiter trap" included on their trail runners. Their gaiter trap is also compatible with Dirty Girl Gaiters.

Dirty Girl Gaiters are low gaiters designed for use with trail runners that are popular because they're available in a large selection of colorful patterns. They attach to your laces with a front hook and a piece of Velcro that you attach to the heel of your shoe if it doesn't have a gaiter trap.

Kahtoola Hiking Gaiters are made with breathable softshell fabric for use with trail runners, hiking shoes, and mid-height hiking boots. They connect to your laces with a front hook and have an instep strap to prevent them from riding up. They also have zippers so you can put them on while wearing your shoes rather than slipping them on beforehand.

Hiking Socks

Hiking socks have multiple functions. They help reduce friction between your feet and the inside of your shoes, especially stiffer shoes like leather hiking boots or mids, so your feet slide inside them more easily and don't blister. They also absorb the perspiration produced by your feet which can make your skin softer and more prone to blistering. The absorption process moves the moisture off your skin to the exterior of the sock so the interface between your skin and the sock remains dry and less prone to the friction that can cause blisters.

Fit

There are a mind-numbing variety of hiking socks to choose from ones that are ankle, calf, or knee height, to others that are thick, midweight, or thin. Which you pick really boils down to personal preference. When choosing hiking socks, try them on with the hiking footwear you plan to use them with, since socks often affect the fit of your shoes. They can be useful to shim out your footwear, filling in any

gaps between your feet and the sides or heel of your shoes if there is too much space inside them.

When choosing socks, they should be close-fitting, with a shaped heel and reinforced toe. Avoid socks that have seams. Loose socks will slip easily down your leg and bunch up at your toes, and tube-style socks can create folds that rub. You also don't want too tight of a fit, as this can constrict circulation.

Fabric

For socks, you can choose between a variety of moisture-wicking synthetics or natural fibers like wool. Avoid socks made from cellulose fibers like Modal, rayon, viscose, lyocell, bamboo, or Tencel. Although these materials are often advertised as being wicking or quick-drying, experience often proves otherwise.

Do not use cotton socks, even if that's what you wear daily, as cotton is not your friend when hiking. Cotton or part-cotton socks absorb and hold moisture rather than help remove it from your skin. They don't breathe as well, so can make your feet feel hot pretty quickly, and they dry slowly. Synthetic fiber or wool socks will stay drier, whereas cotton socks will hold moisture and can cause blisters.

Merino wool, wool-synthetic blends, or synthetics such as CoolMax keep their shape and regulate the temperature of your feet well. The most popular socks used by hikers are made by Darn Tough and Smartwool from a combination of wool, nylon, and Lycra, which makes them more durable than those wool alone.

Injini Toe Socks wrap each one of your toes individually to prevent blisters.

If you have a pair of breathable trail runners, they may only require a single pair of mid-weight socks because the trail runner uppers aren't very stiff and don't cause a lot of friction. For stiffer footwear, especially stiff leather hiking boots, a thicker more cushioning sock can help increase comfort and reduce friction.

You can also double sock: wearing two pairs of socks can help reduce overall friction and therefore the occurrence of hot spots and blisters. For stiffer footwear, it can pay to wear a thin liner sock inside a

thicker outer sock. The liner sock will wick perspiration from your foot and slide inside the outer sock, keeping friction away from your skin.

Recommended Hiking Socks

Darn Tough Socks are available in many sizes, styles, thicknesses, and colors. These wool and lycra socks are very popular with hikers because they're so durable. If you do manage to wear a hole in them, Darn Tough will replace them for free.

Injini Liner Crew Toe Socks encase each toe in a separate sleeve, providing excellent blister protection. Available in Coolmax or wool, they can be worn by themselves or as part of a two-sock system.

REI's Midweight Merino Crew Socks work well in mids and full-height hiking boots. Made with a blend of wool, nylon, and spandex, they're very durable and last for years.

Available in many sizes, styles, and colors, Smartwool's Classic Hike Extra Cushion Crew Socks work well with hiking boots and mids, while their Performance Hike Light Cushion Crew Socks work well with hiking shoes and trail runners.

Tape and Lubricants

You can still get blisters, even if you wear wool or synthetic socks and liners. But there are some more tricks you can use to prevent blisters from occurring in your hiking footwear.

Blisters are caused by "skin shear," which is when the outer surface of your skin (which has many layers) moves one way while the inner layers stay still. This creates a space between the layers, which fills with fluid and forms a blister.

You can apply a strip of Leukotape to your heels to prevent blisters.

You can prevent that outer layer of skin from moving and creating shear by applying tape to blister-prone areas before you hike. For example, many people tape their heels. Medical tape like Leukotape or Kinesio tape is preferred by hikers for this use. Duct tape can be used in a pinch, but tends to leave tough-to-remove residue on your socks and is hard on your skin.

Taping is a good idea, especially when trying out and breaking in a new pair of shoes or when wearing particularly stiff footwear like hiking boots. Some hikers use tape every time they go out, even when wearing flexible trail runners. For example. I tape my heels before every hike and I haven't had a heel blister in over 10 years.

Simply cut a strip of tape about four inches long and apply it to your heels before putting on socks. Be careful to keep the tape smooth and don't let it fold at the corners when you put your socks on. Rounding the corners with a pair of scissors can be helpful to avoid this.

Another method is to apply tape to the inside of your shoes instead of your feet. A company called ENGO makes tape patches that are

applied inside your shoes in areas that cause hot spots and blisters. The tape patches can stay stuck for months, making this a hassle-free alternative to foot taping. One side of the patch is slippery and shiny and should be the side facing your socks.

You can also eliminate friction between your toes or other parts of your feet by applying a lubricant. For example, you can rub a foot lubricant product between your toes and on the balls of your feet to help eliminate blister-causing friction. Do this at home before you go, and perhaps carry a small container in case you need to reapply it on the trail.

Recommended Tape and Lubricants

Leukotape-P is a sticky non-stretchy cloth tape that you put on your heels or chronic hot spots before you hike. It will stay on for days even if it gets completely soaked. It contains latex which some people are allergic to.

KT Tape is a sticky and stretchy cloth kineseology tape that you can put on your heels or chronic hot spots before you hike. It will stay on for up to a week even if it gets wet. It is hypoallergenic and latex-free.

ENGO Blister Prevention Patches are super slippery adhesive pads that attach to your shoes and not to your skin. They eliminate friction by making your foot slide freely inside your shoes and last for several months at a time.

HikeGoo and GurneyGoo are two high-quality foot lubricants that you can rub on your toes and feet to prevent blisters.

CHAPTER 8:
Hiking Clothes

Like footwear, hiking clothes form a multi-layered system that includes several types of clothing, including:

- Base layer garments that are worn next to the skin to provide warmth, absorb perspiration from your skin, and can provide sun protection. These include shirts, underwear, pants, leggings, shorts, dresses, or skirts.
- Mid-layer garments that provide insulation while you are hiking and potentially perspiring. This inclues fleece or wool sweaters, hoodies, or vests that can keep you warm while still venting perspiration.
- Outer layer garments that protect you from the rain, wind, and cooler temperatures. For example, a rain jacket prevents your mid-layer and base layer from getting wet, which can chill you, while a windbreaker prevents the wind from stripping the warm air trapped by your mid-layer insulation and making you feel cold. Similarly, if you stop for a rest break on a cold day, it's nice to put on an insulated jacket to stay warm.

Layering

The interaction of these different clothing types is often referred to as layering because you'll frequently put on or take off mid-layer or outer layer garments to stay warm or cool off. Your body produces heat and perspiration when you hike, which can alter your clothing's comfort and effectiveness as much as external weather conditions such as rain and wind. This requires a clothing system that can be adjusted

while you hike, by adding or removing clothes, unzipping garments to release body heat, or putting on more layers if you feel chilled.

By layering, you can regulate your comfort level by wearing different combinations of clothing and adjusting them as necessary to stay cool or warm. This allows you to fine-tune your comfort level even as conditions change. You may also find that small adjustments, like zipping or unzipping a zipper or pushing up your sleeves, can alter your warmth level without requiring a layer change.

Wicking

While layering lets you manage how warm you are, it also serves another important function, and that is moisture management. While you can limit the amount you perspire by adding, removing, or adjusting clothing layers, hiking is exercise and you're still going to perspire.

You can prevent perspiration from chilling you by wearing base layer clothing that absorbs your perspiration and moves it away from your skin so it can evaporate without chilling you. This process is called wicking and it works a lot like a wick in an oil lamp, pulling moisture away from your skin into your outer clothing layers, where it can evaporate without making you feel cold.

Certain fabrics are better at wicking than others, and knowing this, you can fine-tune your layering system to keep you drier or warmer so you have to carry less clothing or change it less often. This becomes important on longer hikes, and in cooler, rainy, or windy weather, where you can become chilled or even hypothermic if your innermost clothing layers become saturated with perspiration.

Cotton and fabrics made with cellulose fibers like Tencel, bamboo, or modal do not wick well and hold onto moisture rather than moving it away from your skin to an outer clothing layer. This is less of an issue in hot weather because you want the evaporative cooling to keep you more comfortable. However, it is a concern in cooler temperatures because your skin is more likely to become damp and chilled. Wool garments are good at absorbing perspiration and moving it to your upper layers, but synthetics such as polyester or nylon are better because moisture passes through them to your outer layers faster.

Certain parts of your body also generate more perspiration than others, such as your crotch and in between your legs, which can quickly lead to thigh chafing or diaper rash (also known as "monkey butt"), unless you actively manage the issue. When it comes to underwear, avoid cotton or the other cellulose fibers listed above and choose garments made with polyester, nylon, or wool.

I like to hike in high UPF, synthetic collared shirts that have been pre-treated with Insect Shield because they provide insect protection, sun protection, and dry quickly if they get wet.

Sun Protection

Different fabrics also provide varying levels of sun protection, which becomes increasingly important as we age, when our skin becomes thinner, and years of cumulative sun exposure add up. As you age, it becomes harder for your skin to repair itself when sunburned, increasing the risk of skin cancer, the most common type of cancer in the United States.

Outdoor clothing is rated using a system called UPF which stands for ultraviolet protection factor and measures a fabric's effectiveness at filtering out the ultraviolet A and ultraviolet B rays, associated with skin, aging, and sunburn. It's related to SPF (sun protection factor), which is the rating system used for suntan lotion products.

When you choose outer clothing, you want a garment that covers the most skin and has a higher UPF rating.

- A UPF factor of 50+ provides excellent protection and only allows 1/50th or 2% of UV radiation to pass through.
- A UPF of 30 is good and allows 1/30th or 3.3% of UV to pass through.
- A UPF of 15 is minimal and allows 1/15th or 6.7% of UV to pass through.

Fabrics with UPF ratings under 15 are not considered protective for ultraviolet light. For example, a cotton T-shirt has a UPF of 5, meaning that 20% of UV radiation passes through to your skin, which is quite poor. A wet cotton T-shirt is even worse, dropping to a UPF of 2, which means that 50% of UV light will pass through (Northwest Skin Cancer Centre, 2024). I recommend wearing clothing with a much higher UPF rating of 30 or higher.

Hiking Clothing System

A typical hiking clothing system includes the following layers and garments for hiking when temperatures are above freezing and there's no snow or ice on the ground. Winter clothing systems are similar but usually include warmer items and several additional garments.

Baselayers

- Shirt
- Underwear
- Pants, leggings, shorts, dresses, or skirts

Mid-layers

- Fleece or wool sweater

Outer Layers

- Rain jacket
- Rain pants or rain skirt
- Windbreaker (optional)
- Lightweight insulated jacket
- Hat
- Gloves

Base Layers

By definition, base layer garments include all the clothes that are usually thought of as next-to-skin clothing, including short-sleeve and long-sleeve tops, underwear, and long underwear bottoms. While pants, leggings, shorts, dresses, or skirts can be used for mid-layer insulation, they are usually a next-to-skin layer in non-winter conditions, so we'll treat them as base-layer garments here.

Hiking tops

When choosing a base layer top, you want to consider its warmth, its ability to wick perspiration, and whether it provides sun protection when worn as an outer layer. Most beginner hikers underestimate the amount of heat that their body generates when hiking and choose base layer shirts that are too warm. It's often better to choose a very thin and lightweight base layer shirt with a porous weave that will keep you cooler, drier and wicks well, and combine it with an insulating mid-layer that can provide added warmth if required. You can also wear multiple base layer tops for warmth under a mid-layer and peel them off, one by one, if you overheat. This provides much more flexibility.

Other factors worth considering include:

- Does a garment provide additional venting options like buttons, zippers, or mesh panels?
- What is its UPF rating?
- Does it require special care to launder?
- Does it provide adequate insect protection?
- Does it resist body odor when worn on consecutive days, as is the case with wool?

Underwear

When choosing underwear, wicking and comfort are the most important qualities because perspiration accumulates faster down under. You also want underwear that does not creep or bunch up. Loose boxers can bunch up in odd places, so many men prefer tighter-fitting spandex or compression shorts.

Wicking and comfort are also the most important qualities of bras. Make sure you get a high-quality sports bra that fits well and is made of breathable fabric with no seams against your skin. Hiking is considered a mild- to medium-impact sport and wearing a bra will support the ligaments in your breast tissue.

Hiking pants, leggings, shorts, dresses and skirts

When choosing pants, leggings, shorts, dresses, and skirts, garments should be lightweight, flexible, and nonrestrictive. Synthetics are best,

as are fabrics that can withstand a bit of wear and tear, like nylon and polyester blends.

Convertible pants have legs with zippers that allow you to turn long pants into shorts with ease. Zippered vents along the outside of pants are also a great way to release heat and increase airflow. Soft shell pants, either with or without a brushed interior, are comfortable in a range of temperatures and are tough enough to withstand walking through brush. Roll-up pants let you roll the cuff up to your upper calf so you have more airflow but can easily be dropped again if you need more protection. Running shorts and leggings are popular choices, too. Look for fabrics that wick moisture and are flexible enough to move with you.

Features to look for in lower-body garments include:

- Long pants are often ideal because they provide insect and sun protection.
- Convertible pants reduce the number of separate pieces you need by providing long pants and shorts together. Roll-up legs are good, too.
- Kilts, skirts, hiking dresses, leggings, and skorts move freely, provide excellent ventilation, and are often made of nylon blends that dry quickly.
- Lots of pockets, especially on the front and side of the legs, are good to have, as standard hand and back pockets are difficult to access when wearing a pack of any kind. Leggings may come with thigh pockets. Hiking or cargo shorts may have lots of pockets, but make sure you can easily access them. If there are any zippers, they should not rest near your knees as this can cause irritation.
- Elastic waistbands offer increased comfort and ankle closures help keep bugs out. Waistbands should also have drawstrings as well as snap or hook closures.
- Buried (hidden) belts are more comfortable under a backpack hip belt.
- Gusseted crotches improve mobility, increase airflow, and reduce chafing.

- "Baggies" (loose-fitting athletic shorts), with or without mesh liners, are flexible, breathable, and offer free range of motion. You can remove the mesh if desired.
- Dresses that have shoulders wide enough to fit under backpack straps, waists that don't bunch up under hip belts, flared skirts that are easy to climb in, are easily layered, and wash and wear.
- Skirts with lots of pockets.

Recommended: Base Layers

Patagonia and REI make excellent synthetic short-sleeve shirts, long-sleeve tops, and sun hoodies that perform well and are durably made. Look for Patagonia Capilene Cool Tops and lightweight REI Active Pursuits shirts or hoodies. If you prefer wearing wool base layer tops, I recommend choosing merino tops from Icebreaker, Smartwool, and Ibex. Thinner base laters wick moisture better than thicker ones, so look for lighter weight tops.

Collared shirts or next-to-skin sun hoodies also count as base layer garments. Ex-Officio and RailRiders make collared shirts that are good for hiking and are pretreated with Insect Shield for insect protection. The Outdoor Research Echo Hoodie and the REI Sahara Sun Hoodie are excellent lightweight sun hoodies with high UPF ratings. When choosing hiking shirts, you don't have to limit yourself to hiking-specific brands or styles. Many synthetic fishing, golf, and running shirts are good for hiking and have high UPF ratings.

Ex-Officio Give-N-Go synthetic underwear is the most popular underwear used by hikers and is available in many different styles from boxers and briefs to bikinis and hipsters. Under Armour HeatGear and Nike Pro Compression Shorts also wick well and provide excellent support. If you prefer merino wool underwear, Smartwool, REI, and Ibex are the go-to brands. They're available in various leg lengths.

Title Nine, Athleta, and lululemon have a wide selection of light, medium, and high-impact sports bras in a large selection of sizes and styles.

REI, Columbia, Columbia and Eddie Bauer all make good full-length and convertible hiking pants in a wide variety of styles and weights. REI's Sahara Convertible Hiking Pants, Columbia Silver Ridge Convertible Pants, and Eddie Bauer Guide Pro Pants are all quite popular.

Leggings from Fjallraven, Outdoor Research, and Eddie Bauer are breathable, have good pockets, and provide good insect protection. Fjallraven's Abisko Trail Tights are favorites, along with the Outdoor Research Ad-vantage Leggings and Eddie Bauer's Trail Tights.

Patagonia Baggies are popular hiking shorts and have a cult following because they dry so quickly, but many other running shorts provide similar benefits.

LightHeart Gear makes hiking dresses and skirts. Title Nine Clothing has a huge selection of skorts that can be used for hiking. Purple Rain Adventure Skirts makes hiking skirts with pockets that are also used by some men who want more ventilation.

Mid-Layers

The role of mid-layer garments is to keep you warm when you begin to feel a chill, while still allowing some warmth to escape so you don't overheat. Overheating causes you to perspire, which you want to avoid, because it takes more energy for you to stay warm when wearing damp baselayer and mid-layer clothing.

You can think of your mid-layer as a kind of valve. When it's open most of the way, a lot of your body heat can escape, but not so much that you feel cold. When the valve is almost closed, you'll retain more body heat and stay warmer. The goal of layering is to actively manage the amount of heat loss you permit to avoid overheating and sweating. This isn't a huge concern in warm weather, other than being uncomfortable, but it becomes more problematic when temperatures are much cooler.

It takes a little experimentation with different mid-layer garments to understand how much heat your body generates when hiking since

everyone's metabolism varies so much. You may also find you need different mid-layer garments during different seasons of the year or when hiking more challenging trails. For example, during the height of summer, you might find that a lightweight quarter-zip wool pullover is all you need to stay warm, while in autumn, you prefer a heavier weight fleece hoodie jacket with a full length zipper.

Mid-layer Clothing

Mid-layer garments such as sweaters, pullovers, hoodies, or jackets are typically made made of polyester fleece or wool, or some combination of synthetic fibers and wool because the combination is more durable and easier to care for. All of these fabrics have different pros and cons and which you choose ultimately boils down to personal preference.

Polyester fleece tops and jackets are widely available in different thicknesses, styles, and price points. Fleece makes an excellent mid-layer because it has lots of air pockets to trap your body heat and because polyester fibers don't absorb any perspiration. Fleece stays warm when it gets damp and dries very quickly, although it's not very wind resistant. Fleece tops are highly durable and can last for years and they're easy to launder. However, fleece tops tend to stink up if worn over multiple days and are best washed frequently.

Wool tops are also widely available in different thicknesses and styles, although they tend to be more expensive than fleece. Like fleece, wool has air pockets to trap your body's warmth, and while wool fibers do absorb perspiration, wool remains warm when it gets damp, although in a diminished capacity. Wool dries more slowly than fleece, it is considerably less durable, and often requires more care to launder, because it can shrink when exposed to high heat. Wool must also be stored carefully since it is subject to insect damage. Wool stinks up more slowly than polyester fleece and can usually be worn on consecutive days.

Wool blends which combine wool and synthetic fibers, like nylon, have become increasingly popular in recent years and share many of the strengths of both fibers, retaining less stink, while being more durable and easier to launder. They cost about the same as regular wool.

Warmth levels

In the past, manufacturers rated the warmth levels provided by garments in terms of the fabrics they were made with, measured in grams per square meter, abbreviated as GSM. Some manufacturers still do this and it is very useful in figuring out how warm a garment will be. For example, lightweight fleece and wool garments are made with fabric that weighs 100-200 GSM. Midweight garments are made with 200-300 GSM fabric and heavyweight ones with fabric over 300 GSM. For example, the Men's Outdoor Research Polartec 200 Hoodie is made with 200 GSM fleece while The North Face TKA 100 Glacier Fleece Pullover is made with 100 GSM fleece. Similarly, the Women's Icebreaker Merino 260 Quantum Long Sleeve Zip Hoodie is made with 260 GSM merino wool.

Unfortunately, most manufacturers and retailers have moved away from this practice. There are several reasons for this. Many garments are made with several grades of fabric; there's been a massive expansion of new weaves and fabric variants that don't fit into the old categories, and because companies want to simplify the consumer purchase process by using descriptive names instead of numbers. If you're lucky, retailers will classify garments as being as being lightweight, midweight, or heavyweight.

While the weight of the fabric used to make a garment affects its warmth level, it may also have features that let you make micro-adjustments to your warmth level so you can cool off or warm up without having to stop, unpack your backpack, and add or remove garments.

For instance,

- A quarter, half-length, or full length zipper on a pullover or jacket lets you vent excess warmth.
- Stretch cuffs let you pull your sleeves up, releasing heat from your wrists, where blood flows close to your skin.
- A hood can be used to cover your head and make you feel warmer.
- Thumb loops let you cover the tops of your hands with warmer fabric.

For day hiking in three season conditions, mid-layer bottoms are

seldom required, so your focus will primarily be on selection of tops. In the event that your legs do get cold, you can put on a pair of rain pants and that should warm you up, provided you're active and generating body heat.

When choosing mid-layer fleece or wool tops, go with ones that are rated as lightweight or medium weight. In very warm weather, you might consider an ultralight midlayer as well.

Recommended Mid-layers

Midweight Fleece (200-300 GSM): The North Face Canyonlands Fleece, Outdoor Research Polartec 200 Fleece.

Lightweight Fleece (100-200 GSM) : The North Face Glacier Fleece, Outdoor Research Polartec 100, Patagona R1 Fleece.

Ultralight Fleece (60-100 GSM): Lightheart Gear Polartec Alpha Hoodies, Zpacks Octa Fleece, KUIU Peloton 97 Fleece.

Midweight Wool (200-300 GSM): Icebreaker 260 Quantum, Ibex Woolies 250.

Lightweight Wool (100-200 GSM): KUIU Ultra Merino, Ibex Indie 185, Zpacks Mirage Hoody.

Wool/Synthetic Hybrids: Smartwool Intraknit, KUIU Pro Merino.

Outer Layers

The role of outer layers, including rain jackets, rain pants, or a windbreaker, is to protect you from the elements, including rain and wind. While it's convenient to think of them as a "shell" that blocks out all bad weather, the reality is more nuanced. Your outer layers are designed to complement your base and mid-layer garments and to prevent hypothermia by limiting the cooling you experience when you get wet or chilled by cold wind. You'll still get wet and buffeted by strong wind, but to a lesser and more manageable degree that keeps you warm, safe, and out of danger.

When the DWR coating on the outside of a waterproof/breathable jacket wears off, the external fabric becomes soaked blocking water vapor transmission. Internal condensation and perspiration will then overwhelm the jacket and you'll be soaked from within. This is often referred to as "wet-out."

Rain Gear

When buying rain jackets and rain pants, be prepared for claims from manufacturers regarding "waterproof and breathable." "Waterproof" and "breathability" are not absolutes when it comes to outdoor clothing and there is a wide range in the degree of waterproofness and breathability between the garments available. Forget about staying completely dry. That is unlikely to occur.

Waterproof/breathable rain jackets and pants are made with a special membrane that lets water vapor, generated when you overheat, evaporate through the fabric of your rain jacket while blocking liquid water from entering. The membrane is laminated between the outer and inner layers of your rain jacket and is invisible to the eye. In order for the water vapor to escape, the outside of your rain jacket must remain

dry, even when it's raining cats and dogs. This is done by coating the exterior with a chemical called DWR, which stands for Durable Water Repellency, and makes rain bead up and roll off the outer surface of a garment when rain strikes it. It works the same way as the clear coat or wax on the paint of your car, which makes rain bead up and roll off the surface.

But the DWR coating wears off with use and friction when your backpack straps and back panel rub against the jacket or when it's repeatedly stuffed into your backpack. When this occurs, the exterior fabric becomes saturated, called "wetting out." As a consequence, the water vapor inside your jacket cannot escape and condenses inside your rain jacket, making you wet. You can restore the DWR by periodically reapplying the chemical coating with a product like Nikwax, but it will never be as good as when it was new.

Measuring Waterproofing and Breathability

Some rain gear manufacturers publish metrics that measure the waterproofing or breathability of their jackets. These measurements should be taken with a grain of salt because the tests are done in ideal laboratory conditions. Still, they give you a way to compare different garments.

Hydrostatic Head measures waterproofing by quantifying the amount of water pressure required to force water through fabric. It's listed as "mm," if it appears on product labeling at all. A 5,000 mm is adequate for most hiking conditions. More expensive jackets can have 20,000 mm ratings or more. As a point of comparison, most tent rain flies sold in the USA have a hydrostatic head less than 3,000 mm.

Movable Vapor Transmission Rate (MVTR) measures breathability by quantifying the grams of water vapor that can pass through a waterproof/breathable fabric over 24 hours in optimal conditions. An MVTR of 15,000 is good, and anything higher is better and more breathable.

That's not to say that waterproof/breathable jackets cannot work in ideal conditions, but more often than not, they fail to keep you dry. This occurs because the amount of water vapor your body generates is likely to overwhelm the rate at which your jacket can expel it. Once it cools and condenses into a liquid, it can't exit through the membrane. A waterproof/breathable rain jacket may still work in less taxing conditions, but in any event, it will keep you warmer by trapping your body heat and preventing it from escaping. That's usually the best you can hope for.

Waterproof/breathable outerwear comes in three designations:

- 2-layer rain jackets and pants have an exterior fabric layer bonded to a waterproof/breathable membrane. They usually come with a hanging mesh liner to protect the membrane from dirt, wear, and tear. While suitable for casual use, they are usually too heavy for hiking.
- 2.5-layer gear has an outer layer of fabric, a waterproof/breathable membrane, and an inner printed veneer, which makes it lightweight and highly packable, suitable for hiking or backpacking use. Most hikers use 2.5-layer rain gear. While the waterproofing and breathability is better than 2-layer rain gear, there's a lot of variability in performance across the category.
- 3-layer jackets have an internal fabric layer and external fabric layer that sandwich a waterproof/breathable membrane. They are more expensive and heavier than the other models but generally have better waterproofing and breathability performance.

Alternatively, you can buy a non-breathable waterproof jacket or poncho made with siliconized polyester (silpoly), siliconized nylon (silnylon) or a polyurethane (PU) coated fabric, which are usually much less expensive. The upside is that you'll stay warm even if you are wet because a non-breathable rain jacket traps your body heat as long as you are active. The downside is that your perspiration will still condense on the inside of your jacket and make you wet. If your jacket has pit zips, which are zippered vents in the armpits and along the torso, you can reduce the amount of heat buildup inside the jacket

and perspire less. If you get chilled by condensation in a waterproof/breathable or non-breathable jacket, putting on a wicking mid-layer such as fleece, will keep you warmer because it will move the moisture out of your baselayer and off your skin.

When choosing rain jackets, look for ones that have pit zips and a 2-way adjustable hood that allows you to adjust the face opening and the overall volume (size) using a drawstring pullcord or Velcro fastener. Make sure the jacket has adjustable wrist cuffs and a drawstring hem adjustment at the waist. Waterproof zippers are a premium option that is nice to have on pit zips and front zippers to prevent rain from leaking in. A two-way front zipper, while rare, is a good venting option, as well as mesh-lined front jacket pockets that are not blocked by a hip belt.

A rain jacket for hiking is not the same as a "hard shell" jacket, which is designed for skiing or winter climbing. In addition to being heavier in weight and warmer, they have larger hoods to fit over ski or climbing helmets that are ungainly for hiking.

Rain pants should have either ankle zippers or zippers that run the full length of the legs and make them easy to put on and take off over hiking shoes. Full length zips work better with hiking boots. A more breathable alternative to rain pants is a rain skirt or kilt: a waterproof, lightweight, and breathable garment worn over hiking pants, shorts, or underwear. It wraps around your waist and falls below the knees. They are faster and easier to put on and take off than rain pants and the loose fit keeps the water off while letting air circulate. While neither will keep you as warm as rain pants in cold temperatures and they are not insect-proof, you will appreciate this well-ventilated piece of rain gear if you tend to sweat a lot.

Rain hats are cooler and more comfortable than rain jacket hoods.

There are options and augmentations to rain jackets and pants that some hikers use, including trekking umbrellas and rain hats. Trekking umbrellas provide sun and rain protection. They shelter your head, pack, and collar. Rain hats are another option: they are less claustrophobic and cooler than a hood and less bulky than an umbrella. A good rain hood has a brim to keep water out of your face, as does a good rain hat. These options are worth experimenting with, particularly in warmer weather when maximum ventilation is useful for staying comfortable.

Recommended Rain Gear

The Enlightened Equipment Visp Rain Jacket and Montbell Versalite Jacket are waterproof/breathable rain jackets that are lightweight, with pit zips and good hood controls. The Outdoor Research Helium Rain Jacket is another hiker favorite due to its low weight.

The LightHeart Gear Rain Jacket and Frogg Toggs Xtreme Lite Rain Jacket are non-breathable, but waterproof. They are much less expensive than waterproof/breathable rain jackets and require no DWR maintenance.

The Outdoor Research Helium Rain Pants are lightweight rain pants with ankle zips. Marmot's PreCip Full Zip Rain Pants have full length zippers down the sides and are a better option if you wear hiking boots, since you can take the pants off without taking off your boots.

The Gossamer Gear Litetrek Hiking Umbrella and the Six Moon Designs Silver Shadow are ultralight trekking umbrellas that can be attached to your backpack for hands-free use.

The Enlightened Equipment Rain Wrap is easier to slip on and take off than rain pants and ventilates better.

The Outdoor Research Seattle Rain Hat and Sunday Afternoon's Adventure Storm Hat provide good ventilation in sustained rain.

Windbreakers trap warm air around your body, while preventing the wind from stripping it away.

Windbreakers

Windbreakers or "wind shirts," are lightweight jackets, running shells, pullovers, or anoraks weighing 2 to 8 ounces that hikers wear as a barrier to prevent winds from stripping away their body heat. They are often worn over a fleece or base layer to block the wind while trapping the warmth that your body generates. They're amazingly warm considering how lightweight they are, and well worth carrying if you hike in windy terrain.

Windbreakers are usually made with highly breathable nylon or polyester that is gossamer thin and packs up smaller than your fist, making them very easy to carry in a backpack. They're usually quite minimal, with elastic cuffs, a simple elastic hem adjuster, and lacking pockets. If you get one with a hood, make sure you can tighten it around your face to block out the wind. Otherwise, the fabric will

make a loud flapping noise that will drive you mad, while chilling your head.

Recommended Windbreakers

Enlightened Equipment Copperfield Wind Shirt is a highly breathable ultralight nylon jacket with an adjustable hood.

Patagonia Houdini Jacket is a lightweight nylon jacket with an adjustable hood and zippered chest pocket.

Insulated Jackets

Insulation layers usually take the form of down or synthetic-insulated jackets, with or without hoods, although ones with hoods will be warmer. Often called puffies or puffers, they're not designed to wick perspiration but to trap your body heat when you're inactive, cooling down, or resting. If you do try to wear one while hiking vigorously, you'll overheat and soak your base and mid-layer garments, which will degrade their ability to wick moisture away from your skin.

Insulated jackets are best worn when you're taking a rest and your body has stopped generating lots of excess warmth. If you try to wear one while hiking, you'll overheat and perspire.

Down and synthetic insulated jackets are available in lightweight, medium-weight, and heavy-weight versions, which vary in the amount of insulation they contain. A lightweight or medium-weight jacket is usually sufficient down to freezing, but this can vary based on personal differences, such as gender, weight, height, and metabolism. Adjustable hoods, wrist cuffs, hem adjustment, hand warmer pockets, and a chest pocket are key features to consider. For three season hiking, when there's no snow on the ground, aim for a insulated jacket that weighs less than a pound. Many may weigh considerably less than that.

Down jackets are differentiated by the quality of their insulation and the amount that jackets contain. The term "fill power" indicates the loft and insulating efficiency of down. The highest quality fill power is 900-1000, while a lower but more affordable fill power is around 650. This can indicate the relative quality or expense of the garment, but it is not a measurement of how warm the item will be, since it's equally important to know how much insulation there is in the jacket. For example, a jacket with 100g of 900 fill power down is as warm as a jacket with 150g of 600 fill power down. Synthetic insulation is not measured in fill power but generally has the equivalent of 550-650 down fill power by weight.

Though it won't make it fully waterproof, down can be chemically treated to repel moisture, allowing it to stay warmer and dry faster than untreated down. If your garment is submerged or exposed to heavy rain, even treated down will get wet. Plus, treated down can lose its water repellency after six or more washings and become less water resistant than non-treated down. If you plan on keeping a down garment for a long time, it's best to get good quality, untreated items. Many high-end sleeping bag manufacturers don't offer treated-down products for this reason; they assume you will wash your sleeping bag relatively frequently over its lifetime. Your best bet is to keep down-filled items as dry as possible.

The insulation in lightweight and midweight down jackets is usually held in place inside compartments that are formed when the interior and exterior shell fabric is sewn together. This is called sewn-thru construction, and while warm air can escape through the needle holes and cold spots can form between the compartments, it's less significant

in temperatures above freezing. Heavier-weight down jackets and parkas are often made with a more expensive sewing technique called box baffling, where compartments are created inside the inner and outer jacket walls to hold the down in place without puncturing them. This creates a much warmer jacket with much less heat loss, but makes such jackets more costly and heavier.

Down jackets have a few advantages over jackets with synthetic insulation. Though both are easily compressed, down jackets can compress further, they're usually lighter weight and will retain their loft over time, while synthetic insulated jackets will eventually lose it if compressed frequently. On the flip side, synthetic jackets are usually less expensive and their insulation dries faster if it gets wet.

There are many types of synthetic insulation available. It seems like every jacket manufacturer has invented its own proprietary version. There are some standouts though, including jackets insulated with Climashield APEX, and PrimaLoft Gold and SuperStrand LT, which mimic the resiliency and loft of down insulation.

Recommended Lightweight Insulated Jackets

Synthetic Insulated Jackets: The Patagonia Nano Puff Insulated Hoodie and the Enlightened Equipment Torrid Jacket, are good lightweight synthetic-insulated jackets that provide added warmth when you're less active.

Down Insulated Jackets: The REI 650 Down Jacket, Montbell Ex Light Down Hoodie, and the Rab Microlite Alpine Down Jacket are warmer, lighter weight, and more compressible than synthetic insulated jackets.

Hats

A hat provides insulation, sun, and insect protection and it's usually worth wearing one on hikes or even carrying more than one for different temperatures.

Getting a UPF 50+ hat is important for sun protection. If you're

hiking under strong sun, a wide-brimmed hat is best because it will protect your ears, face, and neck from sunburn. A crushable hat is the most practical for hiking, since there are times you'll want to stuff it in your backpack. In cooler weather, it's good to carry a fleece or wool beanie for extra insulation if you feel cold.

Crown vents help cool and dry perspiration, while an internal headband can help keep sweat out of your eyes. An adjustable crown size is also helpful. If hiking above the tree line, make sure to get a hat with a lanyard so it doesn't fly away in the wind.

Hats that have been pre-treated with Insect Shield help keep mosquitoes and other insects away. A rain hat provides better ventilation and comfort than a rain jacket hood and is worth trying if you hike in locales where it rains a lot. Wearing a blaze orange hat is also advisable during hunting season.

Recommended Hats

The Sunday Afternoons Ultra Adventure Hat (UPF 50+) is crushable with a wide brim, mesh panels for ventilation, and a neck lanyard. Their Ultra Adventure Storm Hat (UPF 50+) is also great for wet climates.

The Tilley LTM6 Airflo Broad Brim Hat (UPF 50+) has a wide, stiff brim that keeps the sun and rain off your face and neck. It has a hidden pocket in the crown, which is great for stashing emergency money or a spare key.

The Outdoor Research (OR) Sunbriolet Sun Hat (UPF 50+) is lightweight, breathable, water-resistant, and quick-drying, with a crushable design that makes it easy to pack. The OR Insect Shield Brim Hat (UPF 40) is treated with Insect Shield to help repel mosquitoes, ticks, and other biting insects, while the OR Seattle Rain Hat (UPF 50+) is a waterproof/breathable Gore-Tex hat which has a brushed tricot lining that wicks perspiration away from the skin.

Gloves

Gloves also provide valuable insulation, plus sun and insect protection.

- Warm gloves or mittens are nice to wear on cool mornings or in brisk wind, particularly in more exposed or windy terrain. If it's windy or raining, you can layer a waterproof/breathable mitten shell over a fleece or wool glove to preserve your dexterity, while keeping your hands more comfortable.
- High UPF sun gloves are available to protect your hands from UV radiation while helping to keep your hands cool. These include fingerless gloves and full-fingered gloves. They also provide a barrier against insects.
- Rain mitts are simple unlined shell mittens that can be used to keep your hands warm in high wind or sustained rain. They're great when worn over a thin fleece or wool glove to maintain your dexterity.

Recommended Gloves

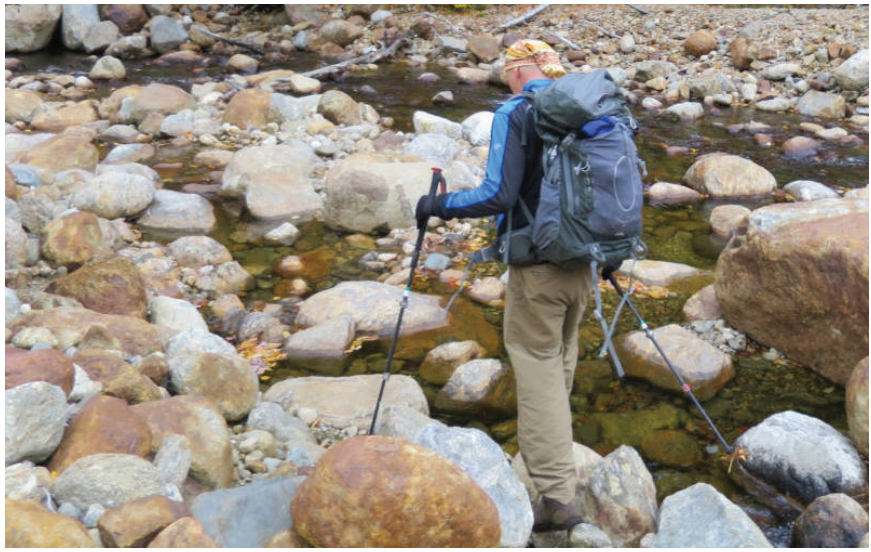
Possum Down Gloves are lightweight but very warm wool gloves, great for hiking on cold mornings.

Outdoor Research ActiveIce Sun Gloves are high-dexterity UPF 50+ fingerless gloves for sun protection. REI's Active Pursuits Sun Gloves are similar but have suede palms

Enlightened Equipment Rain Mitts are seam-taped waterproof/breathable mitten shells. Showa 282 (blue smurf gloves) are lightly insulated but also work remarkably well for rain protection.

CHAPTER 9:
Trekking Poles

Trekking poles are one of the most helpful pieces of hiking gear for mature hikers. They provide extra stability on uneven and rocky terrain while taking significant strain off your hips, knees, and ankles, particularly when hiking down hills. These days, many regular hikers and backpackers, both young and old, use them regularly.



Trekking poles reduce impacts to knees and hips, and provide extra balance in rocky or unstable terrain.

For anyone concerned about balance, previous injuries, or lack of joint and muscle strength, hiking with trekking poles is a confidence

booster. If you don't have any physical challenges, having trekking poles can also make hiking easier by supporting your legs and preventing stumbles or ankle twists that can easily happen when walking on uneven surfaces.

Trekking poles can help you in many ways:

- Reduce pressure and impact, especially on knees and when hiking downhill.
- Balance over terrain – Trekking poles will help you maintain balance over varied surfaces and keep you stable when walking downhill or traversing across terrain. You may encounter wet or loose stone, muddy areas, errant boulders, roots, and trees on the trail, and even footing like sand.
- Let you enlist your upper body strength when climbing hills or scrambling down slopes and rocky terrain.
- Improve proprioception – It is important to be able to accurately assess the ground under your feet. You can use trekking poles with each step to help you understand where the ground is. This quickly becomes unconscious, so you don't have to look at the ground before taking each step.

Used correctly, hiking with poles helps relieve stress on feet, ankles, back, legs, and hips by combining upper-body strength with lower-body strength. They can also help with upper-body injuries. The increased stability saves wrists, hands, arms, and shoulders from sudden movements and impacts from slips or falls. As a bonus, in the event you sustain an injury while out hiking, your poles may be the only thing that allows you to get off the trail under your own power rather than needing to call for aid.

Trekking Pole Options

There is an art to finding the right poles for you and for using them successfully. From the materials they are made of to the ease of adjusting them, what type of tip and basket, the grip and handle they have, and how to make sure they are the right size and design for you and the type of hiking you do. Let's discuss some things to look for when shopping for poles that will work best for you.

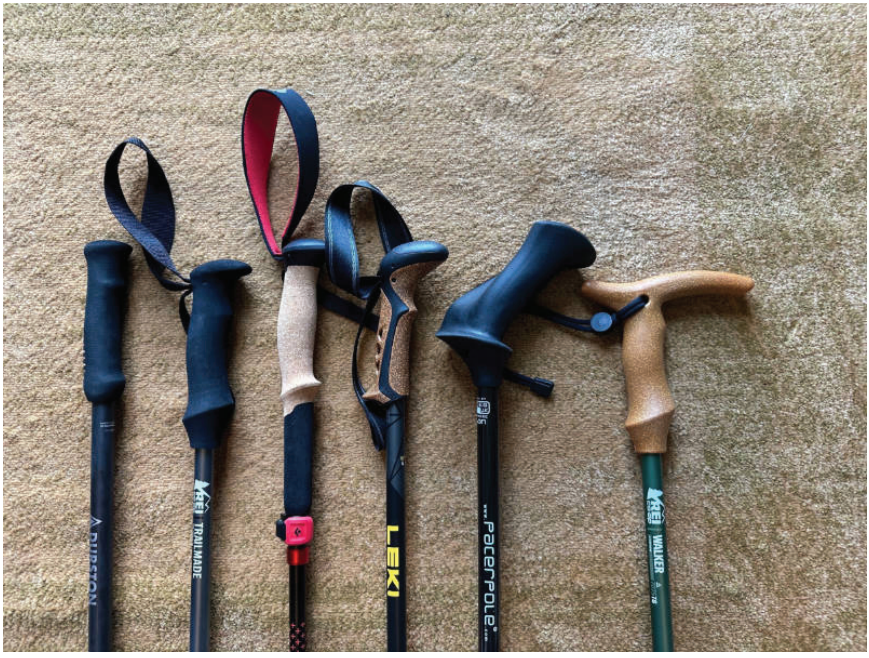
Types

Trekking poles come in fixed length, foldable, or adjustable telescoping sections that fit together. The foldable and telescoping poles are the easiest to carry or travel with and use lever locks or twist lock systems when expanded for use.

- **Lever locks** are external clamps that fold down over the thinner section to prevent them from collapsing further, similar to those found on bicycle seats. They are easy to adjust and repair and are very durable.
- **Twist-lock** poles rely on a plastic expander inside the thicker segment that prevents the thinner tube from moving higher. These expanders tend to wear out over time and stop working, which can be frustrating if you are in the middle of nowhere. I've used both and far prefer lever lock poles.
- **Folding** poles slot into one another and often have a lever lock on top to lock the poles together and allow for further length refinement. The segments are all linked together, even when folded, so you don't lose one.
- **Fixed length poles** cannot be adjusted. While this can reduce their weight, it makes them more difficult to travel with and requires a complete replacement if they break.

Materials

Most trekking poles are made from either aluminum or carbon fiber. Many companies claim that carbon fiber poles are lighter, vibrate less, or are more durable, although poles made with either material will break if you trap the tip between rocks or fall on them. The advantage of aluminum is that you can usually bend it back into shape, whereas carbon fiber shatters. Besides the price (carbon fiber is always more expensive), the most important thing when deciding between the two is whether you can buy replacement sections from the seller if you break a segment or a pole tip. This is bound to happen if you hike a lot.



Trekking poles are available with a wide variety of grips.

Grips

Handles on poles are generally made from cork, foam, or a combination. Both repel moisture and provide excellent grip. Many cork poles have foam extensions under the handle if you need to lower your hands when climbing uphill. Some people argue that cork is better because it absorbs sweat and molds to your hands over time. Ultimately, it comes down to personal preference and price.

Trekking pole grips vary in shape and diameter. Many have an indentation for your index finger while the remaining fingers wrap loosely around the lower and fatter part of the grip. Some also have an exaggerated pommel on top that you can rest your palm on for support when walking down hills.

A few trekking poles have forward slanted grips to reduce wrist strain, including Pacerpoles, which have grips that are angled at a 45 degree angle to improve the biomechanics of your posture, relieve wrist strain, and recruit the muscles of your core and upper body to take the

strain off your legs. These features make them very popular with mature hikers as well as seasoned hill walkers. I've been using Pacerpoles for over 10 years and think they are fantastic.

Wrist Straps

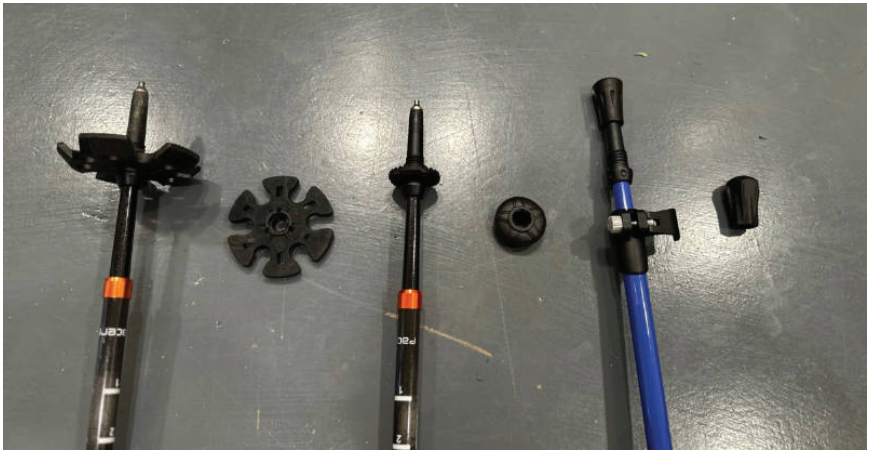
Wrist straps let you transfer some of your body weight onto your trekking poles. They are generally long enough to allow you freedom of motion and the ability to adjust your grip. Place your hand up through the strap from underneath, then let your hand come down fully onto the strap. Adjust the length of the strap so that your hand lines up with the grip at a 90-degree angle. This will allow you to keep your hand and wrist relaxed while also providing support. Some hikers also prefer to use poles without straps, only touching the tips lightly to the trail for balance.

Shock Absorbers

Some trekking poles have a shock-absorbing component, either built into the handle or as a spring between shaft segments, which reduces the shock in your wrists or forearms when hiking over rocky trails or asphalt. This can be very helpful in avoiding repetitive stress injuries to your wrists or inflammation if you suffer from carpal tunnel syndrome or arthritis. I recommend trying them, but be sure to buy them somewhere you can return them if used, such as REI, in case you don't like the feel, which can vary widely across different brands.

Tips and Baskets

Most poles come with carbide tips for hiking over bare ground and rock and rubber tip covers that fit over the carbide tips to reduce noise and concussion when walking on paved surfaces. Carbide tips may wear down with use, although the tips can usually be replaced on premium poles.



Most trekking poles come with trekking baskets preinstalled (middle). If you plan to hike in snow, make sure your poles come with snow baskets (left). To use poles on pavement, look for poles that have rubber tips that cover the pole's metal tips (right.)

Baskets serve two important purposes. The smaller diameter ones, called trekking baskets, are designed to prevent your pole tips from getting caught between rocks and potentially breaking. The wider ones, called snow baskets, are designed to float on top of snow rather than sink. If you want to use your poles in snowy conditions, make sure your poles come with snow baskets or that they are available to purchase separately. Baskets that screw onto pole tips are less likely to fall off and become lost than bayonet-style baskets that slide on and are held by friction.

Fitting Your Poles

To ensure that you get the right size poles, start by measuring the distance between your palm and the ground with your elbows at a right angle relative to the ground. Start with the top of the handle at waist/hip level and your elbow at 90 degrees. Adjust the height to what feels most comfortable while also keeping your elbows at a right angle most of the time. You can then refine the adjustment by lengthening your poles if you are going some distance downhill, shortening them

for a distance heading uphill, and making allowances for your physical proportions (longer or shorter legs or arms.)

Trekking poles are often sold as men's, women's, or unisex. Both men's and unisex poles tend to be heavier, longer, and have a fatter grip.

How to Use Trekking Poles

Some people worry about using their poles incorrectly or think they will get all tangled up.

- Walk naturally, letting the poles swing with your arms in an alternating rhythm with the leg on your opposite side, just as they do when walking unencumbered, e.g., right foot, left pole, left foot, right pole.
- Angle the poles slightly behind you; that way, when you plant them, you can push yourself forward by pushing back on the poles. Try to avoid stabbing with your poles as that creates more shock and impact to your joints.
- When on long descents, raise the height of your poles 2-4" or grip the poles at the top with the palm of your hand to accommodate the fact that the ground ahead of you is lower relative to your feet. Conversely, when ascending for a distance, lower your poles 2-4" or grip lower on the shaft, since the ground is now higher as you progress.
- Keep your wrists at a 90-degree angle or less to the poles while keeping the pole tips along your sides rather than in front of your torso. When moving your poles forward, try using your forearms more than your wrists to swing the poles and tips forward. This will improve your ability to maintain a consistent cadence, maintain your balance, and reduce wrist fatigue or strain.

Your trekking poles can also help you when you encounter stream crossings, large puddles, rocks, and logs. Wading through water can mean surprises like slippery rocks or muddy bottoms. Make sure your pole is securely planted before moving ahead and raise the height of the poles if the water is deep.

Which Poles Are the Best?

The bottom line is that trekking poles come in a variety of designs and a range of price points. If you are an occasional or novice hiker, you may not want to invest a lot, so looking for deals and off-brands may suit you for the time being. While they are perfectly serviceable, they will not be as durable as more expensive brands. Premium poles are of better quality, have tighter fitting parts, and a stiffer feel.

Recommended Trekking Poles

Black Diamond and Leki offer many types of poles, including ones in different lengths. Their products are high quality and durable, and they offer excellent customer support, often replacing broken sections for free.

Black Diamond's Alpine Carbon Cork Trekking Poles are durable, three-section, telescoping carbon fiber poles with reliable lever lock adjusters and cork grips suitable for four season use. Black Diamond also makes the popular FLZ Trekking Poles, which are folding, lightweight, and easy to carry in a backpack's side pockets when not in use.

Leki's Makalu Lite and Khumbu Lite trekking poles have cork grips, aluminum shafts, and reliable lever locks. The Khumbu Lite has a slanted grip which can help reduce wrist strain. Leki's Women's Cressida Cork trekking poles with cork grips are also a popular favorite.

REI's Traverse Trekking Poles are lever lock poles with cork grips and aluminum shafts. They come in multiple lengths and include snow baskets. REI's Trailmade Trekking Poles are also a good value, and come with lever locks, foam handles and aluminum shafts.

Cascade Mountain Tech, Paria Outdoors, and Montem make less expensive aluminum and carbon fiber trekking poles with cork or foam grips that are good, but are not as sturdy as the ones made by the premium brands above.

Gossamer Gear LT5 Trekking Poles and Durston Gear Iceline Trekking Poles are ultralight carbon fiber poles that prioritize low weight over features and durability.

Pacerpole Dual Lock Trekking Poles are popular with mature hikers. They use a special type of strapless handgrip that puts less stress on the wrists and lets you recruit your back and arm muscles to offload your legs.

CHAPTER 10:
Support Aids: Braces, Straps, Compression, and Sleeves

If you lead an active life, you understand the frustration of being sidelined due to an injury or pain. There are many conditions, such as foot or calf swelling, knee pain, ankle instability, iliotibial (ITBS) band syndrome, plantar fasciitis, arthritis, or hamstring and quad injuries, where a leg brace, ankle stabilizer, compression sleeve, or strap can provide added support to eliminate pain and keep you on the trail.

Some minor discomfort can be traced to inappropriate hiking footwear or insufficient support from insoles. Hot spots and blisters can lead to compensation in your walking gait, which in turn leads to strain on your feet, ankles, legs, knees, hips, and even your back. For most common issues, such as those listed below, many simple pieces of gear can alleviate pain, correct issues, and even encourage healing.

- Braces offer support and reduce the risk of injury. They are soft, flexible, and easy to put on. Note that I am not referring to the type of braces that are rigid or have hinges or other metal adjustments such as you might need post-surgery; these are too constricting for hiking use.
- Straps are modified braces that allow for greater freedom of movement while still supporting and limiting a joint's ability to move in ways that may cause pain.
- Compression socks are a great aid when hiking. They boost circulation in the foot and lower leg and offer support and stability for your foot and ankle. They can also reduce muscle fatigue.

- Sleeves are stretchy tubes that slip over ankles, arms, lower legs: anywhere you need compression to prevent inflammation and improve circulation.

Feet and Ankles

Plantar fasciitis, Achilles tendonitis, and chronic conditions that lead to poor circulation can all cause foot pain, inflammation, swelling, and other issues. Weak ankles prone to strains and sprains can benefit from the type of help offered by braces and wraps.

Plantar Fasciitis

The plantar fascia is a band of tissue that runs along the bottom of the foot between the heel bone and the base of the toes. You can strain it by a sudden increase in activity level or a lack of arch support. While rest, anti-inflammatories, and stretching are needed to alleviate the issue and prevent recurrence, switching to footwear or an insole that provides more arch support may improve symptoms while you heal. Pro-tec PF Sleeves are compression-based arch supports that can help decrease pain, increase circulation, and offer increased stability when coupled with an arch-supporting insole. They are also thin enough to easily fit under your hiking socks and can be worn in hiking footwear.

Pro-tec PF Sleeves can increase circulation and reduce pain to promote faster healing.

Achilles Tendinitis

Achilles tendinitis is an overuse injury to the tendon that connects your calf muscles to your heel bone and is often caused by a sudden increase in activity. Symptoms include heel pain, tight calves, and swelling in the ankle, calf, and foot. The achillles tendon weakens with age which can make it more susceptible to injury.

Compression socks like CEP's Run Compression Socks can reduce swelling and increase blood flow to injured or irritated areas to accelerate healing by ensuring fluid does not pool in the foot but can be removed by improving circulation. These socks are best worn during the day, but removed at night when you can elevate your feet with a pillow.

Compression socks are available in high, medium, and low versions. When recovering from Achilles tendonitis, I like using compression socks with full calf coverage if the swelling extends above the ankle and

into the calf. Compression socks differ in the strength of compression they provide: a 15-20 mmHg sock is good for improving circulation, while a 20-30 mmHg level is good for sports recovery. You'll want to consult a physician if you think you need a higher degree of compression than that.

The amount of compression in CEP's compression socks is graduated, so they're tighter around the ankles and more relaxed higher up the calf where there is usually less fluid build-up.

Sprained Ankle

If you have weak ankles prone to rolling or you are recovering from an ankle injury, the Med Spec ASO Ankle Stabilizer is an ankle brace that is popular with professional and college athletes, as well as hikers. It has stabilizing straps that form a figure eight to prevent ankle rolls, plus an elastic cuff and lacing system that provides additional support while still allowing for flexibility. The ASO Ankle Stabilizer fits inside most hiking shoes and boots. I've used it twice while recovering

from ankle sprains and it's a great adjunct to use until you get your leg strength and confidence back.

The Med Spec ASO Ankle Stabilizer is a soft brace that adds stability to an ankle and can help with recovery from a sprained ankle. It's thin enough that it will fit into many hiking shoes or boots.

Knees and Legs

From muscle strains and tears to arthritis and tendon issues, active knees and legs are prime places for injuries or chronic pain and inflammation. Anyone who has had a knee injury, joint replacement, or issues like arthritis or inflammation knows that equipment like a brace or sleeve can provide both support and stability. When hiking downhill, the forces acting on your knees are three to four times as great as when hiking across level ground. That is a lot of wear and tear. By using braces and sleeves, you can reduce the risk of injury and hike longer with less discomfort.

Pain from strain on major muscles like hamstrings, quadriceps,

and soft tissue damage like ACL/MCL or meniscus tears can also be alleviated by using the right support gear. There are wraps, bands, sleeves, and braces for all sorts of complaints including "runner's knee" (aka patellofemoral syndrome or chondromalacia), osteoarthritis, and iliotibial band syndrome (ITBS).

However, when recovering from knee replacement, you may need considerably more structural support, such as metal hinges at the onset before you're ready to start hiking over irregular surfaces. I don't cover those here and suggest consulting with your doctor or physical therapist for their advice about the best path forward for increasing your mobility.

Runner's Knee

Runner's knee is a common cause of knee pain in front of or around the patella (kneecap). This non-specific knee pain occurs as the result of the breakdown of cartilage under your kneecap, causing instability and inflammation. Pain is aggravated by loading a flexed knee joint, such as when running, jumping, climbing or descending stairs, hiking downhill, and squatting. It can be the result of overuse, weak quadriceps, or hyper-pronation.

A strap such as the Cho-Pat Dual Action Strap provides support above and below the kneecap without restricting the knee or its range of motion so you can hike. It's designed to reduce the force of the quads on the knees, lessen the potential for misalignment, improve tracking, and to stabilize the kneecap. I know many hikers who swear by them, and I have used them in the past myself.

The Cho-Pat Dual Action Strap can be worn over pants in cooler weather. It's open design allows the kneecap to remain uncovered for full mobility, while maintaining support and alignment.

Osteoarthritis

This knee condition occurs when the cartilage that supplies cushioning between your joints is worn away, primarily through wear and tear. It is predominantly a function of age, with symptoms that include pain, swelling, stiffness, and a decreased ability to move. The resulting pain and loss of function can be managed by strengthening the muscles of the leg, taking anti-inflammatories, and using a knee brace. The Mueller Adjustable Knee Support lets you tailor the level of compression providing extra support for weak, injured, or arthritic knees. It has a patellar opening that prevents slippage while keeping the kneecap in place. The open patella is cooler and more comfortable in hot or humid weather than a closed knee sleeve.

The Mueller Adjustable Knee Support is engineered to help prevent medio-lateral (side to side) movement of the knee, perfect for activities that exert pressure on the knee.

Meniscal tear

The meniscus is the shock absorbing cartilage in the center of your knee. A sudden twist or impact can cause a tear in the lateral or medial meniscus on the outside or inside of the knee. With age, the meniscus can lose some of its resiliency and contribute to this condition. In addition to strengthening exercises, compression and a brace can aid in recovery. The Pro-Tec Gel Force Knee Sleeve can help with recovery by enhancing knee joint stability and offering more support for the knee cap.

Unlike the Mueller Adjustable Knee Strap noted above, the Gel Force has as a closed knee cap and rear that provides additional compression. It also includes a thick oval gel donut that provides added knee cap support. If you suspect a major meniscus injury, it's important to be evaluated by a physician.

The Pro-Tec Gel Force Knee Sleeve has an internal oval gel donut that provides added knee cap support.

Supports for Legs

A thigh compression sleeve helps stabilize injured hamstring, quad, or groin muscles, providing support without compromising range of motion. The sleeves are generally made with moisture-wicking fabric (nylon and spandex) that is easy to wash and designed for active use. The compression technology in the thigh sleeve also helps to increase blood flow to injured areas as an aid to speeding recovery.

Iliotibial Band Syndrome (ITBS)

The iliotibial (IT) band is a thick band of fibers running along the outside of your thigh from hip to shin. If these connective fibers get too tight, you may experience swelling, burning, tenderness, and pain around your knee, a condition known as ITBS (Iliotibial Band Syndrome). A common cause of ITBS is too much sitting, resulting in weak or shortened muscles in the proximity of the IT band. The

Pro-Tec Iliotibial Band Wrap is a simple neoprene wrap worn above the knee that provides targeted compression that stabilizes the IT band, reducing rubbing and irritation on the outside of the knee. I used one of these straps for several years until I learned how to manage my ITBS through exercise alone.

The Pro-Tec Illiotibial Band Wrap places targeted compression directly on IT Band to reduce rubbing and irritation on the outside of the knee)

Hamstring, quadriceps, or groin strain

Hamstring, quad, and groin strains occur when muscles are stretched too far or stretched without being properly warmed up. This overstretching can happen during activities like climbing, jumping, lunging, or sprinting, or as a result of a direct blow.

Once you've been cleared by your doctor or physical therapist to begin exercising again, a compression sleeve can provide added support and help increase blood flow to the affected region to promote healing and increase confidence. The Zensah Thigh Compression Sleeve is made with a moisture-wicking fabric (nylon and spandex) that is easy to wash and designed for active use. Gripper dots on the inside of the sleeve prevent it from slipping.

The Zensah Thigh Compression Sleeve can help you recover from a quad injury or hamstring injury. Its compression technology helps stabilize and support the quad and hamstring muscles, as well as improve circulation.

CHAPTER 11:
Backpacks for Day Hiking

Hikers need a way to carry all their gear on the trail. Even for a short outing, you'll want to have water, snacks, a small first aid kit, an extra layer or two in case the weather changes, a map in case you have to find alternate routes, and your cell phone or other means of communication. Additionally, you may want sunscreen, bug spray, a water filter, a hat, gloves, and perhaps some toilet gear if you will be gone for several hours or more.

How Much Storage Is Required?

Backpacks come in many different types and sizes, so how do you choose the right one? Things to consider are the storage capacity, weight of the pack, weight the pack can carry when loaded, and how much support it offers. You don't want to carry more than you comfortably can, so you need a pack that can hold what you need: too large and there may be wasted space which you will be tempted to fill and then have to lug around; too small, and you'll be cramming your stuff in tight enough that you will probably have to remove everything to reach the item you want.

For day hiking, look for a backpack that has 15-35 liters of storage capacity and can carry up to 20-25 pounds of clothing, gear, food, and water. The backpack itself should weigh no more than 3 pounds. Keep in mind that there may be tradeoffs between backpack weight, support, comfort, fit, and functionality that you want to consider carefully.

Fitting Your Backpack

Getting a good fit is paramount. You will need two measurements: torso length and hip belt length. Your actual height is irrelevant: very tall people can have short torsos and short people can have long ones.

Torso Length

Most backpacks are sized based on torso length, which measures the distance between your hip bones and the C7 vertebra at the base of your neck. This measurement corresponds to the distance between the hip belt on the backpack and the top of the shoulder straps. A person's height is not a good indication of torso length. That's why torso length is a separate measurement.

Hip Belt Length

Hip belt length differs from waist size and runs slightly higher than your belt. It measures the circumference of your hips just below the top of the illiac crest, the big bones at the front of your waist to the right and left of the belly button. If your backpack has a padded hip belt, the padded portion should cover the top of your illiac crest bones.

In daypacks, the hip belt length is usually tied to the torso length and is not sized as an independent element. This can be frustrating, particularly if you wear a plus size. Some daypack manufacturers, most notably Gregory Packs and Osprey Packs, offer plus-sized or adjustable-length hip belts.

Smaller capacity backpacks may or may not have a hip belt. If they don't, all the weight will be carried by your shoulders. Some have a simple webbing strap that loops around your waist. This is designed to prevent the pack from bouncing around as you hike but does not help with weight distribution.

Higher volume daypacks often have wider hip belts with padding. Many have hip belt pockets that are good for storing snacks, a phone, or personal items. Padded hip belts are intended to be load-bearing, transferring 70-80% of the burden off the shoulders and onto the tops of your hips so the weight is primarily carried by your legs. While some weight will still rest on your shoulder straps, your legs are the strongest muscles in your body and can better carry the weight. Be sure to place

the widest part of the belt so that it covers the front of your hip bone to optimize load transfer.

The primary function of shoulder straps is to hold the back of the pack as close as possible to your torso, which makes it easier to balance and carry. If the shoulder straps are too long the backpack will pull you backward or sideways and may throw you off balance, particularly if you need to scramble around boulders.

Gender-Specific Backpacks

Daypacks are available in three genders: mens, womens, and unisex. Backpacks sized specifically for women have hip belts that curve around women's wider hips and shoulder straps that are S-shaped to curve around breasts. In the past, men's backpack shoulder straps were mainly J-shaped, but S-shaped straps are equally comfortable for most men, and more and more men's backpacks have them. Backpacks sized as men's or unisex are usually available in longer torso and hip belt lengths than women's models.

Some women's backpacks are often just men's backpacks that are available in "women's colors." There is an old saying in the outdoor industry, "shrink it, pink it," that reflects this. Fortunately, more brands have caught on that women want women's-specific backpacks based on functional features and fit, not aesthetics.

How to Measure Your Torso Length

1. Tilt your head forward and feel for the bony bump where your shoulders meet at the nape of your neck. This is your C7 vertebra and is the top of your torso.
2. On each side of your body, slide your hands below your ribcage to the top of your hip bones (aka the iliac crest). With index fingers pointing forward and thumbs pointing backward, draw an imaginary line between your thumbs (or if you can, touch your thumbs behind your back). This is the bottom of your torso.
3. While standing up straight, have someone measure the distance between C7 and the imaginary line between your thumbs. That distance is your torso length.

Backpack Frames

There are several different types of frames available on daypacks and each differs in the amount of support they provide. Higher-volume packs intended to carry heavier loads have more rigid frames that transfer the load onto your hips more effectively and keep a backpack from collapsing in on itself. Lower-volume packs, particularly those with smaller or no hip belts, tend to have either softer frames or no frames, so most of the weight will be carried on your shoulders.

A ventilated backpack has a mesh covered cavity that enables air flow behind your back.

Ventilated (Suspended-Mesh) Frames

Some daypacks have rigid frames with a mesh-covered cavity behind your back to keep you cooler and help dry perspiration more quickly. These are called ventilated frames, suspended mesh frames, or trampoline frames. They're great for hiking in hot weather and work well. Osprey and Gregory have the best selection of ventilated daypacks.

You can increase or decrease the torso length by changing the distance between the shoulder straps and the hip belt.

Adjustable Torso Lengths

While many backpack frames are only available in fixed torso lengths or ranges, others are adjustable, so you can shorten or lengthen them to fit. This is very helpful if you fall between fixed sizes. The adjustment allows you to lengthen or shorten the distance between the hip belt and the top of the shoulder straps. They're an excellent way to ensure that you get a perfect fit.

Many daypacks have clam-shell shaped top zippers that provide easy access to the pack's contents.

Hydration Packs

Hydration Packs are daypacks that are sold with a hydration system inside, including a reservoir, hose, and mouthpiece. The hydration system is usually hung inside the backpack from a hook to keep it close to your back and your core muscles. Some hydration packs have separate pockets, in addition to the main compartment, to hold the hydration system. These pockets make it easier to refill the reservoir without having to unpack your backpack and can help prevent the contents of your backpack from getting wet if the reservoir leaks.

Access to the Main Compartment

Backpacks vary in the way that you access the main compartment. Some combine multiple methods on the same pack.

- Clamshell-style openings are zippered U-shaped openings at the top of the backpack that provide fast access to the contents. These are often found on daypacks with 30L of capacity or less.

- Panel loaders have zippers that open around the entire perimeter of the daypack or down the center so you can pull out items regardless of where they are in the pack. This is a particularly desirable feature in daypacks used for travel.
- Drawstring/Top Lid packs close at the top with a drawstring and have a top pocket—called a top lid—which folds over and covers the opening to the main compartment. The downside of a top opening is that you often have to remove items to find what you're looking for. One type of top lid is sewn onto the back side of the pack behind the shoulder straps and folds over like a hinge. Another type is the floating lid, which connects to the top of the pack with four webbing straps. It is called floating because you can raise or lower its height and use it to scrunch extra gear or clothing between the lid and the top of the main compartment.
- Roll-top backpacks are like drybags where you can roll up any unused space and clip the ends together to close the pack. While they provide good top compression, they can be awkward and slow to use if you need to get into the backpack frequently. They work best when you have a pack with lots of external pockets.

Some packs also have side zippers that let you access the main compartment from the side in addition to having a top lid pocket. These are often found on ski packs so you can pull out extra insulation without having to unpack your entire backpack.

Backpack Pockets

Backpack pockets are handy for organizing your gear or for items you want fast access to, without having to take off your backpack and rummage through the main compartment. They help compensate for the fact that you'll lose access to the pockets in your jacket, pants, or shirt if the hip belt and shoulder straps cover them, making them difficult to access.

Panel loading backpacks provide direct access to the entire contents of the main compartment.

External Pockets

Many, but not all, daypacks have external pockets in addition to the main closed compartment. They may be open, like side pockets used to hold water bottles or a front mesh pocket used to store extra clothing or damp items like a water filter. Closed pockets are good for stashing small items you want secure but handy and are great to have if your hip belt does not have pockets.

Some backpacks have a front pocket that's open on the top to stuff loose clothing and damp items into.

Internal Pockets

Almost all daypacks have an internal hydration pocket for storing a hydration reservoir, with a port in the side or center of the pack to run the hose outside. Clamshell-type packs often have several pockets inside. These can be used to separate items in your pack, e.g., one section for first aid gear, maps, and navigation gear, and various layers in the others.

Accessory Pockets

If your backpack doesn't have the pockets you want, you can add accessory pockets to the shoulder straps or hip belt for carrying water bottles, a camera, a smartphone, GPS, snacks, a map, or personal effects. These clip onto webbing loops or hydration hose loops on your hip belt or shoulder straps. You can also orient the pocket of a fanny pack so it hangs in front of your waist, something many hikers do for added accessible storage.

You can often add accessory pockets to the outside of your backpack, especially if it has daisy chains (shown) or extra gear loops on the shoulder straps.

Compression Straps/Attachment Points

Most daypacks have at least one set of compression straps on the sides that can be used to attach bulky items to the side of your pack or prevent items from falling out of the side pockets. Larger volume daypacks may have two tiers of compression straps which are useful for carrying items like sleeping pads or snowshoes.

Accessories

Packs can come with a variety of options you may find useful. Here are a few examples:

- A key clip, usually located in a top lid pocket, for keeping track of your car keys on hikes.
- A whistle on the sternum strap to signal for help.
- Webbing loops, called daisy chains, sewn on the outside of a backpack that you can clip gear to with a carabiner.
- Stretch pockets on the shoulder straps to hold bottles, a phone, or snacks.
- Zippered pockets on the hipbelt for holding snacks, insect repellent, or gloves.
- Large stretch mesh pockets that you can stuff clothing layers into for easy access or to store damp items to keep them separate from your dry gear.
- Hydration pockets or hang loops that let you carry a hydration reservoir inside your pack.
- Sit-pad/sleeping pad loops for attaching a sitting or sleeping pad to the outside of the pack.
- Trekking pole holders that let you stow trekking poles on the pack when not in use. They either sling under a shoulder strap or secure with loops on the front of the pack.
- Rain covers can prove useful if you hike in a rainy climate. While they may not keep your backpack completely dry, they can help prevent the contents from getting completely soaked. Water-sensitive gear and clothing are usually packed in waterproof stuff sacks or gallon Ziploc bags as a precaution.
- Ice axe loops at the base of the backpack to secure one or two ice axes too. They often have elastic shaft holders higher up on the pack.

Recommended Daypacks

Osprey, Gregory, Deuter, and REI make excellent daypacks and hydration packs under 35 liters in volume. Some of their daypacks have adjustable-length torsos and/or ventilated mesh back panels that are more comfortable to wear in warmer weather.

Daypacks with Frames: Osprey Men's Stratus 24, Osprey Women's Sirrus 24, Gregory Men's Zulu 30, Gregory Women's Jade 28, REI Trail 25, REI Flash 22, The North Face Recon 30, Deuter Men's AC Lite 24, and Deuter Women's AC Lite SL 22.

Hydration Packs: Gregory Unisex Nano 22, Gregory Men's Citro 30 H20, Gregory Juno Women's 30 H2O, Osprey Men's Manta 34, and Osprey Women's Mira 32.

Frameless Daypacks: The Gossamer Gear Loris 25, Six Moon Designs Wy'east Daypack, and the Hyperlite Mountain Gear Elevate 22 are lightweight frameless daypacks. Hyperlite's backpacks are also made with waterproof fabric eliminating the need to use a rain cover.

Fastpacks

There is a growing trend among manufacturers to put wide vest-style shoulder straps with pockets on hiking daypacks. First developed for trail running backpacks, the vest-style straps have numerous external pockets that are easily accessible on the move without having to stop. Fastpacks designed for hiking tend to have a larger capacity than running packs, averaging 15-40 liters, with most of the storage still in the main compartment.

Fastpacks have vest-style shoulder straps with lots of pockets.

Most fastpacks, even those specifically designed for hiking, have removable hip belt straps. These are often as simple as a piece of webbing without any padding or hip belt pockets. Their main function is to keep the backpack close to your torso and prevent it from bouncing.

Weight Distribution

Fastpacks position a backpack's center of gravity higher on your torso than a conventional backpack while distributing some of your pack weight in front of your chest instead of your back. This can make it easier to hike quickly or even run with a load. They're also designed to bring the weight much closer to your upper torso, like wearing a vest, making for a more efficient carry since the weight is closer to your core muscles.

Many fastpacks come with two sternum straps to keep the vest style shoulder straps properly aligned.

Fastpack Backpack Fitting

Unfortunately, there's no standard way to size a fastpack like there is on packs with conventional shoulder straps, based on torso length or hip belt length. While torso length will get you in the right ballpark, the most important sizing dimensions are the length of the shoulder straps and the width between them. This isn't a measurement provided by backpack manufacturers, so the only way to tell if a pack fits is to try it on.

First: Find your sternum, which is the bone in the middle of your chest below your breasts, and trace a line out from it below your ribs. You want the bottom of the vest-style shoulder straps to be within one or two inches below your sternum. There should also be enough slack in the shoulder straps that you can maintain that fit even if you're wearing a thicker shirt, sweater, or jacket.

Next: Fill the backpack with a typical load and put it on. The

top of the pack bag should be level or within an inch of the top of your shoulders. This will keep its center of gravity optimally aligned with your torso. The center of gravity with a fastpack is higher than a conventional backpack, so you don't want it dropping down your back too low.

Finally: Make sure the width between the shoulder straps is comfortable and doesn't rub against your neck. The inside edge of the shoulder straps should lay just outside your collarbone. Adjust the sternum straps (most fastpacks have at least two) to hold the straps in that position without putting undo pressure on your breasts.

In addition to fit, pay special attention to the pocket layout and make sure it suits your storage needs for carrying a smartphone, maps, snacks, or water bottles.

Recommended Fastpacks

The Mountainsmith Zerk 25 has a top lid pocket, which is rare on fastpacks. It's very useful for storing hats, gloves, and other bulkier items you want fast access too.

The Osprey Talon Velocity 30 is available with an adjustable torso length, which is important for getting a good fit. It has a good pocket layout and a real hip belt, not a webbing strap, that helps distribute more load to the hips.

The Gossamer Gear Fast Kumo 36 has good vest pockets and comes with a removable sit pad that provides extra padding for your back. Sit pads are nice to use on day hikes and having one that's part of your backpack makes it hard to forget. This pack's higher capacity also gives you greater range.

The Hyperlite Mountain Gear Aero 28 is a fastpack with a roll-top closure made with a durable waterproof material call Dyneema Composite Fabric.

Sport-Specific Daypacks

Some sports-specific daypacks can also be used for day hiking.

- Running packs are streamlined hydration packs with a volume of 15 liters or less and have wide vest-style shoulder straps loaded with pockets that can hold small water bottles or energy bars. Most of these packs have non-load bearing hip belts, like a simple webbing strap that loops around your waist to prevent bouncing.
- Climbing packs are usually narrower than regular daypacks and have no external side pockets. They may also have a fabric loop to secure a climbing helmet to the outside.
- Mountaineering and ice climbing packs may have a front crampon pocket for storing spikes, so they don't hurt you if you fall.
- Cycling packs have a place to secure a flashing light on the front of the pack and additional reflective elements. These are great safety add-ons that you will appreciate if you need to walk back to your car after sundown.
- Ski packs often have an extra pocket to hold avalanche gear and extra straps to carry skis in an A-frame or cross-body configuration. Some may also have insulated hydration pockets or avalanche airbags.

CHAPTER 12:
Hydration

Staying hydrated while hiking is important to help deliver energy to your muscles and flush waste products created as a result of physical excerise. There are several ways to ensure you have water on your hike. You can carry your water in bottles or use a hydration system consisting of a reservoir, hose, and mouthpiece.

How much water should you carry on a hike? It varies depending on the length and difficulty of your hike as well as seasonal weather conditions. But you should aim to drink about one liter every two to three hours, and more if it's hot and humid outside.

For shorter hikes lasting a half-day or less, most hikers will carry two liters. For longer hikes, you can carry more or bring a water filter so you can resupply your water from a natural source, like a stream, river, or pond, and make it safe to drink. Unlike tap water, natural water sources contain organisms than can make you ill if you ingest them. At 2.2 pounds per liter, water is quite heavy, so replenishing your supply on a long hike can reduce the amount of water weight you need to carry.

Water Bottles

Most hikers carry reusable water bottles because they're an economic and environmentally friendly choice. Nalgene bottles, especially wide mouth ones, are very durable and easy to clean. Smartwater or used soda bottles are also popular with hikers because they're easy to reach when stored in your pack's side pockets. Soft bottles, like those made by Platypus, are convenient because they fold flat when empty, making

them easy to pack and carry. Metal bottles are also an option, but they are much heavier than plastic bottles and much more expensive

Pros:

- **Simplicity**: Water bottles, either filled at home or purchased, are ready to pack and go, making them the easiest solution.
- **Monitor water intake easily**: Clear bottles, especially those with volume indicators on the outside, make it easy to see how much water you've had and how much you have left.
- **Reliability**: Bottles don't have extra parts that can clog or break.
- **Ease of operation**: Bottles are easy to refill, either at a potable source or from a natural source with filtration or purification.

Cons:

- **Water is heavy**: Carrying enough for the whole day adds significant weight.
- **Can be awkward**: Given their rigid structure, bottles can be awkward to carry, pack, and drink from.
- **Not a "hands-free" system**: Bottles require at least one free hand and sometimes two to drink.
- **Not insulated**: Water can freeze or get too warm if not insulated.

Hydration Systems

Alternatively, you can carry a hydration system in your backpack. Some backpack manufacturers, including Osprey Packs and Gregory Packs, sell packs that come bundled with their own branded hydration systems. Many day hikers prefer using a hydration system instead of bottles because it is easier to stay hydrated, allowing you to take little sips from the mouthpiece as you need them, without having to stop or wrestle bottles in and out of your pack's side pockets.

Some hydration systems also have convenient quick connectors that allow you to separate the components for easy refilling, cleaning, or storage. Most backpacks have a hydration sleeve inside the main

compartment or a hook to hang a reservoir from, along with hydration ports on the sides so you can run the hose out toward your mouth.

Pros:

- **Convenience**: Easy access to water without taking off your pack or stopping. The hose allows you to sip on the go, keeping you hydrated throughout your hike.
- **Insulation (hot or cold)**: Hydration reservoirs and hoses can be insulated, helping keep water cool or warm depending on the weather.
- **Capacity**: Hydration reservoirs can hold more than you can carry in bottles, allowing you to pack a larger volume of water.
- **Weight distribution**: Water sits closer to your center of gravity, which can improve comfort and balance.
- **Hands-free hydration**: Especially helpful for activities that require your hands, like scrambling or using trekking poles.

Cons:

- **Monitoring water intake:** The water level inside the hydration reservoir can't be seen, making it harder to gauge how much water you've consumed. This can be a concern in hot weather or during strenuous activity when staying hydrated is crucial.
- **Cleaning and drying**: Hydration systems require more maintenance than water bottles. They need to be cleaned regularly to prevent mold and mildew growth, especially if you're using sugary drinks or sports drinks. Drying them thoroughly after use helps prevent unpleasant odors from bacteria.
- **Less convenient refilling**: Refilling a hydration reservoir can be messier and more time-consuming than refilling a water bottle, especially if you need to filter or purify your water first. You will have to unpack your pack, remove and refill the reservoir, and then repack it again.
- **Potential leaks**: Leaks can develop in the reservoir or hose, soaking your gear and potentially wasting your water supply.

I recommend lining your backpack with a plastic bag to keep your gear dry in case you spring a leak.

- **Can freeze if not insulated**: Water in the system can freeze in cold weather which can mean you have nothing to drink.

Filtering and Purification

If you run out of water on your hike or prefer carrying less water weight, you can filter or purify a natural water source to replenish your supply. Even if you carry all the water you expect to need on a hike, it can be a good idea to carry what you need to make a natural water source safe to drink. Hikes can last longer than expected, one of your companions might run out of their water, or you might come across an injured hiker and choose to stay with them until help arrives.

Filtering water on a hike can significantly increase the distance you can travel while reducing the amount of water and weight you need to carry.

The two primary ways to refill your bottles or reservoir are to filter or purify water you find from a good source along the trail. Be aware

that neither method is foolproof or perfectly suited for all kinds of trips and locales. Systems also differ in ease of use, the length of time it takes for them to process water, and whether they are best suited to individual or group use. When used properly, water filters and purifiers can transform your hiking experience, extending the distance you can hike because you can resupply your water from natural sources multiple times during the day.

Filters physically remove sediment and organisms, including disease-causing bacteria such as salmonella, cholera, and E. coli, and protozoa like giardia and cryptosporidium, all of which can make you very ill. Purifiers remove or kill everything filters do in addition to viruses, whose particles are much smaller than protozoa and bacteria. Both systems must pass testing by independent laboratories using Environmental Protection Agency (EPA) standards for potable water before they can be sold. You can even obtain specific EPA testing results for individual products from the manufacturer.

Water purifiers like the MSR Guardian are good for international travel where the risk of viruses in the water supply is greater.

Most water filters and purifiers sold for outdoor recreation have limited capabilities and are primarily designed for use in the backcountry, such as national parks, national forests, and state parks. These areas don't have large concentrations of people or industrial or agricultural activity meaning that, particularly in the continental US and Canada, you can usually get by with a water filter that removes bacteria and protozoa using low-cost and highly portable water filters.

Filters are less effective if you hike near urban and residential areas, like city or town parks, that may be impacted by untreated wastewater, faulty septic systems, or leaking sewers. The main concerns in these areas are viruses which require a water purifier, chemical purification, or the use of an ultraviolet light to remove or neutralize viruses.

Both filters and purifiers have a hard time removing heavy metals or fertilizers from water. If you are in an area polluted with these substances, your best bet is to obtain water from sources that are known to be safe for human consumption, even if it means buying bottled water.

Types of Water Filtration Systems

The most popular systems for day hiking are squeeze filters, bottle-based filters, and inline filters that are compatible with hydration systems. Hikers can also use gravity filters, pump filters or purifiers, chemical purification, or ultraviolet purification to make larger quantities of water safe to drink.

Squeeze Water Filters

Squeeze filters clean water that is passed through them with pressure. "Dirty," or unfiltered water is put into a bottle or soft bottle. The filter is attached, and the dirty water is then squeezed through the filter to either a "clean" bottle or directly into your mouth. Some squeeze filters come with soft bottles that can be rolled up when empty, making them easier to pack and carry. This is a nice feature when water sources are widely dispersed and you need to carry extra.

The Sawyer Squeeze Water Filter System comes with 2 one quart soft bottles and a filter.

Many squeeze-style water filters are also compatible with third party bottles that are not included with the filter. For example, many hikers replace soft bottles with Smartwater bottles which are rigid and narrow, making them easier to pull out and replace from a backpack's side pockets. If choosing replacement bottles, you want to make sure that there is a tight leak-proof connection between the filter and the bottle to keep your gear dry and avoid contaminating your clean water with unfiltered "dirty" water.

Bottle-based Purifiers and Filter Systems

Bottle-based filters are very popular because they come with a water bottle with a filter inside. You fill the bottle with water, screw on the cap, and start drinking then and there. While you can fill them and carry up to a liter or so of water at a time, they're best for shorter routes or ones with more frequent water sources.

The Platypus DayCap turns wide-mouth Nalgene Bottles, HydroFlask Bottles, and Yeti Yonder Bottles into a complete water filter system by replacing their lids with a water filter that you can sip from - perfect for day hikes!

Straw-based Water Filters

Straw-based water filters are straws that you can use to filter water on demand, provided you have a bottle or container to hold the "dirty" water you want to filter and consume. While you could technically dip one end into a stream or pond and drink and filter from it directly, in practice, that's just not practical.

Gravity Filters

Gravity water filters can process larger quantities of water at one time. For example, a high capacity water reservoir, called "the dirty bag," is hung from a tree. A hose leads from the dirty bag to a filter. A second hose goes from the filter to another reservoir (the "clean bag"). This is beneficial if you're hiking with a partner, your family, or a large group. If you had to wait for everyone to process their own water, you'd be there all day.

Inline Filters

Inline filters are a good option if you are using a hydration system. These splice into your hydration system between the reservoir and the mouthpiece. When you need to resupply your water, you can fill your hydration system reservoir with unfiltered water and filter it on demand as you sip away.

Pump Filters and Purifiers

Pump water filters have hand pumps that force water through the filter or purifier and out to secondary clean storage. While pump filters do require some elbow grease to operate, they filter water quite quickly. Many have a long intake hose which can be very handy when you can't reach the water source if, for example, it is down a steep embankment. They can also be backflushed to clean the filter element and you can usually purchase replacement filters when they become less effective with use.

Chemical Purifiers

The best chemical purification ingredient is chlorine dioxide, which has virtually no taste or color and kills bacteria, protozoa, and viruses. Chlorine dioxide is available in liquid form or as individually wrapped tablets. It is a slower process than filtering, taking anywhere from 15 minutes to 4 hours to fully purify water. The longer treatment time is required for very cold water. Chlorine dioxide is also best used with water that is clear and not cloudy with suspended material. While the gear necessary, drops or tablets and a clean bottle, is very lightweight,

it is a relatively expensive way to get clean water compared to other methods.

Sodium dichlorisocyanurate (the active ingredient in Aquatabs) is another chemical agent for treating water but falls short of full purification because it only kills bacteria and viruses, and is only moderately effective against giardia but not cryptosporidium.

Iodine tablets are another less effective method for treating water which remains popular in developing countries, mainly for historical reasons. Unfortunately, iodine is only moderately effective in killing bacteria, viruses, and giardia, but not effective against cryptosporidium. Iodine tablets also turn clear water a nasty-looking brown color, make your water taste mildly astringent to drink, and will stain the inside of drinking bottles, reservoirs, and even your clothes if you spill on them. The Centers for Disease Control and Prevention (2024) advises against consuming iodinated water for more than a few weeks. Also, pregnant women, those with a history of thyroid disease, and those allergic to iodine, should not drink iodinated water. Iodine tablets have been banned from sale in European countries because of these health reasons.

Ultraviolet Purifiers

Ultraviolet light is a highly effective way to neutralize bacteria, protozoa, and viruses in water. It is best used for use with clear water because it doesn't remove any particulates or organic matter. While UV purification is relatively fast, it's not good for processing large quantities of water. To use a UV purifier such as a Steripen, fill a wide-mouth bottle or container with water (1 liter is a good quantity), dip the light into the water, and stir until the light indicates that purification is complete, usually within 1-2 minutes. UV systems rely on batteries to operate, meaning there is always a risk of running out of power. On the plus side, it is one of the few water filtering and purification options that works well in the cold, so is useful when there's a risk of freezing and ruining your filters and other equipment.

Finding "Good" Water

Here are some general rules when selecting a water source, regardless of the water filter or purification system you are using. I never recommend drinking untreated or unfiltered water collected on the trail or in the backcountry. The consequences are too unpleasant health-wise to justify the risk.

Good Water Sources: Able to be filtered or purified

- Clear moving water from a stream or river (reddish-looking water in remote areas stained by the tannins in organic matter is often available and safe to drink after being filtered or purified.)
- Clear water from a pond or lake without a lot of suspended solids.
- Clear water bubbling out of a spring.

Poor Water Sources: Unable to be filtered or purified

- Puddles or other standing sources with no inflow and outflow.
- Muddy or turbid water sources with suspended solids that will clog filters and interfere with chemical or UV purification.
- Any source downstream from a town, industrial center, or mining activity.
- Standing water sources that animals drink from, particularly cattle or horse troughs.
- Streams that run through cultivated fields or animal pastures,

What About Electrolytes?

Many athletes and active outdoor enthusiasts swear by replenishing electrolytes by drinking prepackaged solutions, like Gatorade, or mixing powders into their water. These products often contain added dyes and sugars you don't need and that can be difficult to remove from water bottles and hydration systems and their components. The residue can encourage mold if not properly cleaned.

How To Care for a Hydration System

Hydration systems, hoses, valves, filters, and even water bottles can be difficult to clean. Rinsing thoroughly as recommended by the manufacturer and allowing everything to air dry completely is a good standard practice. To ensure best results, try the following tips:

- Rinse or wash items as soon as possible after use.
- Store your hydration reservoir in the freezer to prevent mold.
- Do not store hoses and filters in the freezer to avoid damage.
- Do not use sugary drinks or electrolyte powders; they are difficult to clean.

For day hiking, you can keep your electrolytes balanced is by eating the right snacks rather than carrying extra bottles of fluids. Salted snacks like chips, nuts, and energy bars should be plenty to keep you going.

Recommended Water Filters and Purifiers

There is a mind-numbing array of options for filtering water, so I've narrowed it down to the best alternatives. You'll want to choose a filter or purification method that's convenient to use with your preferred water container or hydration system. Some of the ones I recommend below include bottles, making them extra convenient for day hiking use.

The Sawyer Squeeze Water Filter System includes a filter and two 32 oz. soft bottles, although you can replace them with other compatible bottles, including the Smartwater bottles popular with hikers. You can sip from the top of the filter or decant filtered water to a "clean" container.

The Grayl GeoPress is a bottle-based water purifier that can remove viruses and is good for international travel to less developed countries. It includes a built-in bottle, which is very convenient and can also be used to carry purified water. You can also decant purified

water from the bottle into a separate container. The LifeStraw Peak Water Filter Straw is a water filter you can sip water through, but it does not include a container to hold the water. However, it can screw onto a standard-sized soda bottle to be used like a bottle-based filter. The Platypus DayCap replaces the cap of wide-mouth Nalgene Bottles, Hydroflask Bottles, and Yeti Yonder Bottles with a water filter so you can turn a bottle you already own into a wilderness water bottle system.

The CamelBak Reservoir Filter Kit connects in between a CamelBak reservoir and its hydration hose. The MSR Thru-link Inline Water Filter is compatible with all manufacturers' hydration systems and fits in between a reservoir and hydration hose with quick-connect adapters.

The Platypus GravityWorks Water Filter System includes a water filter, a "dirty" reservoir, and a "clean" reservoir for holding filtered water. It's available in multiple volumes for individual or group use. The Katadyn BeFree Water 3L Filtration System is also configured for gravity use.

The Katadyn Hiker Microfilter is a compact pump filter that includes a prefilter, hose, filter, and pump apparatus but is more involved to use than a squeeze or bottle-based water filter. The MSR Guardian is a premium pump purifier that removes viruses, in addition to bacteria and protozoa. It outputs water into wide-mouth Nalgene bottles that you supply.

Katadyn Micropur Tablets are chlorine dioxide tablets that come in foil packets, ready to use. Aquamira Drops are liquid chlorine dioxide drops that come in two bottles and must be premixed before use. Their chief advantage over tablets is that they're lower cost, but they are slightly slower to use.

The Katadyn Steripen Ultra UV Water Purifier is an ultraviolet light that you dip into water and stir. It has an on-board sensor that determines when the water has been purified, usually within a minute or two.

CHAPTER 13:
GPS Navigation Technology

There are two types of electronic devices you can use to augment a map and compass for hiking navigation: dedicated GPS handhelds and smartphone navigation apps that use the GPS technology built into the phones, which can be used even if you are out of cell phone service range or your phone is in airplane mode. All of these will display a map with your current location and create a track depicting your hike so you can backtrack or share it with others. This is a significant advantage over just using a map and compass.

GPS-enabled smartwatches are also an emerging navigation option, but their small displays and short battery life limit their utility. Nevertheless, their real time sensors including time, distance travelled, and elevation are much more convenient to view on a watch face than on a smartphone app or a handheld GPS.

GPS Handhelds are more rugged than Smartphones and have longer battery life, but fewer capabilities.

GPS Handhelds vs Smartphone Apps

The biggest differences between a dedicated GPS handheld and a smartphone are durability and battery life. GPS handhelds are more rugged, they are waterproof or water-resistant, and have a longer lasting battery. But their utility is often limited (although some higher-end models have satellite messaging) because they can only be used for navigating, compared to a smartphone, which can be used as as a phone, a camera, and can run many other apps, including navigation apps, at the same time. But smartphones have smaller batteries than GPS handheld devices, they're often not waterproof, and they are much more fragile. Still, they're sufficient for most day hiking and even backpacking trips, provided you reinforce them with a phone case and screen cover and bring along a battery pack.

Another big difference between GPS handhelds and smartphone navigation apps is the quality of the maps they use and how frequently they're updated. GPS receivers usually have one built-in topographic map that depicts landscape features, trails, and roads but is seldom updated. In comparison, navigation apps come with many maps—including sports-specific ones—that are frequently updated. While users must download portions of these maps before disconnecting from cell service or wifi, the fact that they are included with the app and updated frequently makes them a desirable alternative to using a GPS handheld device. This, plus the convenience of having one device that can serve multiple purposes, explains why smartphone navigation apps have largely replaced dedicated GPS receivers among most hikers and backpackers.

A GPS-enabled device can tell you exactly where you are, something that requires greater vigilance and thought when using a map and compass.

GPS Handhelds and Navigation App Benefits

Why use GPS technology instead of a good map? GPS-enabled devices have a few important benefits that waterproof maps don't. First, they can tell you exactly where you are on a topographic map and your elevation, give or take fifty feet or so. This is useful if you have an up-to-date topographic paper map because it can help you pinpoint your location along your route. They can also help you backtrack to the beginning of your hike if you've tracked your progress, which can be helpful if you've taken a complicated route or forgotten where you parked your car. Many people also like to share their tracks with others or compile metrics about their hikes such as speed or distance hiked, which are facilitated by using a GPS-enabled device or smartphone navigation app.

Despite these benefits, people CAN successfully hike without a GPS-enabled device. Using a map to "stay found," they can note their

location at trail junctions or major landmarks. If you're a beginner hiker, I recommend perfecting that skill before adding a dedicated GPS or smartphone app to your navigation tool kit. The two skill sets complement each other, helping to increase the certainty in which you can locate yourself along a trail, particularly in low visibility conditions or on more remote trails that are not well-blazed or signed.

GPS Handheld and Navigation App Shortcomings

For all their benefits, GPS receivers and smartphone navigation apps do not replace the need to carry a paper map and compass. While it is true that they can run out of power or break, the main reason you want to carry a map, preferably a waterproof version, is that it's likely to be the most accurate representation of the trail system available. Map publishers regularly check and update physical maps, especially ones specific to a particular region or park. The same can't be said of the maps that come with GPS receivers or navigation apps, especially those that come with crowdsourced data that may include misnamed trails or unmaintained "herd" trails, list incorrect elevations and mileages, or omit important land features like water sources.

It's also common for devices to under or overestimate the distance or elevation gain that you've covered if you use one to track your route as you hike. This occurs because the devices only connect to the satellite periodically rather than continuously, which introduces mathematical errors in the metrics they tabulate.

Recommended GPS Receivers

Garmin dominates the GPS handheld market and sells a wide range of devices, from budget battery-powered models to high-end devices with rechargeable batteries that can last hundreds of hours and connect to multiple GPS satellites for higher accuracy. Here are the models I recommend at different ends of the price spectrum:

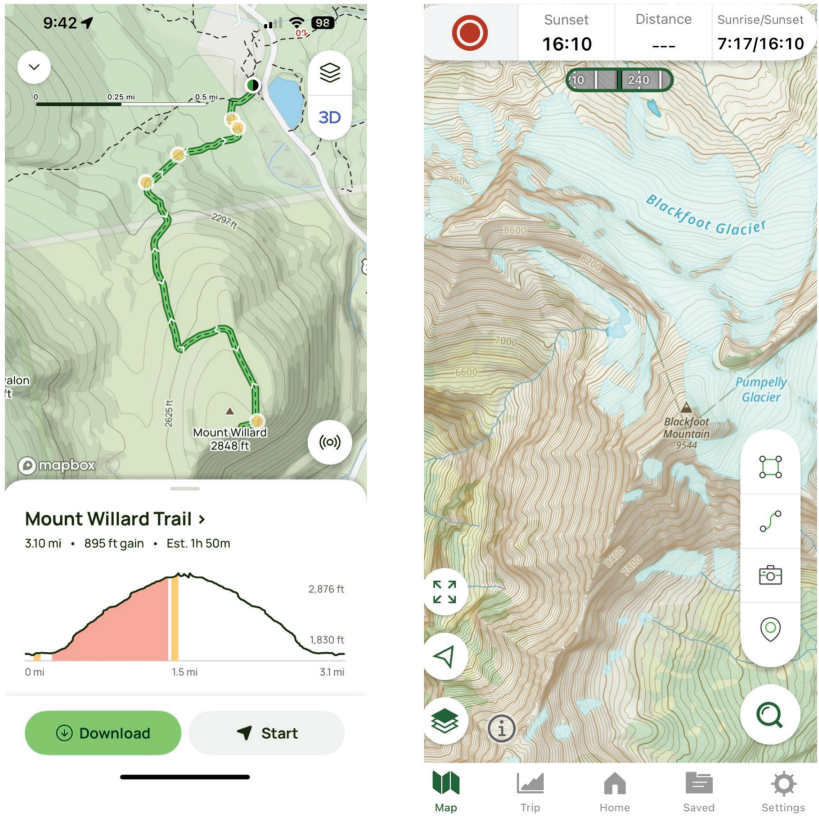
The Garmin GPSMAP 67i has an internal rechargeable lithium-ion battery with 180 hours of battery life in standard mode and up to 840 hours in expedition mode. It has a colored display and connects to multiple GPS satellites for increased accuracy. In addition to being waterproof, it includes satellite messaging and the ability to send out SOS signals in an emergency.

The Garmin eTrex 32 is powered by 2 AA batteries that last up to 25 hours before needing replacement. It has a color display with easy-to-push buttons and a built-in compass and barometric altimeter. It's definitely old school and lacks the communication capabilities of Garmin's newer handhelds, but it's much simpler to use so you can focus on navigating.

GPS Smartphone Apps

There are a wide variety of GPS Smartphone navigation apps available for download on the Apple App Store (iPhone) or Google Play (Android.) Most of them have an annual subscription fee. Some also host planning tools or maps on websites that can be synchronized with the data on your phone or they have social media and community tie-ins to help you find good trails to hike or places to visit.

The leading GPS smartphone navigation apps are: Alltrails, Avenza Maps, FarOut Guides, GaiaGPS, OnX Backcountry, and Caltopo. There are many other navigation apps available, but once you learn one or two of them, new ones become much easier to learn. While they all have the same basic elements such as waypoints, tracks, routes, and maps, they have different strengths and weaknesses, which I review below.



Smartphone GPS apps include detailed topographic maps.

AllTrails

AllTrails is a smartphone app for finding popular hikes, reading user reviews about them, and following routes other users have recorded. You can also download topographic maps of the routes for offline use when you don't have a cell phone signal. The trail names and routes are crowdsourced and often not fact-checked, so it's important to carry a reliable map since they've been known to differ. While the user reviews provided in AllTrails are dated, it's important to realize that the trail conditions may change seasonally and that the experience level of the authors can vary considerably. Despite these limitations, Alltrails can be a good resource to find trails to hike when you visit a new area.

Azena Maps

Avenza Maps is an app that displays GPS-enabled PDF (GEOPDF) versions of reliable paper maps from map publishers. These are updated regularly and can be purchased through the app and downloaded for use offline. Avenza Maps is the standard app used by government agencies, including the United States Geological Survey (USGS), the Bureau of Land Management (BLM), the National Park Service (NPS), the United States Forest Service (USFS), and others for distributing maps that are free for public use. Individuals can also create, share, or publish their own GEOPDF maps using Caltopo's (see below) web-based route planning tools.

Caltopo

CalTopo is a general-purpose navigation app that lets you create routes, record tracks, and compile statistics you can share with others. It also features powerful printing options, including the option to send maps to a third party printing service to print maps on heavy paper stock or waterproof paper. CalTopo contains numerous maps and data layers that you can use singly or layer to highlight different landscape features. The included maps are not curated for completeness and may include inaccurate or out-of-date crowdsourced or historical map data. These maps can be used if you have cell phone access or they can be downloaded to the Caltopo smartphone app for offline use.

FarOut Guides

FarOut Guides is also known as "Guthook," the trail name of the original app author Ryan Lynn. FarOut publishes maps of many long-distance hiking trails. These routes are curated for accuracy by hikers employed by FarOut Guides or by the trail organizations responsible for maintaining the trails. Each trail is purchased separately and downloaded to the app. The trails have accurate trailhead, shelter, campsite, and water source information displayed on a topographic map or as an elevation profile.

How to Conserve Battery Power

Smartphone navigation apps can quickly burn through battery power. While you can carry an extra battery pack to recharge your phone, it's useful to run the app with the phone in airplane mode, to turn off all other apps and notifications, and to reduce the brightness of your display to conserve as much battery power as possible.

GaiaGPS

GaiaGPS is a general-purpose navigation app that lets you create routes, record tracks, and compile statistics you can share with others. It contains numerous maps that you can use singly or layer to highlight different landscape features. The included maps are not curated and may include inaccurate or out-of-date crowdsourced or historical map data. One of the chief benefits of using GaiaGPS is that it includes topographic maps for very large regions, making it easier to plan out alternate or novel routes. These maps can be used if you have cell phone access or downloaded for offline use. GaiaGPS can also be accessed through a web-based interface, which provides online tools for planning new routes or discovering ones published by other users.

onX Backountry

onX Backcountry lets you create routes, record tracks, post public trip reports, and compile statistics you can share with others. It contains numerous maps and data layers that can be superimposed to highlight different landscape features. The included maps are not curated for accuracy or completeness. onX Backcountry includes topographic maps for very large regions to help you plan your routes. These maps can be used via cell phone or downloaded for offline use.

CHAPTER 14:
Safety Devices: Communication and Lighting

One of the biggest changes to hiking and backpacking in the past 20 years has been the ability to stay connected with family and friends or to signal for help in an emergency using cell phones or GPS satellite messengers. While they are not strictly necessary and you can keep these devices turned off when hiking, they can be your ace in the hole if you need an unplanned pickup or want to assure family members about your well-being on the trail.

Cell phones and GPS satellite messengers, like any electronic device, have their limitations, especially in more remote areas. While network connectivity has increased tremendously in the backcountry, it's still far from universal. The same is true for satellite coverage. Heavy vegetation and mountainous terrain can block satellite signals. But, by and large, the combination of cell phones and satellite messengers works well in most circumstances and they are a valuable addition to your gear, particularly for more mature hikers.

When using electronic devices, it's important to start your hike with a full charge and carry a backup power supply so you can recharge them if they run out of power. You will want to develop a battery management strategy that preserves battery life and avoids wasting power on unnecessary apps and activities. The most reliable battery preservation technique is to keep the device off, although its important to keep it easily accessible if needed.

Cell Phones and Smartphones

Cell phones and smartphones can be a lifesaver if you need help on a hike, as long as you have network connectivity. While this is generally a given in more urban areas, it's difficult to know if you'll have cell network access in rural and backcountry areas.

If you need emergency assistance, your best bet is to try your cell phone first. As part of your hike planning, write down the phone number of the emergency contacts for the area in which you're hiking. If you can't find a number, 911 is the best number to call since it's staffed 24 hours a day by emergency operators who will know which emergency services to contact on your behalf. If your cell phone is low on power or you have a very weak cell phone signal, send a text message to 911 instead of calling, since it requires less power and may still work with a weak signal.

Personal Locator Beacons

Personal locator beacons (PLBs) are one-way messaging devices that can summon emergency help and pass along your GPS location to first responders when you don't have network connectivity. They use a free government-funded satellite network to summon help, so all you pay for is the cost of the device without needing to pay a monthly or annual fee. PLBs work worldwide which makes them an attractive choice for travelers, although the rescue resources available in other countries may vary in coverage and quality.

When you purchase a PLB, you must register the device with a government agency and provide it with your personal information, emergency contacts, and medical history to pass along to rescuers. You need to update your data at least every two years and report the sale of your PLB to a new owner.

Once activated, the battery of a PLB must be replaced every few years, often requiring you to send the device to the manufacturer or a certified service center.

Recommended Personal Locator Beacons

ACR Electronics ResQLink 400 is a lightweight handheld PLB waterproof down to 10 meters with regular and infrared strobes to assist in nighttime rescues. To use it, you must deploy an antenna and press the on-button to guide rescuers to your GPS location. It has a battery with a 5-year shelf life capable of 24 hours of operational life, including self-test and GPS test modes for peace of mind. There is no subscription fee.

ACR Electronics rescueME PLB1 is a lightweight PLB with an antenna and clip to secure it to a backpack. It transmits your GPS coordinates and ID via satellite, notifying the rescue services nearby and giving your current location. The rescueME PLB has a battery life of 7 years and a 24+hr operational time. There is no subscription fee.

Keep your GPS satellite messenger on the outside of your backpack where you can activate it or send a message if you are immobilized. It won't do any good if it's packed and you can't access it.

GPS Satellite Messengers

A GPS satellite messenger gives you the ability to summon emergency services and pass along your location even when you don't have access to a cell phone network. Some devices can track your position and send GPS location updates to friends and family automatically so they can track your progress, while others can send email messages or texts to them via the satellite and even receive responses in return. These features can be quite useful in an emergency, to convey mid-hike changes to your trip plan, to establish contact when you need non-emergency assistance, or to reassure family members that you're safe.

You need to buy a satellite network plan to use a GPS satellite messenger device. These are available on a monthly or annual basis and are tiered by usage levels. If you only send the occasional check-in message, they can be quite inexpensive each month, but if you want to send frequent automatic GPS location updates, you'll pay a lot more.

There are two types of satellite messengers available: one-way messaging units like personal locator beacons that can only send messages, and two-way messengers that can send and receive which are far more useful for emergency communication and check-ins with friends and family.

Despite their power, satellite messengers have one common limitation: they can only be used if you're conscious and able to activate them. There's no way for a person tracking you to tell if you've stopped to rest or had an accident and fallen unconscious. If you do activate one in an emergency, it's still going to take a search and rescue team the same amount of time to reach you. In Part I, I noted that, on average, it takes about one hour for rescuers to get to you for every 15 minutes of walking by foot you are from a trailhead with road access. While search and rescue will be able to locate you faster when they get on the scene, a real benefit of these devices is their two-way messaging capability so you can receive medical advice while waiting for first responders to arrive.

Many of the satellite messengers available today are standalone devices that have been built for backcountry use and have long battery

lifetimes. Some, like the Garmin inReach Mini 2, can also connect to your smartphone using Bluetooth to provide an extended display.

Several models of the Apple iPhone also have a built-in emergency SOS capability that lets you text emergency services via satellite when you're off the grid with no cellular or wifi coverage. While convenient, Smartphones are not nearly as hardened for backcountry use as purpose-built emergency satellite messengers. However, they are still a good option when hiking in more populated areas that lack good cell network coverage.

I've owned several GPS satellite messengers and personal locator beacons and have found the inReach models from Garmin to be the easiest to use with the most reliable satellite connectivity. Even though you can connect most satellite messengers to your smartphone with Bluetooth and use it as a alternative user interface, I think it's important that all the functions of the device you choose can be used without a smartphone if necessary.

Recommended GPS Satellite Messengers

The Garmin inReach Mini 2 is the most popular GPS satellite messenger used by hikers. It provides 2-way messaging via text and email, check-in messages, automated GPS location updates, weather forecasts, the ability to backtrack your route, and SOS alerting via the Iridium satellite network. All operations can be performed using the on-board screen. Smartphone and smartwatch integration is also available using Bluetooth.

The Zoleo satellite communicator provides 2-way messaging, check-in, weather forecasts, automated GPS location updates (from every 6 minutes up to 4 hours), and SOS alerting. It has a built-in check-in button to let people know you're ok and comes with a US-based SMS phone number and email address that you can share with people so they can reach you. It connects to the Iridium satellite network when cellular or wifi service is unavailable, and comes with an internal lithium-ion battery that offers 200+ hours of battery life.

Headlamps

Whenever you go hiking, you should always bring along a light source, like a headlamp, because you never know when your hike will go longer than expected. You might be delayed along your route by an unexpected storm or detour, you or a companion may become injured or you might come across someone who needs help and opt to stay until first responders arrive. The flashlight app on your smartphone won't last long enough to get you to safety.

Most hikers prefer headlamps over flashlights because headlamps leave their hands and arms free and cast a beam of light that makes it easy to hike in the dark. These days, many hikers use rechargeable headlamps out of convenience and because they generate less waste. However, most rechargeable headlamps cannot be used while they're recharging, so you can't count on using yours even if you carry a battery pack with you. Some hikers carry two headlamps for this reason or to lend to people they encounter who don't have a headlamp.

Best Features for a Headlamp

- Battery meter
- Locking power button
- Easy to remember control sequence
- Low, mid, and high-power modes
- Flood and spot beams
- Red light mode
- Tilt
- Water resistance

Battery-powered headlamps also work fine, provided you check to see that the batteries are full and that you carry spare batteries in case they run low. Lithium-ion batteries are better to use than alkaline batteries because they work better in colder weather.

The brightness of a headlamp is measured in lumens. While some headlamps have hundreds of lumens, you don't need that much light to

perform simple tasks at night or hike in the dark if you accidentally get caught out after sundown. A headlamp with 400 lumens will be more than sufficient for your needs.

When choosing a hiking headlamp, choose one with a battery meter so you know if it's charged, and one that can be locked in the off position so it doesn't accidentally turn on in your backpack and drain the batteries. You also want one with a long burn time in case you need to use it all night. Use the lowest brightness setting you can and save the highest intensity to extend battery life. A red mode is also handy because it puts less of a strain on your eyes at night and won't blind your companions if you accidentally shine it in their faces.

Many headlamps have confusing control sequences that cycle through their high, medium, red, and strobe modes; you want to avoid those models because they're impossible to remember unless you use the headlamp every day. Look for units with a comfortable head strap and the ability to tilt the light so you can point it where you need it.

Recommended Headlamps

The Petzl ACTIK CORE headlamp is USB rechargeable and provides 600 lumens of power. It comes with a 1250 mAh CORE rechargeable battery and is also compatible with 3 AAA alkaline, lithium, or NiMH rechargeable batteries without the need for an adapter.It has a digital lock, battery charge indicator, multiple brightness levels, and a red lighting mode.

The Black Diamond SPOT 400-R is a USB rechargeable 400-lumen LED headlamp good for hiking, trail running, and camping. Its settings include full strength in both proximity and distance modes, dimming, strobe, red night vision, and digital lock mode.

CHAPTER 15: Conclusion

We've covered a lot of ground together in the preceding chapters, but one question remains. What is the best way to get started?

For Absolute Beginners

If you're totally new to the world of hiking, I encourage you to take baby steps in the beginning by going on short walks near your home. You need to assess your fitness level and see if there are any physical challenges you need to overcome.

By baby steps, I mean short walks that last an hour or two at a casual pace. The last thing you want to do, is to plan a big trip to a National Park or Forest, without having some trail miles and conditioning under your feet. If you bite off more than you can chew, you might be disappointed in your experience and chuck the entire enterprise. Instead, try exploring the area within an hour's drive of your home: you'll be surprised by the number of places you can go to hike like town forests, state parks, or Nature Conservancy and Audubon preserves.

If you have doubts about your physical fitness, be sure to check in with your doctor or a physical therapist who can provide targeted exercises for the physical challenge of hiking and carrying a lightweight backpack. Buying a pair of trekking poles and starting to use them can also be beneficial at this early stage.

But the best advice I can give you is to find a regular hiking buddy. Ask your friends if they are interested in going for a hike and try to make it a regular outing, one or two days a week. You'll learn faster if you can compare your observations, experiences, and research with

each other. They don't have to be experienced hikers already, but someone who gets excited about the prospect of getting out of the house and exploring new areas on foot. I know many older hikers with regular hiking partners that have benefitted from growing their skills and hiking knowledge together. They often become life-long friends.

You can also find new hiking buddies by joining a local hiking club or a chapter of a larger outdoor organization. I benefitted immensely from going on volunteer-led hikes with a local chapter of the Appalachian Mountain Club and with Meetup.com hiking groups. I made many news friends and found like-minded hikers who were well matched with my physical abilities.

For More Experienced Hikers

If you've had previous hiking experience but you're feeling rusty, it also pays to get out for short walks to assess your physical capabilities and limits, and to gradually scale up the challenges that you take on, in terms of the distance, time, and elevation gain.

I'd also encourage you to find a regular hiking partner that has similar physical capabilities and shares your passion to hike new trails and explore new areas. If you can establish a weekly hike routine, you'll both come up to speed faster.

Joining an established club or group can also pay dividends, in terms of knowledge sharing when it comes to gear and skills. More experienced hikers are very generous when it comes to teaching other hikers the ropes. You can also pick up new skills or habits by observing what other hikers do on hikes and asking them about it. Like, how often they drink or eat, how often they layer up or delayer, or how they pick a safe place to cross a stream.

When it comes to buying and trying new hiking gear, my advice is to "trust, but verify." Gear manufacturers, both large and small, make all kinds of claims about their products. The only way to know whether something works or not is to test it yourself on a practice hike where a clothing or gear failure can be easily contained. Whether it's a backpack that doesn't fit or feels wrong, or a water filter that clogs up too quickly because your water supply has a lot of sediment in it, you won't know

if new gear will work as advertised, until you test it out yourself in the environment where you want it to work.

In addition to physical conditioning, I'd encourage you to broaden your hiking skill set. Learning how to navigate with a compass, enrolling in a wilderness first aid class, or joining a trail maintenance crew will expand your hiking horizons and social connections.

You may also want to widen your horizons and begin backpacking. While this book is focused on day hiking, the skills and gear recommendations in it are also applicable to backpacking, so you'll hit the ground running if you add overnight trips to your hiking repertoire.

Who knows? Maybe there is a volume of "Backpacking Over 60" in the works to help you on your way.

How to Contact the Author

If you have questions about the content of this book, please drop me a line me using the contact form at my website, SectionHiker.com. I'm always happy to hear from readers and field questions.

If you're interested in reading more gear reviews, gear guides, and FAQs about a wide range of hiking and backpacking topics, I'd encourage you to visit SectionHiker.com and sign up for my newsletter which summarizes the articles I publish each week.

HELPFUL LINKS

Major Outdoor Retailers

Backcountry
Eddie Bauer
Enwild
Garage Grown Gear
Outdoor Gear Exchange
REI
Road Runner Sports

Gear Manufacturers Mentioned in the Book

ACR Electronics - Personal locator beacons
Adventure Medical Kits - first aid kits
AllTrails - smartphone navigation app
Altra Running - trail running shoes
Arc'teryx - clothing
Aquamira - water purification
Aquatabs - water purification
Athleta - clothing
Avenza Systems - smartphone navigation app
Black Diamond - clothing and premium trekking poles
CamelBak - hydration systems and packs
CalTopo - smartphone navigation app
Cascade Mountain Tech - budget trekking poles
CEP Compression - compression socks
Cleanwaste - wag bags
Columbia Sportswear - clothing
Coughlans - toilet paper and accessories
Currex - insoles

Danner - hiking shoes and boots
Darn Tough -durable hiking socks
Deuter - backpacks
Dirty Girl - gaiters for trail runners
Durston Gear - trekking poles
ENGO - blister prevention
Enlightened Equipment - clothing
Ex Officio - clothing
Fjallraven - clothing
Foot Kinetics - foot lubrication
Freshette - urinary director
Frogg Toggs - clothing
GaiaGPS - smartphone navigation app
Garmin - GPS navigation and satellite messengers
Gossamer Gear - trekking poles and backpacks
Grayl - water purifiers
Gregory - backpacks
Hyperlite Mountain Gear - backpacks and accessories
HOKA - trail running shoes and mid-height hiking boots
Ibex - wool clothing
icebreaker - wool clothing
Injini - socks with toes
Insect Shield - insect repellent treatment for clothing
Kahtoola - gaiters
Katadyn - water filters and purification
KEEN Footwear - hiking shoes and mid-height hiking boots
KUIU - clothing
Kula Cloth - pee rag
La Sportiva - trail runners and mid-height hiking boots
Leki - premium trekking poles
Lifestraw - water filters
Lightheart Gear - clothing
Lowa - mid-height hiking boots
lululemon - clothing
Marmot - clothing
Medi-Dyne - braces and supports

Merrell - hiking shoes and mid-height hiking boots
Med Spec - leg braces and supports
Minus33 - clothing
Montbell USA - clothing
Montem Outdoor Gear - budget trekking poles
Mountainsmith - backpacks
MSR - water filters and purifiers
Mueller Sports Medicine - leg braces and supports
Mystery Ranch - backpacks
Nalgene - water bottles
Nike - clothing
Nikwax - clothing treatments
Oboz Footwear - hiking shoes and mid-height hiking boots
OnX - smartphone navigation app
Ortovox - clothing
Osprey Packs - leading backpacks manufacturer
Outdoor Research - clothing
Pacerpole - premium trekking poles
Patagonia - clothing
Paria Outdoors - budget trekking poles
Petzl - headlamps
Platypus - water filters and soft bottles
prAna - clothing
Purple Rain Adventure Skirts - clothing
Rab - clothing
RailRiders - clothing
Reliance Outdoors - wag bags
Salomon - trail runners and hiking boots
Sawyer - water filters and insect repellent
Sole - insoles
Smartwool - wool clothing
Six Moon Designs - backpacks and umbrellas
Sunday Afternoons - hats
Superfeet - insoles
Tilley Endurables - hats
Title Nine Clothing - clothing

Topo Athletic - trail runners and mid-height hiking boots
Treadlabs - insoles
Under Armour - clothing
Zamberlan - hiking boots
Zensah - compression wear
Zoleo - satellite messengers
Zpacks - clothing and backpacks

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