

Mountain School Tech Tips: All About Ice Axes

The days of the wooden shafted ice axe (apart from crossed over mantels in expensive ski chalets) are long over – lightweight aluminum ice axes are now most people's tool of choice. To determine the right length for a general mountaineering axe, hold the head of the axe in your hand with your arm straight by your side and the ferrule (spike on the end) should just graze the floor. Some aluminum shaft axes have a rubber coated shaft which makes them a bit warmer to hold onto, but somewhat more difficult to plunge into harder snow. Aluminum heads are nice and light, but might bounce off if you find yourself chopping steps in hard snow or ice and are probably only suitable for winter use only. One piece steel heads weigh a little more but are sturdier and can be used year round.

On moderate angle snow slopes, holding the axe like a walking stick will generally offer sufficient security for most climbers (there is a pompous French term for this). Most people tend to hold the axe with the pick towards the back of the hand – the self-arrest position – so a slip can be quickly caught. When ascending slopes diagonally, the in-balance position is with the downhill leg straight and the inside leg above and ahead of the downhill leg. The most secure movement sequence is to first move the axe up and plant the shaft firmly into the snow, move the outside leg up (out-of-balance), then the inside leg (back to in-balance), repeat. Descending will generally involve facing out and moving down with an aggressive plunge step. Step down landing on the heel with a straight leg and drive your heel onto the snow for a nice secure step. If you need a self-belay, reach down and plant the shaft of the axe firmly into the snow **below** you. Should you slip, your weight should drive the shaft more firmly into the snow. If the axe is above you as you descend, a slip will result in levering the shaft out of the snow and you'll lose your self-belay.

On steeper slopes, you can use your ice-axe as a stake, plunging the shaft into the snow in front of you, holding it with two hands and kicking steps straight up-hill. You can either have one hand on the head of the axe and one on the top of the shaft, or both hands on the head. Descending facing in is slower, but more secure than facing out. Remember to plant the shaft of your axe as far in as possible to maximise your self-belay.

While the self-belay is a preventative move, it's also necessary to have a recovery move – the ability to self-arrest. In order to be effective, you must be able to **quickly** get into the self-arrest position from all the possible positions in which you could fall – head first, feet first, on your back or stomach. The only way to be able to reliably and quickly self-arrest is to practice, hard-packed ski runs at the end of the season make a good location.

References (all available in KMC library for loan):
Mountaineering: The Freedom of the Hills
Alpine Climbing: Techniques to Take You Higher
Modern Snow and Ice Techniques