

How to Choose a Backpack (excerpts from REI website)

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 packbag 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.

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.

External packs are generally preferred by beginning hikers or those hauling heavy loads over easy to moderate trails and terrain.

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, its 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.

What Features Should I Look For? (see REI web site for more detail)

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.

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.

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 REI's clinic *Fitting a Backpack*. 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/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.

Extras and attachments: Lash points allow you to attach even more gear to your pack if you feel the need. 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.

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.

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.

T27 Note: Used equipment can also be a good bargain, if it is in good shape and fits well. It is fine to visit a store to gain an understanding of the right size pack, etc., then look for a used pack. Some members of the troop may also have extra gear available to be borrowed.

What's the Right Capacity?

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

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.

T27 Note: For Summer Camp, scout's backpacks carry personal gear only (as listed on Summer Camp Pack List). Cooking equipment, tents, etc. are carried separately, *so even though it is a one-week camp, scouts do not need a pack designed for a week of backpacking.*

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.

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?

Determine Your Torso Length

Torso length is a crucial measurement. It is important to distinguish between your height and the length of your torso. Just because you are a certain height — say a 5' 9" female or 6' male — does not mean you automatically need a "large" or "tall" pack. Your torso length, not your height, determines your pack size. Here's how to measure yours:

- Enlist the help of friend. Have that person locate the bony bump at the base of your neck, where the slope of your shoulder meets your neck. (It's known as the 7th vertebra.) Tilt your head forward to locate it more easily.
- Using a flexible tape measure, ask your friend to start at that spot and measure down your spine, following the curves of your back along the way.
- Place your hands on your hips so you can feel your iliac crest—the twin pointy protrusions on the front of your hips. (The iliac crest serves as the "shelf" of your pelvic girdle, the area that is gripped by your pack's hipbelt.) Position your hands so your thumbs are reaching behind you.
- Have your friend finish measuring at the point where the tape crosses an imaginary line drawn between your thumbs. This distance is your torso length.

Generally, your measurement will fall into one of these frame-size categories:

- Small: Up to 17 1/2".
- Medium/Regular: 18" to 19 1/2".
- Large/Tall: 20" and up.

Pack manufacturers typically use general terms (small, medium, large) to identify their frame sizes; look at each pack's technical specifications to find the actual numeric range. REI.com lists those numbers in a chart that accompanies each pack description.

A person with a measurement right on the border (say, 17 3/4") might want to visit an REI store to try on both a small and medium version of a particular pack. REI's product line includes adult packs sized to fit torso lengths as compact as 14" (10" for children) and as long as 23". If your measurement lies outside that range, you might require a custom-built pack.

Determine Your Hip Measurement

While not as crucial as your torso length, your hip measurement is useful to know. It's very helpful if you are considering a pack that offers interchangeable hipbelts.

Take your tape measure and wrap it around the top of your hips, the "latitude line" where you can feel your iliac crest — those two pointy bones just above the front pocket on your pants. A properly positioned hipbelt will straddle your iliac crest, about an inch above and below that line.

Test Fit Your Backpack

At REI, we acknowledge that shopping for a backpack online is not the same as examining the packs firsthand. How do you know if it's going to feel good without first trying it on? A comfortable fit, after all, is crucial to your satisfaction. To be fair, you need to keep in mind that no fully loaded pack ever feels truly "comfortable." What you are seeking to avoid is any sharp or unreasonable discomfort.

Visit the REI web site for detailed steps to getting a good fit, or go to REI or other store with knowledgeable salespeople for assistance.