Training for your Trek...

Whether you're looking to summit Kilimanjaro or trek along the Inca Trail or through the Himalaya to Everest Base Camp, this guide provides some basic information on how to physically prepare yourself.

It sets broad goals and gives suggested exercises on how to get the most out of your trek, along with some simple dietary advice. As people from all walks of life do our trips, it's designed so you can incorporate some or all of the suggestions into your current lifestyle and level of activity. For instance, anyone of good health, who is active, plays sports or goes to the gym can tweak their training accordingly.

The one thing you should be reassured of is our trekking trips are nothing to be fearful of. Our itineraries are designed to ensure you have an enjoyable trek; you are given time to acclimatise where necessary, the number of hours walking everyday is considered and our local leaders are there to assist you throughout the trip. Together with a local team of porters, they'll take the strain out of the trek, leaving you free to enjoy the day's scenery. You're in the best hands throughout the trip; our guides do the treks regularly; they identity signs of tiredness, altitude sickness and weather changes instantly.

Two training goals for your trek preparation

Goal 1. **Increase the capacity and efficiency of your body's respiratory muscles and cardiovascular system.** This includes your lungs, diaphragm and, importantly, your heart. Improving the performance of these areas enhances the body's ability to transport and utilise oxygen during exercise. The ultimate aim is to reduce your resting heartbeat and increase your VO2 Max (your maximum oxygen intake capacity)

Goal 2. **Improve the endurance of your muscles' fibres.** Building up their repetitive movement strength, thus allowing you to walk further before feeling physically tired.

It's simple - about half of the endurance required for walking 4-7 hours a day comes from the improved ability of your body to pump blood and oxygen to your muscles. The other half comes from increased efficiency (strength) of the muscles to extract oxygen and convert it to energy.

Suggested exercise plan for trekking trips

To achieve the first goal you're looking at aerobic exercises – this can be any form of exercise which raises the heart rate to 60-70% of your max, e.g. running, walking, kayaking, climbing, tennis, football, netball; basically any physical activity.

Step 1: **Work out 60-70% of your maximum heart rate**

If you're a member of a gym we suggest you take a fitness test to determine your maximum heart rate per minute. Alternatively, the general formula is subtract your age off 220 to calculate your maximum heart beat per minute.

Once you have this, determine what figure 60-70% is. This is your TARGET ZONE, which you should aim to reach during all exercise sessions in the run up to the trip. Training at a level above this is good for sprinters and people who want short, intense bursts of energy. By all means add sprints into your work out but 90% of your aerobic workout should be at 60-70%. Exercising below will only aid weight loss and improve your power to weight ratio, it will not noticeably improve your fitness levels.

How do you know you're there? The simplest options are to use the pulse monitors on the aerobic equipment at the gym or buy a heart rate monitor. You can get these from any running shop or try eBay or Amazon. You should be looking to spend between $30-$40. The more expensive ones include GPS, speedometers and training options. For these you'll be paying between $70-$350. Alternatively, do some mild exercise like a fast run for a minute, stop and then count your pulse by placing two fingers on a main artery, such as the wrist or the neck, for 15 seconds then multiply by four. This will give you an idea of what it feels like for your body to be working at 60-70% of your max. Remember how you feel; how your heart is beating, how quickly you're breathing. This will give you a mark on what you are looking to achieve.

If this all looks a little daunting, don't worry; to prepare for most of our trips we simply recommend you get out and do four or five walks before your trip, each lasting around 4-6 hours. This helps your heart and muscles prepare for the walking long hours. You don't have to go to any areas with great ascents and descents it's just getting you on your feet for long periods of time, something we don't do much in our daily lives anymore.

An ideal complement to this, but not essential, is going to your local swimming pool for a 30 minute swim once a week. This nonabrasive workout is great for your heart and loosening your muscles after a long walk.

Step 2: Determine your VO2 Max

As mentioned before, this is the maximum ability your cardiovascular system can take in oxygen. It's measured at the gym either as part of a fitness test with a qualified instructor or you can normally set the bikes to personal trainer mode to determine your VO2 max.

For our trekking trips you should aim for the following VO2 scores:

FEMALES (values in ml/kg/min)

AGE	FAIR	GOOD	EXCELLENT	SUPERIOR
13-19	31 - 34.9	35 - 38.9	39 - 41.9	42+
20-29	29 - 32.9	33 - 36.9	37 - 41	41+
30-39	27 - 31.4	31.5 - 35.6	35.7 - 40	40+
40-49	24.5 - 28.9	29 - 32.8	32.9 - 36.9	37+
50-59	22.8 - 26.9	27 - 31.4	31.5 - 35.7	35.6+
60+	20.2 - 24.4	24.5 - 30.2	30.3 - 31.4	31.5+

MALES (values in ml/kg/min)

AGE	FAIR	GOOD	EXCELLENT	SUPERIOR
13-19	38.4 - 45.1	45.2 - 50.9	51 - 55.9	56+
20-29	26.5 - 42.4	42.5 - 46.4	46.5 - 52.4	52.5+
30-39	35.5 - 40.9	41 - 44.9	45 - 49.4	49.5+
40-49	33.6 - 38.9	39 - 43.7	43.8 - 48	48+
50-59	31 - 35.7	35.8 - 40.9	41 - 45.3	45.4+
60+	26.1 - 32.2	32.3 - 36.4	36.5 - 44.2	44.3+

If you're not a member of a gym, don't worry, just use Step 1 (heart rate) for monitoring progress.

Progress Table

Following an aerobic training plan you'd expect to see improvements every 4-6 weeks, so here's a table to track your progress if needed.

DATE	RESTING HEART RATE	VO2 MAX

Step 3: Training Programme for Trekking

Frequency: If you're starting from a base of no exercise you should start at three sessions a week and ideally build up to five sessions a week over a month to six weeks; adding another weekly session every week or fortnight. Rest is as important as the exercise. If you're training for the first time, exercise on alternate days, giving your body time to recover.

Intensity: This is related to your oxygen consumption. As mentioned, you're looking to exercise at a heart rate of 60-70% of your max. You should sustain this for 30-50 minute+ sessions. Generally you are looking for lower intensity, longer duration, so your aim is to increase the duration of the exercise by around 10% a week. One suggestion is to do a long walk, paddle, swim or cycle (2-4 hours) once a week to complement your other activities. Lower impact activities like these are preferred to sports as they help to prolong training and avoid injury. Short, intense activities can be done to add variation to your programme and this will specifically help to increase your VO2 Max, e.g. sprints for 20 seconds within your run.

Suggested aerobic activities

This can be any form of physical exercise that raises the heart level to your target zone. Within a gym there are a few aerobic machines that are great for improving your cardiovascular and respiratory systems, there's also trained staff to help you and you don't have to rely on the weather. But you don't have to be a member of a gym to do the following.

Running: This is a great aerobic and anaerobic exercise; it builds up strength around your ankles and calves in particular, as well as improving your oxygen intake. Running outdoors is great as you can vary where you go and take in hills or go off road.
Running on a machine is good as there's more give so less abrasion for your leg muscles, but it's a semi artificial movement pushing off from ground moving under you. If you use a machine we suggest setting an incline of 1 as the base and use a multi-gradient programme – this is great for building up the strength in the rear of your body too.

Alternatively, set a programme to personal trainer and set 400 m or 800 m distances and run hard for the distance – controlling the speed as you run. Repeat this six times. This is great for your VO2 Max.

Stair Climbing: This is again a great aerobic and anaerobic exercise as it builds the correct muscles - your hamstring and calves. Try five minutes to start with and build up your time on it using the 10% rule. This can be done in the gym or anywhere with stairs.

Rowing Machine: Look to do 10 minutes of rowing on a 5-7 resistance (medium) and record the distance. You should see an improvement from the third time of doing it. This is tough as you don't use these muscles in everyday life, but it's a great aerobic and anaerobic exercise. Any paddling on rivers is the equivalent.

Walking: A great complement to all this is some walking. If you can get out into the country at weekends for some 4-6 hour walks prior to departure that's excellent preparation.

Suggested anaerobic activities

Strength training

This is using resilience forces, including your own body weight, to increase the stamina of your muscles. This is aided by any form of physical activity such as the ones listed. They will all help improve body tone and shape and help slow the natural increase of fat to lean body mass which occurs with ageing.

However, we have concentrated on the major body areas important for trekking and have created a list of activities that can be done in a gym or your home.

TIP

With all these exercises, there are two things to remember:

1. Do everything slowly so every fibre of the muscle is being truly worked. This includes the downward action; let the weight/movement drop and you're only doing half the exercise.
2. Control your breathing; breathe in for the contraction movement and exhale for the downward movement.

Frequency: It's recommended you alternate from anaerobic to aerobic exercises and vice versa to give the different muscles time to recover. For all the below anaerobic exercises, do three sets, with 10-15 repetitions in each set and rest for 30 seconds in between the sets. As you progress, increase the number of repetitions in a set – a good benchmark is 10% more weekly.

Squats: The biggest muscles in your body are your quads (top of your thighs). Leaning with your back flat against a wall and your feet between 30-50 cm from the wall slowly lower your top half of your body until your legs have a 90 degree bend in them. Hold for a few seconds and then slowly return to the starting position (1 rep). Make sure you plant your feet shoulder width apart with your toes always pointing out further than your knees in the seated position.

To aid this exercise you can place an inflatable exercise ball between you and the wall. These cost between $15-$45 and again any fitness store or eBay will have them.

Hamstrings: To balance the new strength in your thighs it's important to work the main rear leg muscles too: the hamstrings. There are various options and one of the simplest is lunges. Keeping the top half of your body straight take a step forward, bending the knee so the leg is at right angles, hold, then return to the start position and repeat on the other leg. It's best to start with no weights and slowly add them in once your balance is good (1 rep).

Another option is to lie on your stomach on your bed or two chairs leaving your shins overhanging and then, keeping the leg straight, raise one leg as far as it will go, hold, then return to the start position and repeat with the other leg (1 rep).

Again, you can add ankle weights if required.

Calves: Stand on any step with the balls of your feet; leaving two thirds of your feet overhanging the step (your feet are parallel with the step). Then raise yourself as high as you can using both feet, hold and slowly lower to the starting position (1 rep).

Dorsal Raises: Your lower back will be carrying a daypack for 4-7 hours a day, not something it's used to doing so it's important to strengthen this area. Lie on the floor, face down, and simply raise your shoulders six inches off the ground and then slowly lower (1 rep).

You must keep your feet and legs on the floor. Your hands can be resting on your buttocks to start with. To increase intensity bring them level with your shoulders; the further forward they are, the greater the resistance. You can also push your arms forward alternatively on every raise if you wish. It's good to do all floor exercises on an exercise mat that costs between $15-45.

Crunches: As you've worked your back you should also work your stomach, balancing your strength in this region. There are many variations. For the lower stomach we suggest lying with your back flat on the floor, place your hands under the natural arch in your back and your legs and feet together. Slowly raise your legs to 90 degrees from the floor, hold for a few seconds, then slowly lower so they are just above the floor (1 rep).

For the upper stomach, lie with your back on the floor and raise your thighs off the ground so they are at a right angle and your shins are parallel to the ground. Then, slowly lift your shoulders (not head) to your knees and return to just off the ground (1 rep).

Variations on this are: move one shoulder up and across your body towards the knee on the other side of your body, or, as you drop your shoulders lower and straighten your legs as well and raise them up to the starting position with your shoulders. You're not expected to reach your knees with your shoulder but if you have your hands behind your head you can certainly aim to touch your knees with your elbows.

Side Slides: This is the final exercise for your core area. Standing up straight, feet shoulder width apart, lower one side of your body, running your hands down your hips/ pelvis. Hold at the bottom and then return to the standing position and then repeat down the other side of the body (1 rep).

Your upper body is not going forwards or backwards, you must keep it straight this is just a sideways movement. Ideally you should do this with weights in each hand to help build the muscles.

Stretching: It's often overlooked but it's worth putting in 5-10 minutes of stretches pre- and post work out. This warm up and down is important to avoid straining muscles. After any work out, your muscles build up lactic acid and tighten. If you keep exercising and not stretching your muscles contract, getting tighter and so are more likely to tear.

TIP

Your holiday is a good goal to keep you motivated, but you may also want to enter a race of some sort, 3-4 weeks prior to add an extra element to your training. Here are some suggested places to look for an event.

www.runnersworldonline.com.au
www.runnersworld.co.uk
www.runningcalendar.com.au
www.humanrace.co.uk
www.runningintheusa.com/Race/Default.aspx

What to eat when training for a trekking trip

You must fuel your body while training. Energy can be sourced from the three following food groups: carbohydrates, fats and proteins.

Carbohydrates are the main source of energy for the body. When broken down, a glucose supply goes directly to the muscles.

Take in foods high in carbohydrates 30-90 minutes before exercising: foods high in complex carbohydrates release energy slowly, they should be taken 90 minutes prior to exercise. These include dried fruits (great in cereals), wholegrain breads, pasta, potatoes and carrots. Simple carbohydrates give an instant energy boost ideal 30 minutes before exercise. These include honey, bananas, papaya and chocolate. If carbohydrates are not used immediately they are stored in the body as glycogen or fat.

Protein is the major structural material of our bodies. Adequate amounts help our bodies repair and build muscle tissue and it's also a good secondary source of energy. Meats, fish, poultry, eggs, quinoa and soy products are great to consume post workout to aid the body recovery. It's essential to have protein in all meals, especially breakfast and lunch, helping regulate your blood sugar levels from the carbohydrates.

Fat is a stored source of energy, great for long outdoor excursions. Most saturated fat is not great for you as it's associated with heart disease, but there are essential fatty acids that your body needs; namely omega 3, found in salmon, sardines, mackerel, flaxseeds and chia seeds, and omega 6 in most seeds and nuts like pumpkin seeds and walnuts.

Your diet should include a small proportion of fats provided by foods such as cheese, olive oil, butter and peanuts.

Hydration is very important while you're exercising. A great tip is to fill a 1 litre bottle of water at the beginning of the day, put it on your desk and drink it during the day.

While exercising, your body loses fluids at an accelerated rate, broadly 850-1700 gm/30-60 ounces an hour. To put that in perspective, you'll lose half a kilo/1 pound for every 450 gm/16 ounces of fluid lost. Simply drink regularly when doing any physical exercise.

> When trekking, peanuts and almonds are great for long-term energy, along with chocolate bars and sugared sweets for instant energy hits. Also keep your water handy and drink regularly, ideally before you feel thirsty.

This training kit was adapted from The Adventure Company's 'Training for Trekking Holidays' guide.

High Altitude

There is little you can do, except for using a Simulated Altitude Training Chamber, to train for walking at high altitude.

Typically, it's over 2,200 m/8,000 ft when the affects of altitude sickness start to be felt and it affects different people in different ways. It's nothing to do with your fitness and we don't recommend taking aspirin to null any headaches because this could be dulling the first affects of Acute Mountain Sickness. The best solution is to tell the guide how you feel and they'll alter the pace of the walk accordingly.

What is altitude sickness?

Altitude sickness is the reaction of the body adjusting to decreasing amounts of oxygen. Normally, the higher the altitude, the less oxygen available for the body to carry on normal functions. Altitude sickness most commonly occurs from above 2,800 metres (9,200 ft) but this is different for everyone - there is simply no way of knowing your own susceptibility prior to being at altitude thus it is vital you monitor your own health. Symptoms may be mild and subside/go away after a day's rest, or if it is ignored it could lead to death.

Symptoms of altitude sickness

Symptoms can appear within 1-2 hours although most often appear 6-10 hours after ascent and generally subside in 1-2 days as the body adjusts to altitude. They may reappear as you continue to go higher. Symptoms usually occur gradually & can be one or a combination of the following:

• Headache • Loss of appetite • Disturbed sleep or drowsiness • Irritability • Fatigue • Nausea/vomiting • Dizziness • Swelling of hands, feet & face

If the body is unable to adjust to altitude these symptoms will persist and, if they are left untreated, altitude sickness may progress to High Altitude Cerebral Edema (HACE) or High Altitude Pulmonary Edema (HAPE). Both can be fatal if ignored.

Symptoms of HAPE (fluid on the lungs):

- Breathlessness
- A dry cough, developing to a wet one with blood-tinged discharge or saliva.
- Tightness in the chest & blueness/darkness of face, lips & tongue
- Low fever up to 38°C/100°F
- Severe fatigue, progressing to coma
- HAPE can occasionally develop without the usual symptoms of AMS - a tell tale sign is breathing does not return to normal when at rest, it remains shallow, rapid and panting even after an extended period of inactivity, often accompanied by a cough.

Symptoms of HACE (fluid on the brain):

- Severe headache symptoms not relieved by painkillers or lying down
- Confusion, disorientation & drowsiness
- Nausea/vomiting
- Loss of balance or coordination
- Blurred or double vision/retinal haemorrhage

How to avoid altitude sickness

Certain medical conditions (such as respiratory disease) or medications (such as sleeping pills) can increase the risk of altitude sickness - it is important that you inform your leader of any medical conditions or medications before ascending to altitude. You can help your body to acclimatise and avoid altitude sickness by:

- Drinking plenty of water - at least 4 litres per day on top of other forms of fluids such as tea or soups
- Avoiding alcohol, tobacco and substances that can interfere with good delivery of oxygen to the body or cause dehydration.
- Eating small, frequent meals high in carbohydrates.
- Taking it easy or have a regular break. Walk at a slower pace than you would at sea level and avoid over-exertion.

Treatment

Most travellers are able to successfully acclimatise by following the previously mentioned guidelines. However, there are instances where medical treatment is required. Ultimately, the best treatment for acute altitude sickness is to descend to a lower altitude. There may be times when your leader makes the decision that you or a member of your group is at risk of serious altitude sickness and for safety insists that you cannot ascend further - please respect that they are within their rights to do so and are making that decision in the best interests of your health and wellbeing.

Before your trip

Some pre-existing medical conditions are known to severely worsen at high altitude and are difficult to adequately treat up high. It is imperative that you discuss your pre-existing medical condition/s with your doctor. We understand certain medications are reported to aid acclimatising to high altitude. Please discuss these options with your doctor.

This information is to inform you – please don't let any worries about altitude sickness dominate your holiday though, you're in safe hands.

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