Backpacks: How to Choose

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Your goal is to find a backpack that fits your:

- **Trip length** (are you going out for an overnighter or for a week or more?)
- **Personal style of backpacking** (are you more into comfort or weight savings? Is your gear old and bulky or weight- and space-efficient?)
- **Body type** (your torso length, not your height, matters most)

This article is dedicated to helping you achieve a good match on all fronts.

Pack 101: Choose the Right Capacity

REI sorts its backpacks according to their capacity—the volume of space available inside a pack. This is expressed in liters, and it's often indicated by in a pack's name. The REI Flash 65 is, no surprise, a 65-liter pack. Why liters? Compared to cubic inches (65L = 3,967 cu. in.), they're easier to remember and to compare.

What volume is right for you? It varies by person, sometimes by a wide margin. The following chart provides a ***general guide*** for which pack sizes typically work well for backpackers during summertime hikes. Your results may vary, naturally. Think about the types of trips you most often pursue to gauge where you fit on this grid:

Type of trip*	**Pack capacity (liters)**	**Empty pack weight (lbs.)**
Day or overnight (1-2 nights)	20-50	1.5 to 4.5
Weekend (2-3 nights)	50-60	2.5 to 5
Multiday (2-5 nights)	60-80	2.5 to 5+
Extended (5+ nights)	80+	4 to 6+

* Spring through fall; winter trips usually require a larger pack.

Some questions to ask:

Q: How many days is my typical backpacking trip?

A: REI uses trip length as one way to categorize packs for easier shopping.

Q: What if I do both short and long trips?

A: Consider 2 packs: a smaller, lighter model for short trips and a large pack for longer trips or cold-weather hikes. Alternatively, choose 1 pack that can carry enough gear for the longest trip you expect to pursue. Larger packs (60L and higher) will work fine for shorter trips.

Q: What liter capacity might be right for me?

A: 60 to 80L (multiday) packs, the most popular packs sold at REI, are an excellent choice for summer-weather backpacking trips lasting 2 or more days.

60 to 80L packs are also used for:

- Backcountry skiing: for day trips, overnighters and sometimes 2-night trips.
- Climbing: for summit attempts that require an overnight stay during approaches.

Efficient packers using newer, less-bulky gear can really keep things light on 1- or 2-night trips by using a pack in the **20 to 50L range** or on 2- to 3-night trips in the **50 to 60L range**. Just be aware that packing light requires self-discipline and careful planning. If you can pull it off, though, the light-on-your-feet rewards are fantastic.

Extended trips of 5 days or more usually call for packs of **80L or larger**. Savvy ultralight specialists, however, often go long distances with packs smaller than this. Just be aware that until you have mastered ultralight packing techniques, a pack can fill up pretty fast, particularly when weather is unpredictable.

Packs 80L and larger are also usually the preferred choice for:

- Winter treks lasting more than 1 night.
- Adults taking young children backpacking. Mom and Dad wind up carrying a lot of kids' gear to make the experience enjoyable for their young ones.

Shop REI's selection of backpacks.

For tips on pack loading, see the REI Expert Advice article on How to Load a Backpack.

Q: What if I consider myself an ultralight backpacker?

A: "Ultralight" (or UL) is a term open to broad interpretation. At REI we apply it to experienced backpackers who diligently minimize bulk and weight, even if doing so requires the sacrifice of some comfort and convenience features.

At one end of the ultralight continuum are the minimalists. We at REI stand in admiration of their commitment while recognizing their ranks are so small and needs so specialized that our mainstream-leaning product mix does not fully serve them. Yet REI does offer an assortment of packs that we regard as ultralight: lighter than conventional gear, yet more durable and embellished with a few dashes of comfort features that distinguish it from hardcore minimalist gear.

Depending on the skills and aspirations of the individual backpacker, an ultralight pack can carry sufficient gear for 1 night, 1 week or even a thru-hike.

Q: What time of year do I plan to backpack?

A: Summer? Stick with the guidelines outlined in the above chart.

If you explore in the chillier portions of spring and fall, regularly spend extended time at high elevations (above 8,000 feet/2,434 meters) or camp in winter, a larger-capacity backpack is the best choice. Larger packs can more comfortably accommodate extra clothing, a warmer sleeping bag and a 4-season tent (which typically includes extra poles).

Q: What if I often hike in areas where bear canisters are required, like the Sierra Nevada?

A: If you're shopping in an REI store, you can test-fit a canister in packs you're considering. My personal experience has taught me that I need at

least a 62-liter pack to carry a canister without overstressing the pack. But that's just me.

For anyone more familiar with calculating pack capacity in cubic inches, here are 2 conversion tables to assist your thinking:

Liters to Cubic Inches		**Cubic Inches to Liters**	
Liters	Cubic In.	Cubic In.	Liters
10	610	100	1.6
40	2,441	1,000	16.4
50	3,051	2,000	32.8
55	3,356	2,500	41
60	3,661	3,000	49.2
65	3,967	3,500	57.6
70	4,272	4,000	65.5
75	4,577	4,500	73.7
80	4,882	5,000	81.9
85	5,187	5,500	90.1
90	5,492	6,000	98.3

A note on packs and liters: Liter counts apply to a pack's medium size, the average of its size range. The packbag of the REI Flash 65, for example, varies by approximately 3 liters from size to size. The model that fits small torsos offers roughly 62 liters of capacity, the medium 65 and the large 68. This is typical of all pack brands.

Pack 102: Choose a Pack That Fits Your Torso

Pack capacity is a key consideration, yet **nothing is more important than choosing a pack according to your torso length**. No matter how little or how much gear you're carrying, you want your pack to fit your frame comfortably.

The right fit is one that offers:

- A size appropriate for your torso length (not your overall height).
- A comfortably snug grip on your hips.

Know your torso length before you begin shopping. How? Find a flexible tape measure, enlist the assistance of a friend and follow the directions provided in the REI Expert Advice article on Finding Your Torso and Hip Size. Your torso length is the distance between your C7 vertebra (the most noticeable protrusion on your upper spine) and the rear "shelf" of your hips.

Once you know your torso length, check the specs of a pack that interests you. See if it available in multiple sizes (small, medium, large) or if it offers a single size with an adjustable suspension that can be modified to fit your torso. Here is how manufacturers typically size their packs:

Men's and Women's	
Pack Size	**Torso Length**
Extra small	Up to 15½"
Small	16" to 17½"
Medium/Regular	18" to 19½"

Large/Tall	20"+

What about **waist size**? Some packs offer interchangeable hipbelts, so it's also good to know your waist measurement. (The majority of a backpack's weight, 80% or more, should be supported by your hips.) To find your size, take that flexible tape measure and wrap it around the top of your hips, the "latitude line" where you would normally place your hands on your hips.

Some packs offer interchangeable hipbelts, making it possible to swap out one size for another. Most people do not need to switch hipbelts, since backpack hipbelts usually accommodate a wide range of hip sizes, from the mid-20s to the mid-40s. People with narrow waists, though, sometimes find they cannot make a standard hipbelt tight enough and need a smaller size.

REI carries replacement hipbelt parts for packs from various brands, so REI pack-fitters can often customize the fit to accommodate a backpacker's waist and torso measurements.

Many Osprey packs feature an IsoForm Custom Moldable Hipbelt. REI stores are equipped with small ovens that allow you to customize the shape of the hipbelt in a few minutes.

Also available:

Women-specific backpacks: These are engineered to conform to the female frame as follows:

- Torso dimensions are generally shorter and narrower than men's packs.
- Hipbelts and shoulder straps are contoured with the female form in mind.

Youth-specific backpacks: These typically offer smaller capacities and include an adjustable suspension to accommodate a child's growth.

Women's backpacks, with their smaller frame sizes, often work well for young backpackers of either gender. So do small versions of some men's packs.

Fitting tip: If you can visit a store, throw some weight into packs that interest you and try them on. REI stores are equipped with weighted bags that can create a basic approximation of how a typical pack load might feel. Every brand fits a bit differently and offers different support features. It's wise to try on at least 3 models and spend some time meandering around the store wearing them on your back. It's not exactly the same as walking on a trail, but you'll at least be able to tell if you and the pack are compatible.

Fit Customization Tips

The sections above are the primary considerations of pack selection. The following information is less important, but still worthwhile to consider.

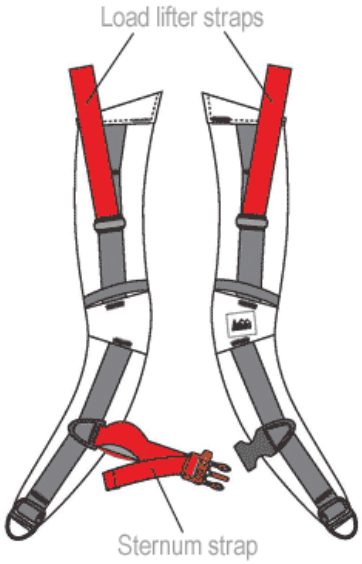
Here are some ideas to personalize your pack fit:

Adjustable suspensions: On some packs, the shoulder harness can be repositioned (often using a "ladder" system of adjustment points) to provide a better fit. This is a nice feature for backpackers who have "in-between" torso lengths—almost medium, not quite large, for instance. The drawback: An adjustable harness adds a little weight to a pack.

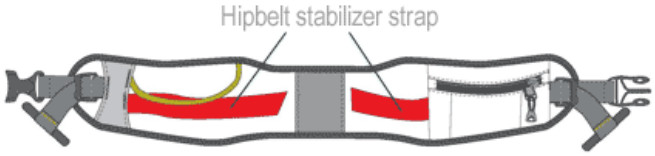
Adjustment points: The weight of a backpack, as noted earlier, should rest primarily on your hips. Your back, shoulders and upper pectoral region will share in the task secondarily. To optimize comfort and stability, play around with your pack's adjustment straps:

- **Load-lifter straps:** They're stitched into the top of the shoulder straps, and they connect to the top of the pack frame. They don't necessarily "lift" the load, but the name has stuck. Ideally, they will form a 45° angle between your shoulder straps and the pack. Kept snug (but not

too tight), they prevent the upper portion of a pack from pulling away from your body, which would cause the pack to sag on your lumbar region. Left too loose, they allow the pack to tip backward, compromising balance. Note: If load-lifter straps are angled higher than 60° or flatter than 30°, the pack is likely not an ideal fit for your torso.



- **Stabilizer straps:** Found on the side of the hipbelt, they connect the belt to the lower region of the packbag. Keeping them snug improves balance.



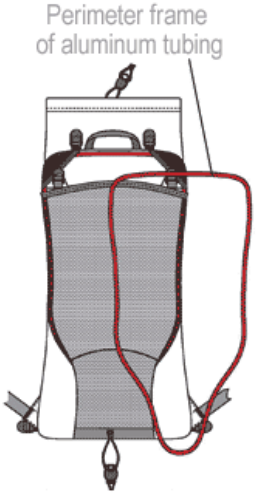
- **Sternum strap:** This mid-chest strap allows you to connect your shoulder straps, which can boost your stability. It can be useful to do so when traveling on uneven cross-country terrain where an awkward move could cause your pack to shift abruptly and throw you off-balance.

Load Support

The human body's best load-carrying platform? Our hips, part of the pelvic girdle (one of the body's biggest bone structures) which is supported by the body's largest muscle group—the quadriceps and hamstrings of the upper legs.

External-frame backpacks ruled the market through the 1970s, but by the 1990s internal-frame dominated. Externals excelled at toting heavy loads on constructed trails; body-hugging internals, originally embraced by backcountry skiers, won over backpackers for their ability to keep a hiker stable on uneven, off-trail terrain.

A new wrinkle has surfaced in recent years, a hybrid approach known at REI as perimeter-frame packs. By routing a small-diameter tube of aluminum around the periphery of the packbag, the design achieves the load-carrying excellence of an external design. It rides close to the body like an internal, only without the added weight of internal support stays and a back-protecting polyethylene framesheet. It has proven to be a popular technology used in several REI backpacks as well as packs from other brands.

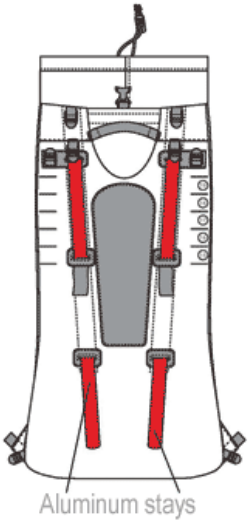


Is one approach considered superior? It often comes down to a matter of personal taste. Since roughly 2010, internals and perimeter-frame packs are both hot sellers at REI.

Here are some load-support terms or technologies in commonly found in today's packs:

Aluminum stays: Flat support rods used in internal-frame packs, typically 1-inch wide, that more or less parallel the spine, forming

something close to a V-shape at the hipbelt.



Crossing (X-shape) stays: Lends a touch of flexibility to a pack's back panel.

Framesheets: A thin, stiff layer of plasticized, semi-rigid material that supports the packbag while also preventing the contents from poking a hiker in the back. Some framesheets are also reinforced with aluminum stays to provide more substantial support. Many materials are used to create framesheets, though none has proven overtly superior. Materials include:

- High-density polyethylene (HDPE)
- ABS plastic
- EVA or molded foam
- Thermomolded polypropylene
- Polyamide

Spring steel: Used in smaller-capacity packs (less than 50 liters), spring steel features excellent shape retention—it quickly springs back into shape. It is especially useful in packs that offer a tensioned-mesh back panel for increased air circulation. (See more in the ventilation section below.) Its weakness: Spring steel bends fairly quickly when exposed to heavy weight.

So while load-support techniques vary, all seek to efficiently focus pack weight on the hips while keeping weight low.

Accessing Your Gear

How easy is it to locate and dig out an item you need? It depends on a pack's configuration.

Main compartment: Top-loading openings are pretty standard. Items not needed until the end of the day, such as a sleeping bag, go deep inside and on the bottom of single-hole backpacks. Panel-loading packs still exist, but mostly in smaller-volume packs.

Pockets: They were scarcely seen on many internal models for years (less obstruction for swinging arms), but they've made a comeback in recent years, largely because people like them and find them handy, even if they add fractional weight to a pack. Typical offerings:

- **Elasticized side pockets:** They lie flat when empty, but stretch out to hold a water bottle, tent poles or other loose objects.
- **Hipbelt pockets:** They accommodate tiny items—snacks, packets of energy gel, etc.
- **Shovel pockets:** These are basically flaps stitched onto the front of a packbag with a buckle closure at the top. Originally intended to hold a snow shovel, they now pop up on many 3-season packs, serving as stash spots for a map, jacket or other loose, lightweight items.
- **Front pocket(s):** Sometimes added to the exterior of a shovel pocket, these can hold smaller, less-bulky items.

Note: What is the "front" of a backpack? The exterior; the side opposite the back panel and harness system. Since the whole pack rides on your back, and the exterior side is farthest from you when you're on the trail, it may seem a little odd to refer to that area as a backpack's "front." But just FYI, that's what pack designers call it.

Side zippers, front zippers or front panels: These are extras (not found on every pack) that make it possible to probe a pack's interior without excavating the entire pack from the top. The only negatives: Such extras can add an ounce or two to a pack, and it can be argued that they add a potential weakness/breaking point to the pack cavity's design.

Sleeping bag compartment: This is a zippered stash spot near the bottom of a packbag. These almost disappeared entirely from packs for

a few years, purged in an effort to save weight. Enough backpackers howled in dismay that they have returned on many models. They're useful primarily to people who shun a stuff sack for their bag.

Top lid: Many packs offer a zippered top lid where most backpackers store quick-access items: sunscreen, insect repellent, camera, snacks, map. Some lids detach from the main pack and convert into a hipbelt pack for day trips.

Attachment points: If you frequently travel with an ice axe or trekking poles, look for tool loops that allow you to attach them to the exterior of the pack. Rare is the pack that does not offer at least a pair of tool loops.

Other Pack Considerations

Hydration: Nearly all packs offer an internal sleeve into which you can slip a hydration reservoir (almost always sold separately) plus 1 or 2 "hose portals" through which you can slip the sip tube.

Ventilation: This is a drawback of internal-frame design. Much of the pack rides on your back, cutting air flow and accelerating sweaty-back syndrome. Designers have addressed this in a variety of ways—ventilation "chimneys" built into back panels, for example. A few packs have engineered a trampoline-like design sometimes called "tension-mesh suspension." Your back rests against a mesh-only back panel, and the mesh provides improved breathability. The frame-supported packbag rides along a few inches away from your back. This design is found on selected packs from Osprey, Deuter and Gregory and REI.

Materials and durability: Ultralight packs use ultralight materials, a factor that lightens your load but puts the pack's durability at risk. Materials (mostly nylon) used in REI packs range from lightweight 140 denier (140D) to super-rugged 840D.

Padding: The race to lower pack weight has sacrificed some padding in hipbelts and lumbar pads. If you keep your pack weight low, this is usually not an issue. But overloading a lightweight pack with a fairly minimalistic hipbelt and lumbar pad can sometimes cause sore spots on your hips and lower back. If this is the case for you, consider using a cushier hipbelt.

Climbing packs: REI carries a few packs designed primarily as climbing packs. Most, though, have modest capacities (50 liters or less) that are appropriate only for day trips or overnighters. Common features include:

- The ability to strip down the pack to its minimal weight (removing the lid, framesheet and possibly the hipbelt) for use during a summit push.
- Several lash-on points for external tool attachment.
- A daisy chain—a length of webbing stitched to the outside of a pack—to provide multiple gear loops for attaching a helmet or tools.
- A reinforced crampon patch (to prevent crampon points from gouging holes in the packbag).
- A narrower, sometimes higher profile than a usual packbag, permitting unencumbered arm movement.
- Gear loops on the hipbelt or low on the pack body, useful as clip-on points for gear or possibly as attachment points for skis.

Summit pack: Earlier this article mentioned a detachable top lid as a desirable feature when planning day trips out of a backcountry basecamp. Another option: Carry a featherweight summit pack. Consider

the REI Flash 18, a 10-ounce sack with shoulder straps. Turn it inside-out and it becomes a stuff sack. Clever.

Rain cover: Pack fabric interiors are usually treated with a waterproof coating. Yet packs have seams and zippers where water can seep through, and the fabric's exterior absorbs some water weight during a downpour. The solution is a packcover, which could be a plastic garbage bag (cheap but clumsy) to a more customized packcover. If you expect rain on your trip, this is good item to carry. An alternative: bundling gear internally in waterproof "dry" stuff sacks. Dry sacks can be a better option in windy conditions; strong gusts have the potential to abruptly peel a cover right off a pack.

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