

Safe Vertical Caving

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From time to time we hear about people who get in trouble while on rope. Although there can be many reasons for the difficulty, it usually can be attributed to one of two reasons: inadequate equipment or an inability to perform the required skills. With adequate training and preparation, problems can almost always be avoided. In this article, I'll present some of the equipment needed to safely cave on rope. I am not aware of any established standards on this topic, so what follows are only my thoughts, developed over time from experience. As always, your thoughts and ideas are always appreciated. You can contact me at: cave_safe@hotmail.com.

We all approach caving a little differently. Some of us are “minimalists” who only take exactly what we will need on our trip and nothing more. In some cases, that may be all that we own. Other people are “gear heads” with plenty of equipment and need to choose what to take on a trip. Regardless, one needs to take enough equipment on the trip and know how to use it properly. What is “enough” depends on the type of trip, individual training, and experience of all of the cavers on the trip. While some people may be very comfortable climbing on knots with a tied harness made from webbing, the intent of this article is to discuss the equipment used by the caver who will want or need a sewn seat harness, mechanical ascenders and typical friction-based descent devices.

Over time and with experience, some cavers begin to choose what they take based on the potential problems that could be encountered on the trip. This is

a great idea in theory, but can easily lead to problems if too much equipment is taken, especially if the caver carrying all of this gear has a large, heavy pack and the trip is very long or has narrow passages. However, taking the absolute minimum equipment on a trip will limit options if any problems arise. Obviously, a reasonable balance between these opposite extremes needs to be established. The intent of this article is to establish the minimum equipment required for an individual to stay safe while on rope as well as define the extra equipment which will be most useful if problems arise.

Since one should not go underground without an adequate helmet, light, clothing, gloves and boots, I will presume, that you already have this equipment (see my articles on how to prepare for a cave trip in the June and October 2007 NSS News.) This article is directed at the things which are unique to vertical caving.

First, there are many types of climbing systems to choose from. Personal preference, the type of vertical caving that you are most likely to be doing, and comfort are three factors on which to base the choice of a climbing system. Whichever system you choose, be able to use it effectively and know what the limitations and problems are and how to deal with them on rope. Some of the more popular climbing systems would include the “Frog”, “Mitchell” and “Rope Walker.” The differences between the “Frog” and “Rope Walker” illustrate the types of choices that one must make when choosing a climbing system. No one system is perfect for every scenario, or person, and at some point each becomes a less than optimum choice. With time you may become familiar with more than one system and you may them in very different scenarios.

The “Frog” is very popular because it is compact, requires minimal gear and functions very well with

short climbs and scenarios where the climber needs to maneuver while on rope (for example rebelay). A “Rope Walker” has more hardware and is therefore heavier and bulkier than a “Frog,” but it really comes into its own on long free drops where it is possible for a fast climb to occur. I have and use both systems. I generally use my “Frog” when caving in the Virginia Region with climbs of 200 feet or less, especially when I need to do a lot of maneuvering while on rope. I usually use my “Rope Walker” on the longer drops in TAG and in Mexico. But I have also used it when I am tired after a very long cave trip and want to get up the rope with the least amount of energy expended. It is a little more expensive to own two systems instead of one, but the versatility is probably worth it. That said, many people only own one system or the other and make it work for all situations. If you are new to vertical caving, talk to the people you cave with and see which systems are in use in the area you will do most of your caving.

Once you start using a climbing system, take the time to keep it in good condition. It is a good idea to inspect it periodically and make sure that everything is working OK. Replace any equipment that is worn out or not working properly. You are, after all, dealing with your life when you get on rope. Is it worth the few bucks that you will save by NOT ordering a new harness or ascender when your old one is worn out? The best you can hope for in a case like this is that you will just be severely embarrassed when your poorly maintained gear fails at a critical moment and delays everyone else’s departure from what should have been an easy cave trip. Of course, your equipment might also fail and kill you too.

When you make repairs to your climbing system, avoid the temptation to replace the screw links and mallions you use for life support with stuff that you can buy in a hardware store. The stuff you find there is not intended for climbing and if used in that way has an increased risk of failure. You should also be careful about using rock climbing gear for vertical caving. Rock climbers have some very good equipment, but it generally works best with a clean, dry rope – something that we frequently do not have in vertical caving.

Just as important as your climbing system is your descent device. The best choice for a cave environment would be either a rack or a figure 8, because they work well with the dirty, wet conditions typically found in a cave. The primary issue to sort through is the size and the weight of the device that you plan on using. As a general rule, racks are more versatile than figure 8’s and the larger the rack the more control you will have over your rappel. A lot of people use micro racks and figure 8’s because they are small and light, but what they are usually giving up is the ability to control the speed of their rappel. It is critical that you understand how your descent device works and that you know how to solve any of the potential problems that you are likely to have while you are on rappel.

Regardless of the type of climbing system and descent device you use, there are several useful upgrades and modifications which every caver should consider making to their system. The first is to add a “Quick Attach Safety” or “QAS.” This is an extra ascender used to help the climber always maintain two points of attachment when changing ropes, performing changeovers or negotiating difficult lips. The type of ascender used in a QAS is not as important as being able to manipulate it with either hand while you are in a very stressful situation.

A second useful modification to any climbing system is to have the length of your top ascender and QAS be adjustable. When this is done your ascenders



Figure 1
A non-adjustable Petzl SPELEGYCA cowstail.

can always be adjusted to the length that you need instead of the length that you were sold. This can be seen very clearly in Figure 1, where the Petzl Spelegyca with a cowstail (frequently sold with a Frog climbing system) is of a fixed length that can not be adjusted while on rope. Although its size is adequate for many, it will never be a perfect fit for most people. On the other hand, an ascender with an adjustable lanyard can always be exactly the length that you need (Figures 2 and 3). Adjustable lanyards can be bought from vendors, but if you know your knots, you can make your own. Using adjustable gear will frequently make your system a little less compact, but it is worth its weight in gold if it can get you out of a tough situation with a little less effort.

The third and final modification that I make to my climbing system is to always use a “French Wrap”

or “auto block.” Its purpose is to stop your rappel if you ever become unconscious or incapacitated for any reason while you are on rope. It has been used by rock climbers for many years and has only recently begun to be used by cavers. It is an excellent and nearly fool proof piece of equipment to add to your climbing system and is well worth the effort to learn and use. For those of you who are unfamiliar with the “French Wrap” and want to no matter what you do, you want to concentrate on developing the required skills, knowledge and vertical competence needed to keep yourself safe while on rope.

We will talk about what those skills are at another time. Until then, cave safely!

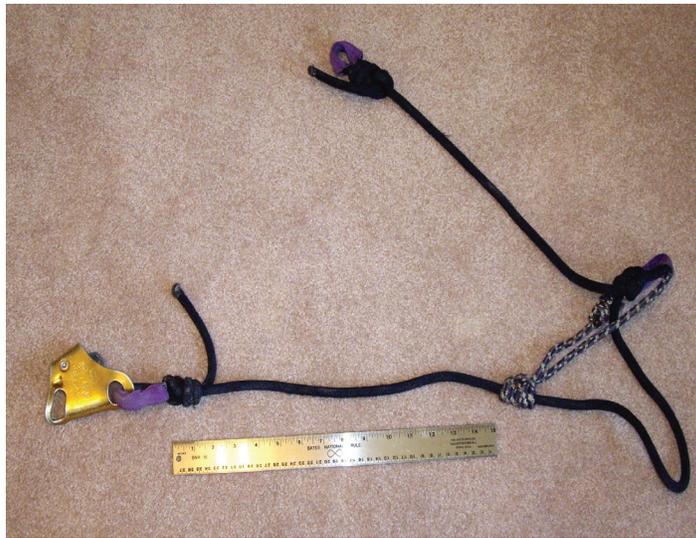


Figure 2
An adjustable ascender that has been shortened for a shorter reach.



Figure 3
An adjustable ascender which has been fully extended for the longest reach possible.