

# Risk and Safety

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***"Risk can never be eliminated, Safety can never be guaranteed"***

The above quotation from the UK's HSE reveals a fundamental truth, one that is often misunderstood, most particularly by journalists. Too many people think of Risk and Safety in simple objective black and white terms, but this is quite wrong. Consider this: It is safer to sit in a car and watch someone walk up Box Hill in Surrey than to actually walk up Box Hill yourself; this in turn is safer than walking up Snowdon, which is safer than climbing Tower Ridge on Ben Nevis, which is safer than climbing the Grand Jorasse on the Franco-Italian border by the Whymper Route, which is safer than climbing Mount Everest via the South Col, which is safer than climbing K2. But people have died doing all of these things, so for none of them is safety 'guaranteed'. Similarly, people have completed all of them safely, and have often earned widespread praise for achieving the harder objectives listed, so none of them can be unequivocally condemned as unsafe. This illustrates the nature of risk and safety, which, far from being describable in black and white terms, can more accurately be likened to an infinite range of shades of grey. There is also a strongly subjective element, since a mountaineering activity that would be of low risk to a very fit and strong mountain guide might be near-suicidal for the man on the Clapham Omnibus.

***Although Risk can never be eliminated, it can and must be minimised.***

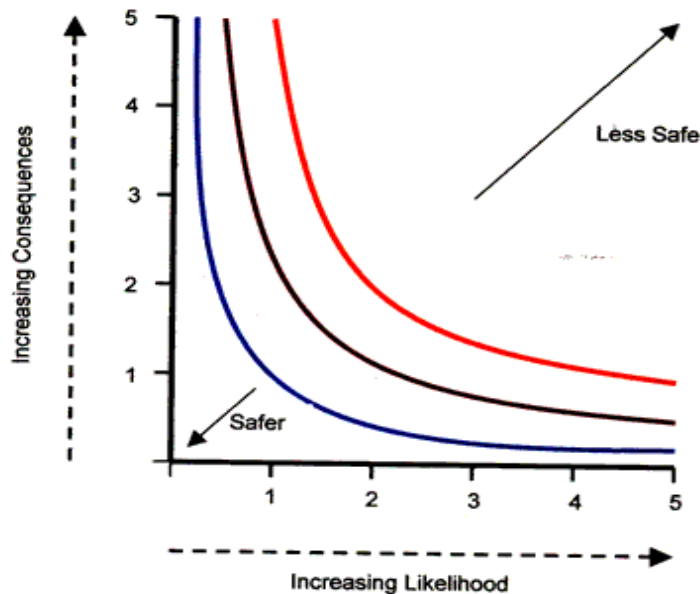
***Although Safety can never be guaranteed, it can and must be maximised.***

## **The Definition of Risk.**

Risk is best thought of as the product obtained by multiplying together two factors, 'Consequences' and 'Likelihood'. If either one of these factors is vanishingly small, then the 'Risk' is insignificant, however great the other factor. This becomes obvious if one considers examples at opposite ends of the same activity. Consider a school football team playing an away match:

- The likelihood of the school minibus taking them to the away venue having a head-on collision with a loaded fuel tanker is exceedingly remote, so the Risk is considered insignificant despite the high probability of killing the whole team if it ever happened.
- The consequences of bruises and grazes during the match are so far from being considered life-threatening, that the Risk is considered insignificant, despite the near certainty of such minor accidents happening.

Perhaps the best way to visualise this concept is to consider a graph, with Likelihood and Consequences plotted along the two axes. To make this a useful tool, numbers are usually added. The curve which separates the low-risk part of the graph from the high-risk part is called a rectangular hyperbola in mathematical jargon, but it is important to realise that it is not really a single narrow curve but a family of fuzzy curves.



## **Risk Assessment and Risk Management.**

**Risk Assessment.** Schools and similar educational establishments usually have a defined procedure in place covering Risk Assessments. A formal Risk Assessment is a paperwork exercise that takes place before the venture to which it relates can be authorised. It is documented, signed, countersigned and securely filed for a defined period after the venture has been completed to ensure that the possibility of litigation has died down. Such formal Risk Assessments are not encountered within voluntary organisations such as mountaineering clubs.

**Risk Management.** Risk Management is the term used to describe the management of risk during the venture itself, and is carried out 'on the hoof'. It requires constant vigilance, the ability to recognise and assess dangers, and the willingness to take the most appropriate action. It should be Standard Practice for all parties out in the hills. If a mountaineering party has a defined leader, then that leader assumes this responsibility on behalf of the party. In many mountaineering clubs, peer groups venture out into the mountains without clearly defined leaders, and in such cases it should be for the more experienced members of the party to assume this role and share with their companions any concerns they might have. A common failing, particularly with parties from the lowlands who have sacrificed scarce annual holiday for a pre-booked and paid-for mountaineering holiday, is to suffer from 'push-on-itis', continuing with a planned venture even though the weather and conditions are dangerously unfavourable. Such climbers are few, they tend to die young.

## **Risk Assessment Procedure**

If you wish to establish your own Risk Assessment procedure, it is very straightforward to construct one from 'First Principles', since it requires little more than the application of common-sense. The steps are as follows:

1. Start by considering the following three aspects:
  - The intended party
  - The worse-case weather and conditions
  - The intended route
2. Then identify all of the possible Hazards that might be encountered. This can usually be done by a good study of the map, it does not necessarily need the route to have been explored in advance. This task can be simplified if a standard list is used covering every conceivable mountaineering hazard. Such a Standard Hazard Checklist is provided below.
3. Assess each Identified Hazard and allocate to it a numerical Likelihood, using a system of your own choice. Here is an example of one used elsewhere:
  - 5 = certain
  - 4 = likely
  - 3 = possible
  - 2 = quite unlikely
  - 1 = extremely remote, vanishingly unlikely
4. For each Identified Hazard, then allocate a number for Consequence, using a system similar to this:
  - 5 = fatal
  - 4 = evacuation and hospitalisation required
  - 3 = immediate skilled First Aid required
  - 2 = minor First Aid required (simple cuts, grazes and bruises)
  - 1 = of no significant consequence.
5. For each Hazard, multiply the Likelihood by the Consequence to give a Risk Product.
6. For each Hazard there will now be a Risk Product lying between '1' and '25'. You now need to make a value judgement, as objectively as possible, about where you wish to draw the line. This should be a firmly agreed policy decision, and once agreed, no deviation from it should be permitted
7. You now need to take a long hard look at any Risk Product that exceeds your self-imposed maximum figure and ask yourself the following questions:
  - Can we do anything to lower the risk? [e.g., by taking a rope, roping up, and pitching; or by taking and using crampons; or by carrying bivouac equipment; or by altering the route; or by changing or modifying the mountaineering objective; or by waiting for more settled weather]
  - If we cannot lower the risk, should we abandon the proposed venture? [The correct answer should be obvious!]

## **Standard Hazard Checklist**

### **Slipping and Tripping:**

- Advising on suitable footwear, checking for compliance,
- Careful selection of route
- Planning excursion to avoid having to pressure anyone to walk, climb or descend faster than their comfortable speed

### **Impact:**

- Avoidance of areas subject to rock-fall from above. (Be wary about sheltering under a cliff face for a lunch break),
- Be aware of dangers from road traffic whenever an excursion crosses or follows a narrow road, particularly in conditions of adverse visibility

### **Falls from height:**

- Proximity to cliff edges,
- Crossing, ascending or descending steep slopes,
- Adequacy of close supervision of children.

### **Drowning:**

- Crossing streams and rivers in conditions of high water,
- Becoming cut off by rising tides on sea shores and estuaries,

### **Dehydration:**

- Early recognition of symptoms,
- Methods of prevention – brief your party,
- Methods of treatment – carry spare water.

### **Hypothermia:**

- Anticipating its occurrence,
- Being sufficiently alert to identify its earliest symptoms,
- Ensure that the party is adequately nourished,
- Ensure that the party is adequately clothed and equipped,
- Consider carrying group shelter equipment.

### **Leader Incapacity:**

- Is there a Deputy Leader who is able to take charge?
- Is the Deputy capable of leading the party to safety?

### **Adequacy of First Aid:**

- Is someone carrying a comprehensive group first aid kit?
- Is there someone in the party qualified and current in First Aid? Does it have to be the Leader?

### **Weather and Conditions:**

- Obtain reliable weather information in advance,
- ACT ON IT!
- Plan for unexpected weather deterioration or unexpected adverse conditions,
- Don't forget the possibility of lightning!!

### **Navigation:**

- Adequate number of spare maps and compasses to cover the possibility of their loss or damage,
- Knowledge of your position at all times,
- Knowledge of your best line of retreat at all times. This knowledge should be in more than one head.

### **Personal Factors:**

- **Leader and Deputy:** Fitness and stamina to cater for all emergency eventualities; where relevant, qualification level and currency.
- **Physical Factors:** experience, strength, stamina, well-being, age.
- **Physiological Factors:** asthma, vertigo, infections, strains, sprains, foot troubles, knee troubles, back troubles, eyesight, hearing

### **Party Discipline:**

- Is the party one that is easy to keep together, or not?
- Are there any particular points in the excursion when it might be essential to be in close formation? [examples are abrupt changes in direction, walking off footpaths across open country or identified hazards that might require a specific briefing and/or mutual assistance]

### **Winter Walking:**

- Slow progress and heavy going in deep soft snow, or in soft sticky mud,
- An evenly drifted snow slope can completely hide a deep stream-bed or a mine-shaft,
- Shortness of the day, onset of dusk, possible need for an early start, carrying torches/headlamps,
- Avalanches have killed in England, Scotland and Wales. They have killed those on UK footpaths.

- Ice axes; would they be useful? Is everyone carrying one? Do they know how to use them? Are they well-practiced in self arrest or is practice required?

### **Glaciers:**

- Are they dry and bare or covered by a snow-field?
- At what time of day will you be crossing them?
- Did it freeze hard the night before?
- Is a rope being carried? Is the party size appropriate for moving roped together? Is everyone conversant with 'best practice' (how do you know?), or is instruction required?

### **Route Cards / Call-out Cards**

Within many organisations the completion of Route Cards or Call-Out Cards is mandatory, but rarely so in mountaineering clubs. Meet Leaders (by whatever name) might wish to consider making blank proforma cards available to their colleagues, pointing out that if such a Card is not completed, then it might be assumed should they fail to return that they are not lost in the hills somewhere. Here are some points to consider that are often overlooked:

- The first question a Mountain Rescue Team might ask will concern what cars the overdue party was using, makes, models, registration numbers and parking location. This is because the presence of these cars is the first thing they might check; if the cars are still there, they know the party is still out in the planned area; if they are not there they know the party is either off the hill and in a pub somewhere or they changed their plans, but in this case it might save them concentrating their search in the wrong area.
- Asking about Group Equipment might usefully concentrate the minds of the party to consider taking whatever is appropriate.
- A list of the numbers of all mobile phones being carried might be useful, although they must never be relied upon.
- Requested call-out times must be realistic, even considering 'tomorrow midday' if that is appropriate in the weather conditions prevailing. Consider asking them to specify who should be called if they fail to return in time; in many cases it might be a relative who then takes on the responsibility for deciding when to initiate a formal call-out.

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