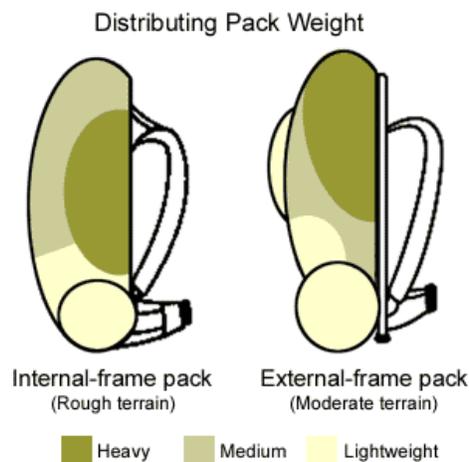


## How to Pack Your Backpack

### Internal-Frame Packs

- Whether you're traveling on- or off-trail, keep your **heaviest items close to your back**, centered between your shoulder blades.
- For **on-trail** travel, keep heavy items **higher** inside your pack. This helps focus more of the weight over your hips, the area of your body best equipped to carry a heavy load.
- For **off-trail** exploration, reverse the strategy. Arrange heavier items **lower** in the main compartment, starting again from the spot between your shoulder blades. This lowers your center of gravity and increases your stability on uneven terrain.
- Stuff your **sleeping bag** into its lower compartment first. Squeeze in any additional lightweight items you won't need until bedtime (pillowcase, sleeping shirt, but nothing aromatic). This will serve as the base of the main compartment, which you'll fill next.
- **Tighten** all compression straps to limit any load-shifting.



### External-Frame Packs

- As with an internal, keep your **heaviest items close to your back**, near your shoulder blades.
- Externals are recommended for **on-trail travel only**. Load heavier items **high** inside your pack and close to your body. Doing so centers the pack's weight over your hips and helps you walk in a more upright position.
- Pack your **sleeping bag** in its stuff sack. Finish loading your main pack bag, then strap the bag to the lash points on the bottom of the pack bag. If rain seems likely, consider stuffing your sleeping bag inside a second stuff sack or wrapping it in plastic.

### Tips for Either Pack Style

- You are the ultimate judge of what feels comfortable to you. Experiment with different load arrangements to determine what feels best.
- Make sure some items are **easily accessible**, packed in places where they can be reached with a minimum of digging:

Map  
Sunglasses  
Snack food  
First-aid supplies  
Rainwear

Compass  
Insect repellent  
Flashlight/headlamp  
Water bottles  
Pack cover

- Don't waste empty space. **Cram every nook** with something. Put a small item of clothing inside your pots, for example. Smaller items, such as food, pack more efficiently in individual units rather than when stored loosely inside a stuff sack.
- If you are part of a group, **split up** the weight of large items (a tent, for instance) with other group members. Don't make 1 person become an involuntary packhorse.
- **Cluster** related small items (such as utensils and kitchen items) in **color-coded stuff sacks** to help you spot them easily.

- Minimize the number of items you **strap to the outside** of your pack. Gear carried externally may adversely affect your balance. Secure any equipment you carry outside so it doesn't swing or rattle.
- **Long items** ? Stow them horizontally with your sleeping pad across the top of an external pack; with an internal, carry them vertically, secured behind the compression straps on one side of the pack with the ends tucked into a "wand pocket" at the pack's bottom. A **daisy chain** and **ice axe loops** are designed for specific mountaineering gear; feel free to improvise with them, but don't get so creative that you jeopardize your comfort or stability.
- Make sure the cap on your **fuel bottle** is screwed on tightly. Position it below your food inside your pack in case of a spill.
- Carry a **pack cover**. Backpacks, though made with waterproof fabric, have vulnerable seams and zippers. After a few hours of exposure to persistent rain, the items inside your pack could become wet—and thus much heavier.
- **Quick repair tips:** Wrap strips of duct tape around your water bottles; in case a strap pops or some other disaster occurs, a quick fix could keep you going. Take along a few safety pins in case a zipper fails.

Do you aspire to be a truly organized adventurer? Then before you reach the trailhead you should:

- **Evaluate** what equipment is needed for this specific trip.
- Review a **checklist** before you leave home to make sure you have everything you need.
- Double-check your **older gear** to make sure it's in good working order.
- Pre-load your pack the night before your hike begins. Or, a few days before your departure date, **rehearse packing** for this trip. If you're missing something, it's better to discover this fact early.

## Backpack Information

### Select your Style: Internal or External

Long-haul backpacks (suitable for 2-day trips or longer) are known as frame packs, meaning a metal frame supports the pack bag and helps focus the weight where your body can most effectively carry it — on your hips. Manufacturers offer 2 styles of frame packs: **internal-frame packs** and **external-frame packs**.

### Internal-Frame Packs

Internals feature a narrow, tower like profile and integrate their framework inside the pack, behind the shoulder harness. The frame usually consists of "stays," or flat bars, about an inch wide and 1/8-inch thick. Stays are usually aluminum and are configured in a V-shape. Alternative frame materials (such as composites) and stay-alignments (parallel, X-shaped; U-shaped) are sometimes used. Stays are removable and can be shaped to conform to your torso.

Internals are popular packs with many advantages:

- **Flexibility.** Stays make internals stiff, but not rigid. This allows the pack to more easily move in harmony with body movements, a big plus for climbers and skiers.
- **Balance.** Internals hug your body. This holds your equipment closer to your natural center of gravity and helps you keep your balance when it counts — for example, while you're scooting across a log above a stream.
- **Stability.** Compression straps are everywhere on an internal. You use them to cinch down your load and keep individual items bunched together. This keeps them from shifting and throwing you off-balance if you make any abrupt moves.
- **Maneuverability.** Because internals feature a slimmer shape, it's easier to swing your arms freely — another reason why these packs are popular with climbers and Nordic skiers. This narrow profile also helps hikers whenever they have to squeeze through tight spots or when they're bushwhacking through thick brush.
- **Adjustability.** Internals use suspension systems (involving the shoulder harness and hip belt) that can be adjusted more precisely than external-frame systems.

The downside of internals:

- **The black hole.** Most internals have 1 cavernous main storage compartment, plus a separate section for a sleeping bag. Other than a lid pocket, nearly everything gets stuffed into that single, deep compartment. So, if it's necessary to find 1 particular item during a rest stop, you may have to hunt a while to locate it.
- **Hot stuff.** You'll sweat more wearing an internal because it rides so close to your back. The design offers little room for ventilation.
- **Cost.** Internals typically cost more than externals of a similar size.

### External-Frame Packs

Externals connect a pack bag to a rigid frame made of aluminum tubing. Externals ruled the backcountry until internal-frame design was introduced in the late 1970s. Internals have surged in popularity, yet externals are still a great choice for transporting heavy loads along trails. With an external, the pack's weight sits more squarely on your hips; with an internal, the back, shoulders and hips share the load.

The advantages of externals:

- **Cooler to carry.** An external's load does not sit flat against your back, allowing air to circulate.
- **Easier to pack.** Externals feature at least 2 main compartments plus several side pockets. You can organize your gear into "zones" and locate it more easily.
- **Heavy loads won't sag.** They might in an internal, depending how you pack it. Plus, since your center of gravity sits higher in an external, it's easier to walk upright.
- **Cost.** You'll pay less for an external.

The shortcomings of externals:

- **Minimal agility.** They tend to make you walk more stiffly, making externals cumbersome when you try to walk off-trail. Attempting to scramble up rocks or hop across a boulder field while wearing one is difficult, even unpleasant.
- **Poor traveling companions.** Sometimes you can squish a loaded internal into a car trunk or back seat; an external frame won't give an inch. Plus, in the luggage-transport systems of airports, externals sometimes can take a pounding.

### Which Is Best for Me?

The answer depends on your hiking style and the types of places you explore most often.

Which people are better suited for an **internal**?

- Climbers/mountaineers
- Scramblers/peak-baggers
- Skiers
- Off-trail (cross-country) hikers covering rough terrain

Why? The snug fit of an internal allows your load to move with you, helping you stay balanced and agile on uneven terrain. Recreational backpackers have also grown to prefer internals, valuing their comfort and versatility. Internals have emerged as very popular general-purpose packs, typically outselling externals by a sizable margin.

Which people are better suited for an **external**?

- Beginning hikers
- Hikers hauling heavy loads over easy to moderate trails and terrain

Why? Externals appeal to juniors and beginners because they cost less. For people toting monster loads, the frame becomes an efficient extension of your upper thighs and pelvic region — an area of stout bones and thick muscle groups that are well-suited

to the task of bearing the weight of a backpack. Are externals becoming obsolete? Don't count on it. Tradition is on their side, and they're a great bargain.

### What Features Should I Look For?

**Hipbelt:** Generously padded hipbelts (unlike the thin cloth waistbelts found on Sixties-era backpacks) represent a major advancement in pack design and greatly enhance your ability to carry tonnage into the backcountry.

Most consist of various grades of foam: open-cell foam for cushioning, closed-cell or molded foam for firmness. The hipbelt should straddle your "iliac crest" — the 2 prominent bones on the front of your hips. This is the area where your pelvic girdle begins to flare out, providing the hipbelt with a stable, fortified foundation.

Some packs offer interchangeable belts, permitting a more customized fit, and even belts where the angle of the fit can be adjusted. The hipbelt's padded ends should not touch; you need some space to be able to cinch the belt securely. On the other hand, don't tighten a belt excessively. Your hips could be irritated if you do.

Internal-frame models include a lumbar pad. This large pad should offer cushioning yet should not feel spongy. If it does, it could break down quickly under a load.

**Frame sheet:** Some internal packs place a thin but stiff sheet of plastic between you and the packbag. Often this is a material known as HDPE, or high-density polyethylene. This adds stiffness to the frame without adding much weight. Plus, it prevents objects in your pack from poking you in the back.

Internals sometimes include some type of mesh or foam panel that rests near the middle of your back. This is an attempt to separate the pack from your back and encourage some air flow between the two. It offers modest help. Here is a trail-tested truth: Count on having a sweaty back if you tote an internal.

**Suspension system:** This involves the shoulder straps (padded and contoured), load-lifting straps, a sternum strap and belt-stabilizer straps. So-called ladder suspensions typically allow you to reposition the shoulder harness in 1-inch (or, preferably, smaller) increments. The more fine-tuning a pack permits, the better the fit.

**Packbags:** Common materials are packcloth (a sturdy grade of nylon) and Cordura, a burly fabric with a brushed finish. Both resist abrasion and are coated for water resistance. Cordura is tougher and a bit heavier. Ballistics nylon, a strong, lightweight material, has popped up in newer pack designs and seems to work well. Internals usually offer an "extendable collar" or "spindrift collar" — additional nylon with a drawstring closure that allows the main compartment to stretch higher and hold extra gear.

**Detachable pocket:** Many internals allow you to detach the "floating lid" pocket from the pack and convert it into a fanny pack or daypack. That's a handy feature when you choose to make day hikes from a backcountry basecamp.

**Water-bottle holders/hydration pockets:** Externals offer plenty of side pockets where you can stash a water bottle. Internals rarely do, although several now offer elasticized mesh "holsters" on the side where you can keep small bottles handy. Hydration systems (water reservoirs, or bladders, connected to a long sipping hose) have boomed in popularity. Many high-end packs now offer such systems.

**Extras and attachments:** **Lash points** allow you to attach even more gear to your pack if you feel the need. Climbers and early-season hikers should look for **ice-axe loops**, **daisy chains** (a series of small loops where you can dangle gear, such as carabiners) and **crampon patches**. A so-called **shovel pocket** holds items tight against the back of your pack; it's a good place to stash wet things. All of these extras, of course, add weight to a pack.

**Loading options:** Most internals are "top-loaders," where all gear passes through one big hole at the top of the packbag's main compartment. This requires you to keep quick-access items near the top. Some internals now provide zippered, slit-like openings on the sides of their main compartments. This allows you to stash smaller items (water bottles, for instance) lower in your pack but still have quick access to them. Most externals, meanwhile, are "panel-loaders." In this configuration, a zipper follows a U-shaped track along one side of a compartment. When unzipped, the compartment's side panel falls away like a flap to give you wide access to the compartment's interior.

**Packs for women:** Several packs, both internal and external models, have been modified with narrower shoulder straps, smaller hipbelts and shorter torso lengths.

**Packs for travel:** Travel packs offer you the ability to conceal and protect a pack's suspension system when using it on public transportation. Typically, the suspension systems are not quite as substantial as regular internal-frame packs.

### How Much Can I Expect to Spend?

Some external-frame packs for \$50 to \$200; internals cost between \$100 to \$300.

If you regularly visit the backcountry and anticipate at least 1 overnight trip per year, invest in a quality pack with a capacity that matches your ambitions. Inexpensive discount-store backpacks are poorly made, rarely last, have inadequate padding and can be miserable to wear. An uncomfortable pack can ruin an otherwise beautiful outing.

Consider renting a pack before buying your first backpack. It will help you become better acquainted with how a pack fits and performs.

### What's the Right Capacity?

As the phrase goes, your numbers may vary. But here's a general guide for internals:

**Up to 3,000 cubic inches:** Good for day hiking or a 1-night trip in warm weather where your supplies will be minimal.

**3,000-4,000 cubic inches:** Enough space for 1- or 2-night trip. You can go even farther if you team up with a partner who could help carry the load of shared items.

**4,000-5,000 cubic inches:** Generally good for up to 3 days of overnight camping.

**5,000-6,000 cubic inches:** Can accommodate up to 6 days of overnight camping. The lower end of this range is good for most backpackers. Don't buy too large a backpack, though, if you don't anticipate needing the space. The more compact and lightweight your load, the better.

**6,000-plus cubic inches:** For long hauls lasting a week or more.

**Keep in mind: Capacity figures** for internal and external packs **vary significantly**. Sleeping-bag storage accounts for the discrepancy. Internals carry sleeping bags in a special compartment behind the hipbelt, and synthetic bags can consume 2,000 or more cubic inches of a pack's stated capacity. With externals, bags are usually strapped to the underside of the packbag. This does not influence the pack's capacity figures.

**By the numbers:** Not every manufacturer measures cubic inches the same way. So one company's measurement of 4,000 cubic inches may differ a bit from another company's calculation.

**Weight:** Internals tend to be a touch lighter, but the differences are minimal. Large packs can weigh up to 8 pounds. That's 8 pounds on your back before you add any gear! This should remind you to buy a pack that fits your ambitions. If you hike only modest distances, you don't need a monster pack.

### Quick Review

**Internal-frame packs**, with their body-hugging design and low center of gravity, are ideal for any outdoor activity — mountaineering, skiing, scrambling and hiking on- or off-trail. They offer you good balance and more freedom of movement. Internal packs are the popular choice of most outdoor adventurers.

**External-frame packs** are good choices for carrying heavy loads over easy to moderate terrain, primarily trails. Their rigid design makes you walk more stiffly and is not the best for rock-hopping or other types of cross-country travel. They cost less than internals.

## Selecting Gear: What's the Right Amount?

How much gear do you need for a safe and satisfying experience in the wilderness? It's a question that yields no easy, one-size-fits-all answer. Your decisions will depend on:

- Your level of outdoor experience.
- Your style of backcountry travel (Do you like low-key strolls? Or high-risk expeditions?).
- Your long-term ambitions.
- Your personal comfort level.

Some basic guidelines, though, can be applied to nearly everyone. Here are some suggestions:

## Fundamental Gear Guidelines

- Select equipment designed to perform in the **toughest overall conditions** you anticipate experiencing. It's better to be a little over-prepared than to find yourself 20 miles from the trailhead and wishing you had chosen a sleeping bag rated 10 degrees warmer.
- Conversely, **don't go overboard** buying too much gear, or expedition-level gear that exceeds your realistic needs. For instance, you probably don't need a GPS receiver for modest strolls in nearby foothills. Good equipment is a big help in the wilderness, but don't view it as a replacement for backcountry smarts and good preparation. Your most valuable asset in the wilderness is an assured, well-informed mind.
- Choose gear that best accommodates your **long-range ambitions**; look beyond your near-term trip and anticipate what your needs will be 2, even 5 years ahead.
- **Try before you buy.** Rent gear or borrow it from friends to help you gain insight on backcountry equipment. It will make you a savvier shopper when you finally make a purchase.
- **Start with the essentials**; add gear as you gain experience. If you are new to outdoor adventure, multi-purpose clothing makes a smart first purchase. Start with a light- or mid weight synthetic top, one that wicks moisture from your skin. Another smart initial purchase: durable, trail-ready footwear. Consider a rugged trail shoe that can handle wet sidewalks as well as slippery trails.
- **Know your personal preferences** and comfort level; work at keeping your load light, but carry enough items to ensure that you feel cheerful (maybe a few favorite food items) and secure (extra flashlight batteries) in the wilderness.
- Understand that all of your gear will wind up **on your back**; strive to be properly equipped while keeping your load light. Don't, for example, take both cups that came with your cook set if you only need 1; skip the lantern if you're already carrying a headlamp.

## What About Price?

It's smart to shop for quality. The good stuff performs reliably and lasts for years. Happily, in this performance-minded industry, even modestly priced gear from established equipment-makers conforms to elevated standards of quality.

## Some Thoughts About Weight

A minimal load typically requires a wilderness traveler to make some soul-searching choices. For instance, should you:

- Skip a tent and opt for only a tarp?
- Leave the stove and fuel behind and rely solely on ready-to-eat foods?
- Minimize your clothing options?

Only you can answer such questions. Reflect on your past outdoor experiences. Can you live the life of a backcountry minimalist and remain content? Or are you really a hedonist at heart? Or do you fall somewhere in between?

We encourage backpackers to travel wisely and lightly. So don't take 2 fuel bottles when 1 will do. Carry a 4-ounce tube of sunscreen, not a 32-ounce bottle. If your tent came with 12 stakes, do you really need to carry them all?

**Tip:** Minimize; just don't compromise.

## Quick Review

The reason you carry gear is to help you feel **comfortable, secure and content** in the wilderness. How much is enough? It depends on your individual standards of comfort, security and contentment. How can you know what those are? Take a hike, get some experience, ask friends for advice—educate yourself about what factors are most important you in the outdoors. Equip yourself accordingly.

**Bottom line:** Know thyself. It's your best first step when approaching a gear purchase.