

### How to Choose a Backpack

Some people need to get out more. Way out, that is — beyond the limits of a day hike, out to lovely, lonely places where a person has the time and space to absorb the deeper satisfactions of what John Muir described as "vast, calm, measureless mountain days."

It takes a backpack to get you there. Modern backpacks, unlike their shoulder-gouging ancestors that you sometimes still see hanging in a neighbor's garage, feature intelligent design concepts that provide surprising comfort and load-carrying efficiency. Such advancements have made the art of self-propelled adventure a much more agreeable pursuit.

Here are some tips gathered over the years by REI that can help you sort through your options:

#### 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, towerlike 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 hipbelt) 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 packbag 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 truck 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.

### Rucksacks

Rucksacks are a third category of overnight packs. These are usually frameless packs (some models include a single stay) that can store between 2,500 and 3,500 cubic inches of gear, enough for 1 or 2 nights — or more, if you are an ultralight specialist. These are essentially overgrown daypacks and often feature lightly padded backs. They are popular with skiers, trail-runners, rock scramblers and peak-baggers.

### 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.

**Framesheet:** 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. These items, and tips for adjusting them, are discussed in our clinic. 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?

REI offers some external-frame packs for less than \$100; a few high-end internals sell for nearly \$500. Most internals cost between \$200 and \$300. Externals rarely exceed \$200.

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. A good rental shop such as REI's will adjust a pack to conform to your body shape. Nearly every REI store includes a rental shop and offers at least 1 REI-brand internal- and external-frame pack. Call your nearest [REI store](#) for details.

### 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.

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**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.

### How Do I Know If It Will Fit?

Fit is crucial. Follow the guidelines detailed in our clinic, [Fitting a Backpack](#). DO NOT SKIP THIS STEP!

The clinic will offer instruction on:

- Measuring your torso
- Selecting a pack size appropriate for your torso length
- Custom-fitting a pack to your body
- Interpreting REI's product specification charts

### What Else I Should Know?

- As our fitting clinic points out, people may be the same height yet have different torso lengths. Make a backpack purchase based on your torso length.
- How do you hoist a heavy backpack onto your back? Study the tips found in our [Packing a Backpack](#) clinic.
- If a pack feels burdensome while you walk, consider porters in Nepal who still transport large loads on their backs using a tump line — a long strap of fiber that wraps around the load, then is worn across the forehead.

### 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.

**Rucksacks** are, in essence, extra-large, frameless daypacks that can accommodate enough gear for a lightweight overnight trip.

**Fit** is crucial. Make sure you review our [Fitting a Backpack](#) clinic and make the effort to have your pack customized for your torso.