



# SNOWY HORIZON TREKS & EXPEDITION P. LTD.

P. O. Box- 11265, Satghumti Thamel, Kathmandu, Nepal

## Expedition Kit List:

**Team Snowy Horizon** has compiled a list of essential equipment, personal medical provisions, and a summary of medical conditions likely to encounter during high altitude mountaineering. We hope this helps you in your preparation for the expedition. You might already have most of the equipment anyway but it never hurts to have a checklist at hand. A basic rule of thumb to keep in mind: carry a spare of every piece of equipment necessary for survival whenever possible. And think broad: Sunglasses might sound like a trivial item but if you lose or break your pair on the mountain, you will suffer from snow blindness which can be fatal high up on the mountain simply because you'll be unable to descend – carry a spare. And equally important, make sure you are familiar with all of your equipment, especially new pieces. You should be able to use everything under even the most adverse conditions.

This list should be considered as an essential summary and, naturally, it might be incomplete. Expeditionary are encouraged to conduct further study and practical exercises to familiarise themselves with the equipment. You should also be familiar with the medical terminology and have a basic understanding of medical conditions related to high elevation, cold, wind, excessive sun radiation as well as injuries likely to sustain in the outdoor situations, particularly in high and remote mountainous areas. While most of this will only be relevant in emergency situations – which we all hope never to encounter – it's better to come over-prepared; your life might depend on it.

## Essential Personal Climbing Gears:

**Alpine Climbing Harness:** A good climbing harness should be light and simple in design, easy to put on and take off with gloves on, with positively foolproof locking features.

**Crampons:** Crampons must fit boots perfectly; steel crampons with anti-balling and ability to toe point positively and safely into ice. The lighter the better – extra weight on your feet is much more strenuous than anywhere else on your body.

**Ice axe:** Ice axe should be versatile and light. A general purpose technical ice axe (T rated) but not too aggressive.

**Ascender:** Ascender or Jammer, a mechanical device used for ascending on a rope; must be suitable to be used with gloves or mittens. Do practice using it with thick gloves on again and again.

**Multi-LED Head Lamp:** Multi-LED Head Lamp and spare batteries are essential; we do not recommend single bulb lights due to lower reliability

**Carabineers:** Minimum 2 locking carabineers, 1 large and 1 small and 4 regular.





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**Rappel device:** Figure 8, ACT or similar; be familiar with Muster Hitch as it may save your life if you lose your rappel device (which happens a lot)



**Trekking poles:** Very handy for the approach; adjustable types are the best (preferably with a simple outside locking mechanism)

**Slings:** One 3m (10ft) and three 2m (6ft)

**Prussic loops:** Never hurts to carry a few (e.g. 0.6m and 1.2m), they come in handy in many situations

**Masks, hoses, and regulators:** Good quality for your safety.

**Altimeter:** ABC watches or more advanced GPS watches will do the trick. Watch for battery life



**Climbing helmet:** Climbing helmet is essential safety gear for crossing areas under rocks and ice cliffs; light weight is essential.

## Clothing:

For undergarments we recommend Merino wool – or one of the new mixtures between Merino and synthetics (Icebreaker and Odlo are two highly recommended brands). Quality as well as comfort are essential in extreme conditions so don't look for cheap options. Merino wool is popular because of its softness and breath-ability while providing excellent insulation. It can absorb water very well and takes moisture away from the body which keeps you dry and warm. It has natural antibacterial properties, so it stays usable for much longer.



### Upper Body:

- 1-2 (medium insulation) short-sleeve Merino shirt (e.g. Icebreaker Merino 150 or lightweight 200, Odlo Revolution medium)
- 2 long-sleeve Merino shirts (e.g. Icebreaker Merino 150 and/or 200 or Odlo Revolution, one medium and one thick)
- One fleece pullover, medium weight.
- One fleece jacket.
- One hard shell waterproof Gore-Tex jacket with large hood to accommodate the climbing helmet. The Arc'teryx SV range is expensive but offers excellent wind and water protection.
- Lightweight down jacket for chilly days in base camp or warm layer when stopping for short breaks.
- One very warm expedition grade goose-down (duvet) jacket with hood or a down suit if you prefer, for high altitude use (e.g. North face, Rab etc.)



**Note:** Your clothing should be kept dry using waterproof stuff sacks (preferably made of Cordura) or alternatively bin-liners or large plastic bags although they are less rugged.



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## Hands:

- **One pair lightweight liner gloves:** These will be worn when tying knots etc.
- **Mitten:** Gore-Tex over mitts (that block the wind) matched with the very warm down mitts, spare mitts might also be useful (For instance, Mountain Equipment Redline)



## Head:

- Warm wool or synthetic hat that covers your ears
- Balaclava or face mask
- Scarf or neck sleeve
- a Bandana or head scarf is useful for dusty conditions
- Ball cap or brimmed sun cap
- Glacier Sunglass with side shields (2x)
- One pair of ski goggles (optional with light and dark lens) for windy conditions



## Lower Body:

- Merino underwear briefs (Icebreaker, Odlo etc.)
- One pair walking shorts (optional)
- One pair walking trousers for trekking and around camp
- Two pair thermal Merino bottoms (Icebreaker 150 or 200 or Odlo Revolution)
- One pair very thick thermal Merino bottoms (Icebreaker 200, Odlo Revolution Thick)
- One pair polar fleece trousers or similar mid layer trousers
- One pair Gore-Tex (over)trousers or bibs. Waterproof/breathable with full side zips
- One pair of Goose-down trousers or bibs. You may prefer a down suit (North face, Rab, etc.)



## Feet:

- One pair of plastic boots suitable for 8000m. (For instance La Sportiva Olympus Mons, Millet or equivalent good quality plastic shells with inner boots; avoid tight fit with heavy socks)
- One pair sturdy leather or synthetic (Gore-Tex) hiking boots with good ankle support for the walk to base camp
- One pair cross-trainers, running shoes and/or sandals for Kathmandu and in camp
- One pair down booties (optional but convenient)
- Two pair med-heavy poly or wool socks
- Two Pair of liner socks. Polypropylene or wool
- Vapor barrier liner socks or plastic bread-bags (matter of preference)
- Two pair lightweight trekking socks, poly or wool
- Light Merino wool or cotton socks for in town
- Travel and Sleeping Gear





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- Rucksacks and Travel Bags:
- One medium rucksack (50-70 l), can be used for airplane carry as well)
- Two large (120 l) duffel kit bags for clothing and equipment, must be durable for use on pack animals
- Small padlocks for duffel kit bags

## Sleeping Gear:

- One down sleeping bag for high altitude (rated to -35 C (-30 F). In the high camp, you can sleep in your down clothing inside your sleeping bag.
- For base camp, one (additional) sleeping bag (normal rating to about -15C to -20 C (-5 F)).
  
- At least 3 closed cell foam mats for use in base camp in the higher camps (Thermal rest offers an excellent light-weight one with decent insulation values) – inflatable mats are not recommended as they are more prone to failure and provide almost no insulation if not properly inflated.

**Note:** Your sleeping bags should be kept dry using a waterproof stuff sack

## Medical

### Personal Hygiene:

- Personal hygiene supplies;
- Two tubes lip sun cream, at least 1 large tube regular sun cream (min. factor 30), some after-sun lotion in case you do get sunburn.
- Anti-mosquito cream;
- One toothpaste/brush set;
- One hand sanitizer gel
- 1 (fast drying) synthetic towel

### Medical Supplies:

- Small personal first-aid kit; (Simple and Light): first-aid tape, plasters (band-aids), alcohol-free wipes for cuts, personal medications, etc. (The leaders will have more extensive first-aid kits)
- Personal prescription medications; Please let your leader know about any medical issues before the climb.
- One skin blister repair kit

**Useful Medication:** *(Always contact your doctor if you have any questions; use alternatives in case you have intolerances for the suggested medication)*



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- Anti-diarrhea pills (Imodium) (one regular package)
- Anti-headache medication (Aspirin or Ibuprofen) (one regular package)
- One small bottle cough and/or cold medicine.
- One course antibiotics for stomach infection, available locally at chemist shop or pharmacy with no doctor's prescription.
- One course antibiotics for chest infection, available locally at chemist shop or pharmacy with no doctor's prescription.
- One small bottle anti-altitude sickness medication: Diamox (Acetylzolamide), available locally, for more about this medication, please contact us or your doctor
- One small bottle of water purification tablets (needs to contain silver-ions AND chlorine) or a water filter or UV sterilizer.
- Earplugs
- Extra prescription glasses/contact lens. Contact lens wearers, please bring glasses in case of emergency.

**Note:** Do not bring sleeping pills. They are respiratory depressants which is problematic at high altitude.

## Personal Food:

Our skilful cooks will prepare 3 delicious hot meals and plenty of drinks each day in base camp, as well as in camp 2 on the mountain. These meals will consist of soup, local cheese & sausage, biscuits, dried noodles, potatoes, rice, porridge, butter, dried and tinned vegetables, fruit, meats, and fish, tea with milk and sugar, powdered juice drink, and drinking chocolate. Our Sherpa will be carrying this food to the higher camps.

We ask members to bring only 5 dehydrated meals (freeze-dried dinners) for their summit attempt. On summit day, you will be at high elevation and you will be affected by the altitude with very limited appetite so it is important to have flavors you like best and you perceive as pleasant even when you are not hungry.

We cannot cater for specific personal and uncommon foods and flavors. If you have any unusual, non-standard or specific personal, cultural or religious dietary requirements, which can only be satisfied with imported product, we ask you to bring your own imported daily snack and energy foods.

We do not provide "snack" food such as chocolate or energy-bars. We ask that you bring or buy your own snacks or daily cold energy food in Kathmandu or in your home country. Because of the high degree of physical exertion, proper nutrition is very important and you might want to plan food supplementation carefully. From our experience 3-6 kilos/6-12 pounds of additional food is a sufficient amount.

A growing variety of imported foods such as European and American cheeses, chocolates, biscuits, cookies, nuts, and locally made power-bars are now available in Kathmandu, at reasonable prices. However, many imported brands and specialized items may not be available. If you want these items, you must bring them from your home country. Many of our members, especially Europeans and Australians with small baggage







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allowances, now purchase their daily snacks in Kathmandu (or at least parts of them). Our schedule in Kathmandu allows sufficient time for shopping.



## Miscellaneous Practical Items:

- 1 small roll of repair tape, 1 sewing repair kit;
- 1 cigarette lighter, 1 small box of matches that light in all conditions;
- 1 compass or GPS;
- Solar charger
- 1 battery powered alarm clock/watch;
- 1 digital camera with extra cards and extra batteries;
- Nylon stuff sacks for food and gear storage;
- 3 Water bottles (1 liter) wide-mouth Anlagen (For Hot & Cold and 1 is a pee)
- 1 plastic cup and spoon;
- 1 small folding knife;
- Binoculars (optional);
- 4 large, waterproof, disposable rubbish sacks;
- Passport, 2 extra passport photos, flight ticket, flight itinerary;
- Separate photocopies of passport and relevant visa pages, proof of insurance;
- Dollars, Pounds or Euros for purchasing Nepalese visa at Kathmandu airport, for paying for restaurants and hotels, for gratuities, snacks, and to purchase your own drinks and gifts (bring small denominations);
- Credit cards, Bank/ATM/Cash machine cards for use for withdrawing funds from cash machines (bring a photocopy of your cards), traveler's checks, etc.
- 1 bathing suit/swimming costume (you never know);
- Base camp entertainment. It is good to bring additional items which you have found to be useful on previous expeditions. For example: paperback books, playing cards, mp3 player, short-wave radio, game boys, musical instruments, ear plugs, lots of batteries, etc.;
- Travel clothes for base camp and in town;



*Please be sure and bring your patience and try to keep an open, relaxed, positive and friendly attitude as travelling in this part of the world may be very different than what you are used to, but things always seem to fall into place at the last moment.*

**Note:** This is not an exhaustive list. Please contact us for any other equipment concerns and suggestions. We are happy to discuss these in detail.





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## Oxygen



On Everest, although some climbers wish to try to summit it without supplemental oxygen, most of members would prefer to have oxygen available. We only allow members to climb Everest with the supplemental oxygen available. How much oxygen one requires is an individual decision; some people want 1 bottle, others want 12; our only requirement is that every expedition team member must have at least one oxygen bottle available for personal use, which will constitute at the minimum an emergency supply for climber to get down to at least camp 4. Our experience indicates six oxygen bottles is usually a sufficient for an average climber. All of the equipment is guaranteed to work well together, and it is easy to use, with simple threaded and snap-on fittings which require no tools. We have a 40% buy back policy on unused oxygen bottles, and masks, hoses, and regulators in good condition.



**Note:** You may have to carry some or all of your own oxygen on summit day, as well as up and down the mountain. If possible, the group's Sherpa will help stock the high camps, as well as share in carrying extra bottles during summit attempts. If you are concerned you might not be able to carry your own oxygen, you may wish to hire a personal Sherpa.

## Fitness requirements



If you want to climb Everest, you're going to have to be in extremely good physical shape. Basic fitness training should start well in advance, at the minimum 12 months before with main emphasis on cardiovascular training (assuming you are an amateur athlete and you are fit for strenuous athletic exercises). The main reason for your cardiovascular training is to increase your heart-lung oxygen capacity, so you can deliver sufficient amount of oxygen to your muscular and brain tissue in extremely low partial oxygen pressure. Acclimatization to high altitude is both a function of cardiovascular capacity as well as your personal physiology adaptation capacity, which you will only find out, when you above 8000m. A small fraction of people - no matter how fit they are at sea level - will not be able to adapt to high altitude or will encounter complications. But the better your physical fitness, the better your chances to reach the summit. We advise you to do additional research into how to prepare properly for high-altitude expeditions.

## Altitude Hazards and Complications



The primary concern of mountaineers as altitude increases is the decrease in partial oxygen pressure. At higher altitude, the density of the gases to comprise our air decreases. Partial pressure is (hypothetical pressure) of a gas in a mixture of gases if the same space was only occupied by that gas. A decrease in partial Oxygen pressure means that there is less Oxygen in any given volume of air.

There is a fine balance between the gas pressure in your blood (called Blood gas tension) and the outside world, which allows your lungs to absorb the oxygen and deliver it to your organs. The outside pressure decreases with altitude, while the internal pressure remains constant. At about 9000m you will not be able to



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absorb any oxygen at all with a predictable outcome. Our body has evolved at low altitude, where it functions perfectly and it doesn't at high elevation. The human body has, however, phenomenal ability to adapt given appropriate conditioning and time, which is called acclimatization.



Low levels of oxygen in the blood can cause number of conditions which is usually summed up as Acute Mountain Sickness (AMS). This is easily treatable and reversible if acted upon quickly (the course of treatment is to reduce altitude as soon as possible). But it can lead to more serious (and potentially lethal) conditions such as High Altitude Cerebral Edema (HACE) and High Altitude Pulmonary Edema (HAPE). Furthermore, a low level of blood oxygen can lead to thermal inefficiencies in your body causing frostbite and hypothermia. Other conditions caused by the effects of high altitude are thrombosis and embolisms.



**Less serious but not to neglect:** At high elevation due to lower UV absorption by the atmosphere and reflections from the snow there is a high risk of sunburn. Since you will not be able to stay out of the sun completely, this can escalate to a serious situation. Always shield your skin as well as possible from the sun and use plenty of sunscreen. Other more obvious hazards include broken bones due to falls, avalanches, ice and rock fall etc. but you should have come across those in your previous mountaineering activities anyway.

Again, this is not an exhaustive list but we hope it provides a loose guideline for your preparations. Do as much background research as possible – it never hurts to come over-prepared. And, of course, we are always happy to help so just give us a shout if you have any questions, comments or concerns.



**Happy preparations!**

Sincerely,

Bodha Raj Bhandari  
Chairman,

