

# How To Choose A Headlamp



No matter what your sport or activity, a headlamp is a critical piece of gear for your kit.

Not just any headlamp will do; headlamp capabilities vary greatly, and you want to be sure to select the proper headlamp for your use. For example, I do my best to get out trad climbing on a regular basis, and occasionally I run into dusk. Last summer I found myself on the fourth pitch of a multi-pitch climb, here in the Wasatch called “Eleventh Hour.” Getting a late start and finishing the fourth and final pitch after midnight in complete darkness made this a memorable climb. As I climbed the beautiful finger crack, the thought of ‘what if my head lamp fell a few hundred feet to the talus field below?’ crossed my mind. Having my trusty Black Diamond Storm headlamp was the proper choice since it fit my helmet just right and provided ample lighting as I navigated the climb.



*Your choices in headlamps can vary hugely, from \$20 general-purpose lamps to \$500 multi-mode, high-powered, professional-grade lamps. (left: Petzl Tikikina; right: Petzl Ultra Rush Belt Headlamp)*

There are various headlamp features you'll want to consider when shopping:

## Lumens

The term “lumens” is used to quantify the amount of light being put out by a light source. Lumens are not to be confused with ‘watts,’ the amount of energy required to power the light source. Headlamps can range from 15 on to up 500+ lumens. Headlamps at the lower end of the lumen range are great for use at campsites and in groups, as they won’t be so bright as to irritate the people you’re with. On the other hand, if you’re caving, climbing, or in any other situations when lighting up large areas is critical, you’ll want to look at the other end of the range, at headlamps that offer an output of 200-500+ lumens.

As the life of the batteries decreases, the lumen output does as well, dimming your lamp. To help extend the battery life and light output of select headlamps, many models have either a dimmer or a feature to go between different modes that adjust the amount of lumens being output; LED bulbs make this possible.

## Beam Type And Brightness/Mode

Headlamps generally feature two different beam types: a floodlight and a wide (spot) beam; some higher-end models can switch to either mode. Headlamps can also provide a number of different beam modes:

- Flash or strobe to preserve battery life or signal in emergencies
- Boost or zoom mode provides a high-intensity beam for short period of time
- Different levels of brightness—at a minimum high and low, and some will offer more options in between
- Red light mode is good for use in the tent without disturbing others or for viewing wildlife or stars. Red light is used because it does not cause the pupils of a human eye to dilate, so you don’t lose your night vision.



*The various modes of the Snow Peak Snow Miner Headlamp.*

## Beam Distance

While having a light source is critical to navigating in the dark, knowing how far the headlamp can project usable light is important when rappelling or bicycling in the dark. However, having a headlamp with a greater beam distance will speed the depletion of the batteries and can be overkill if you're just rummaging through your backpack in a shelter in the Great Smoky Mountains. Manufacturers test headlamps and define the beam distance for that model with brand new batteries. Know that beam distance will decrease as battery power is drained.

## Runtime

When it comes to runtime or "burntime," good old-fashioned hours are used to quantify how long the headlamp is able to produce usable light at a distance of two meters. Manufacturers determine the runtime by testing the headlamps with the same type of batteries that the headlamps will be sold with. It's important to note that these tests are generally conducted with the lowest

setting the headlamp has. Knowing the runtime of a headlamp in each mode is critical, especially when heading out for a night hike, as that can be the difference between spending the night out or making it back to your car. We recommend carrying extra batteries in your pack if you can.

## Size & Weight

Generally headlamps are of a consistent size but there are a few outliers. There are a few very basic and simple options that are intended for use in an emergency kit. On the opposite end of the spectrum (no pun intended) there are headlamps that are much bigger and heavier due to the additional battery pack and quantity of LEDs in the lamp. These can be found in setups designed for spelunking, canyoneering or perhaps night rides on your mountain bike.

## Water Resistance

In the apparel world, waterproofing and breathability ratings are used to quantify a certain level of performance the user can expect. In the headlamp world, the standards generally come in IPX ratings. IP stands for “Ingress Protection” and the X tells the user that there is no dust rating. On the lower end of the IPX rating system there is IPX-0 which means the housing is not water-resistant at all and any contact with water will result in damaging electronic components.

Many headlamps offer protection in the IPX-4 through the IPX-7 range. IPX-4 means that the electronics can withstand splashing liquid from any angle, while IPX-7 means the device can be submerged in liquid to a depth of three feet for thirty minutes. It is important to check the waterproof / water-resistance rating so you don't pick out a headlamp with an IPX-4 rating when you have the chance of ending up in a pothole at the end of a rappel when canyoneering. More casual users or campers won't likely need a waterproof headlamp, which run at a much higher price point.

## Power Source

There are a variety of headlamp power source options to suit different users. Many headlamps operate on AAA or AA batteries, which are simple to replace if you remembered extras. Headlamps like the Petzl Tikka R+ or the Tikka RXP offer a mini-USB recharging option, so you can recharge between trips or even out on the trail if you have a portable or solar power source with you.



*Recharging the Black Diamond ReVolt on the trail with a Goal Zero solar panel.*



External battery packs can be found on certain models that are geared towards using for an extended period of time or on cold days, when having the power source tucked against your body can prolong the life of the battery. They also tend to be larger, either to power a higher-lumen headlamp or to get extended run times; carrying a large, bulky power source on your head can be difficult and distracting, so it makes sense to carry it in your pocket or clipped to your belt instead.

## Additional Features

There are some great features to be aware of when picking up the proper headlamp. In some cases extra functionality isn't necessary but there are situations where these added elements come in handy:

- A dimmer function is great when trying to conserve battery life or trying not to irritate people at a camp site.
- The tilt feature is great for tilting the headlamp to illuminate the ground while walking. Instead of needing to look at your feet, you can tilt the headlamp down to illuminate the path.
- Light sensors that adjust the lumen output based on the amount of light bouncing back-light sensors provide the user with the ability to dim or increase light output automatically based on the setting without the user needing to continually adjust the settings.
- Lock-out features are key for storing a headlamp in your pack while on a trip. Nothing is worse than having a headlamp turned on inside your pack, draining the batteries.

Keep in mind there are a lot of features and performance levels to choose from. Knowing the intended settings for use will make the selection process easier since not all headlamps perform the same. Certain features may not be required for your emergency kit, while others may be absolutely necessary for your 24-hour endurance race. Below are some features to look for, based on your intended use:

- Running: Light weight, high beam distance
- Trail biking: High beam distance, spot beam
- Camping: Water-resistant, red light, rechargeable batteries
- Climbing: Tilt feature, spot beam
- Hiking: Water-resistant, lock-out, light sensors, tilt features