

# safe mountain hiking

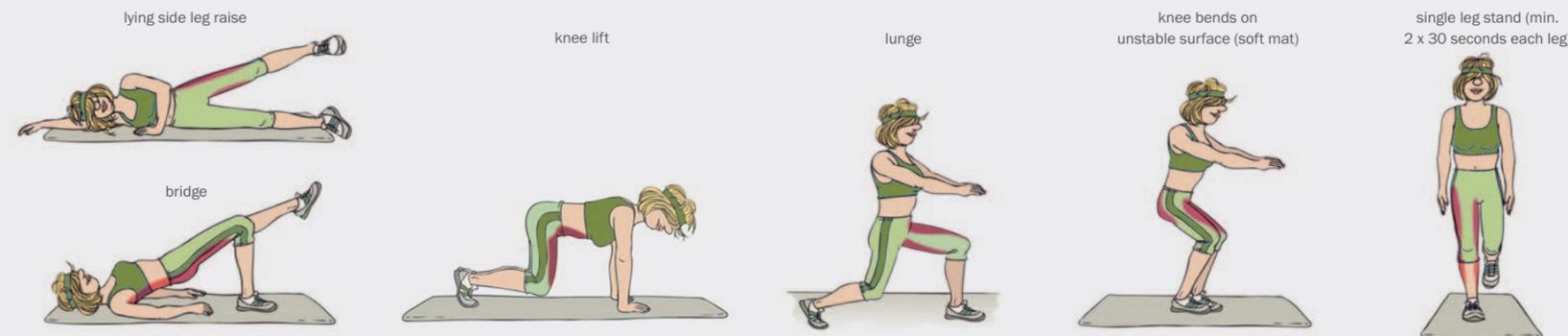
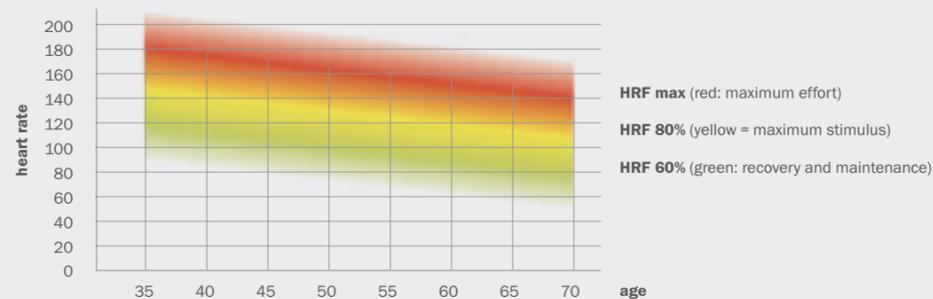
As an outdoor sport, hiking is a great way to get fit,

meet people and have fun. The aim of the following

recommendations from the Alpine Associations is

to make hiking as safe and enjoyable as possible.

## optimum range for endurance training



## suggestions for weekly endurance training loads for different levels

weekly training plan	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<b>Beginner</b>		30' nordic walking		45' cardio training		30' walking	3h hiking
<b>Intermediate</b>		45' running	60' running		90' mountain biking		4h hiking
<b>Expert</b>	60' low intensity run		90' run (HIIT*)	40' intensity run	60' moderate run	60' walking	5h hiking

\*HIIT = high intensity interval training: 20' warm-up run, 5 x 4' hard running (e.g. 14 km/h), broken up by 4' slow running (e.g. 8 km/h), 30' cool-down run

## 1 be in good health

Mountain walking is an endurance sport. It makes your heart and circulation work, so good health and an honest assessment of your capabilities are required. Avoid having to rush and adopt a pace that keeps all members of your group from getting out of breath.

### Facts

Sudden cardiac death (heart attack) is the second most frequent cause of death (40 %) in mountain hiking. As one gets older (40+), the risk increases considerably. Men are much more at risk than women. Risk factors are high blood pressure, in-creased blood sugar and blood fat values, being overweight and smoking as well as previous heart attacks or flu-like infections that have not been completely cured.

### This is how you can lower your risk

- █ Do sports regularly to keep fit.
- █ Avoid unfamiliar exertion for extended periods - especially on the first day.
- █ Start walking slowly and avoid big efforts ("conversational pace").
- █ Choose a shady and cool destination in hot, sultry summer weather.
- █ Eat and drink regularly to avoid dehydration and hypoglycaemia.
- █ Stay home if you have a flu-like infection or a cold and cure it completely.
- █ Heed warning signals such as persistent shortness of breath, rapid heartbeat, chest pain or nausea: Stop hiking and training, respectively call emergency services early.
- █ See a sports physician before starting a training programme if you suffer from cardiovascular, respiratory and/or metabolic conditions.

## Fit for mountain – endurance and strength

### There are many ways to train for endurance:

Walking, hiking, nordic walking, running, cycling, mountain biking, cardio training in the gym, cross-country skiing, ski tours ...

The training effect depends on regularity and the correct intensity:

- █ Turn running errands into mini-workouts: stairs instead of lift, bicycle instead of car. Commutes to work or walking/biking times to public transport are gifts of extra training minutes: 20 minutes to work and 20 minutes back home are 40 minutes of cardiovascular exercise a day without great effort. This adds up to 200 minutes a week, which goes far beyond the minimum requirement of 60 minutes postulated by sports physicians for endurance training!
- █ You can still talk during training? This indicates that the intensity is by no means too high.
- █ Make sure your workout does not leave you exhausted but with a feeling of being able to continue.
- █ Favourable training ranges for endurance training are between 60 % and 80 % of maximum heart rate: maximum heart rate = 220 minus age. Example: 45 years, max heart rate: 220 - 45 = 175, 60 % = 105 and 80 % = 140 heartbeats per minute. A heart rate monitor is helpful for optimum training within your individual limits.

### Strength is an important factor for all sports. This is what you need for mountain hiking:

- █ Good core strength (muscle groups stabilising your spine).
- █ Sufficient strength endurance in the leg and hip.
- █ Good deep muscle sensitivity, especially in the leg and foot, responsible for the stability of knee and ankle.

Basic exercises that can be easily performed any time:

- █ Bridge, lying side leg raise and knee lift for core strength and balance training: Brücke, Beinheber in Seitenlage.
- █ Lunges and knee bends on unstable surface as well as single-leg stand (e.g. while brushing your teeth) for strengthening the stabilising muscles in the knee and ankle.

### Strength training:

At least twice a week for about 20 minutes. Volume: 6 exercises (see illustrations), 10 to 15 repetitions each or hold 3 times for about 20 seconds, allow 5 to 10 seconds of rest between sets. Repeat this programme twice.

## 2 plan and prepare carefully

Hiking maps, guide books, the internet and experts provide information on distances, altitude difference, difficulty and current conditions. Always tailor tours to the group! Pay particular attention to the weather forecast because rain, wind and cold increase the risk of accidents.

Mountain hiking is not a walk in the park. Careful preparation is essential for safe mountain hiking and protects you from unpleasant surprises. The following checklist will help you to gather the relevant information:

### Tour?

- Do you know the difficulty, distances and altitudes?
- Is a head for heights and sure-footedness needed for this tour?
- Erfordert die Tour Schwindelfreiheit und Trittsicherheit?
- Are there bypasses or alternatives?
- Must precipitation and, as a result, the risk of slipping be expected?
- Does great heat require a shady route?

### Weather?

- Is the planned tour suitable for the weather forecast?
- Are thunderstorms expected in the course of the day?
- Is a cold front approaching, possibly causing snowfall in higher regions?
- Must precipitation and, as a result, the risk of slipping be expected?
- Does great heat require a shady route?

### Group?

- Do I know all the participants in my group?
- Are all of them healthy and fit for the mountain hike - including the descent? Is everyone free from vertigo and sure-footed? Are there children?
- Did we let responsible people know where we are going?

### Current conditions?

- Must old snow patches be expected?
- Do you have information about the conditions of the trail?
- When does the last cable car leave for the valley?

### Equipment?

- Is your footwear appropriate for the tour?
- Did you pack clothing to protect you from the cold, wind and rain?
- Did you bring a first-aid kit and a mobile phone in case of emergency?
- Did you pack your bivouac bag and a torch for multi-day hikes?



alpenvereinaktiv.com  
App for tours and current conditions



**Rule of thumb for calculating walking time** (for a medium-sized group of 4 to 6 people):

Allow 1 hour for every 300 m (ca 1000 ft) climbed. Allow 1 hour for every 500 m (ca 1600 ft) descended. Allow 1 hours for every 4 km (ca 2,5 miles) walked.

The walking times for the altitude difference and the horizontal distance are calculated separately. The smaller value of the two is divided by two and added to the larger value.

Example for calculating the time of ascent: An alpine trail climbs 1200 m in altitude (= 4 hours walking time) and covers a horizontal distance of 8 km (= 2 hours walking time, to be divided by two) = 4 h + 1 h = 5 h uphill walking.

### The ÖAV and DAV alpine trail classification

Mountain trails and alpine routes take you into alpine and high alpine terrain and require a good level of fitness, mountaineering experience and appropriate equipment.

### Moderately difficult mountain trail (red dot):

For sure-footed, experienced mountain hikers.

### Difficult mountain trail (black dot):

For experienced mountaineers with a good head for heights and sure-footedness.

**Alpine trails** (black triangle) may not have markings, signposts or tracks, may take you into challenging hiking and scrambling terrain or over glaciers and may require alpine belay and orientation & navigation skills.

Alpine trail classification	Tyrol	Salzburg, Styria, Carinthia*	Vorarlberg Allgäu	Switzerland
<b>Alpine route</b>				
<b>Alpine trail difficult</b>				
<b>Alpine trail moderately difficult</b>				
<b>Alpine trail easy</b>				
<b>Valley trails</b>				

\* and Upper Austria, Lower Austria, Bavaria

### **3** come fully equipped

Make sure you have the right equipment for your undertaking and keep your rucksack light. Rain gear, cold and sun protection should always be in your rucksack, as should a first aid kit and mobile phone (European emergency number 112). A hiking map, apps or GPS will help you find your way.

#### Equipment tips

**Rucksack.** Volume approx. 25 litres

**Hiking boots.** See recommendation 4

**Clothing.** Wind- and waterproof breathable jacket, fleece or soft shell jacket, hat and gloves, moisture-wicking underwear, spare underwear.

**Sun protection.** High-quality sunglasses, visor hat or sun hat, sun cream (protection factor  $\geq 30$ ), lips protection.

**Food and drink.** Min. 1 to max. 2 litres of water, fruit or muesli bars, trail mix or simply whatever tastes good ...

**Map.** Hiking map on a scale of 1:25 000 or 1:50 000. Tourist panoramic maps are too inaccurate.

**Mobile phone.** In an emergency, dial 140 (in Austria) or 112. Make sure the battery is fully charged.

**First aid kit.** Incl. blister pads and space blanket.

**Bivouac bag & torch.**

**Hiking poles.** Used correctly, poles help take load off the joints and support balance. However, our natural sense of balance and coordination is impaired by poles. If using telescopic poles, make sure they lock securely.

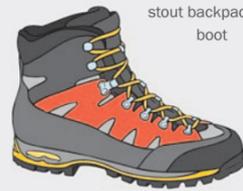
low-cut hiking shoes "approach shoe"



lightweight, high-cut day hiking boot



stout backpacking boot



**Tip:** Take your time buying your new hiking boots and choose a shop offering expert advice. Your feet normally swell during the day's activities and will be at their largest at the end of the day. Late afternoon/evening is best for shopping. .

### **4** hike in appropriate footwear

Stable hiking boots protect and take the load off your feet and improve your sure-footedness! Choose waterproof, lightweight boots with the perfect fit and good grip. The right shoe or boot is an important safety factor - but also a factor for pain free mountain hiking. Benefit from the wide selection of hiking shoes/ boots to find your perfect match:

Stout sports shoes with cleated soles are suitable for forest roads and easy hiking trails.

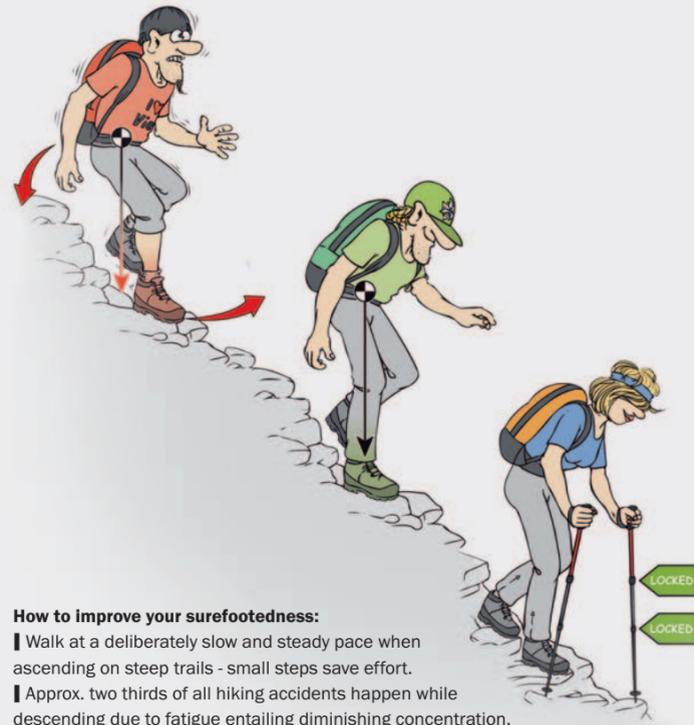
High-cut cleat-soled hiking boots are best for alpine trails.

Cleated soles must have a certain torsional rigidity when hiking difficult alpine trails, where hard patches of old snow or scree and talus are to be expected. It is not a good idea to wear heavy, crampon-compatible mountaineering boots: When hiking, the advantages of these boots cannot be exploited.

### **5** surefootedness is key

The leading cause of accidents are falls from slipping or tripping. Be aware too brisk a pace or fatigue can seriously affect your surefootedness and concentration. Take special care when descending. Careful walking also prevents rockfall.

Tripping, slipping, tumbling, falling from heights: More than 50 % of the fatal hiking accidents are due to falls (2012). The generation 50+ is considerably more often affected by this kind of accident. Fact is that approx. 75% of 'trippings' happen on trails or scrambles - and not in pathless terrain.



#### How to improve your surefootedness:

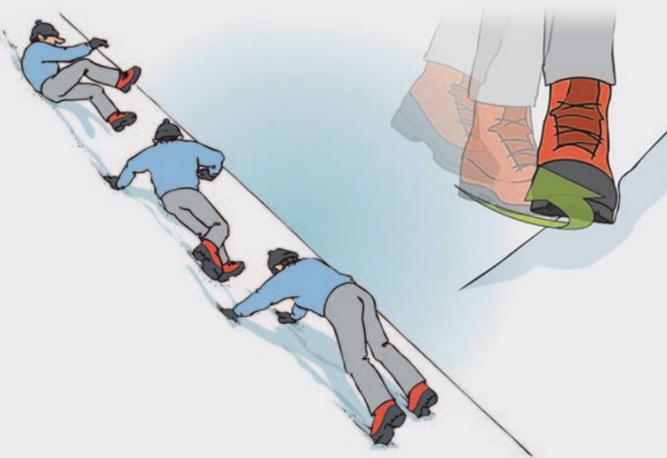
Walk at a deliberately slow and steady pace when ascending on steep trails - small steps save effort.

Approx. two thirds of all hiking accidents happen while descending due to fatigue entailing diminishing concentration, coordination and reaction. Steep descents require your body's centre of gravity over your feet: bend your knees slightly, bring your upper body a little forward and round your upper back a bit. If the descents are long and challenging, take breaks.

In sections with a risk of falling, slow down your walking pace deliberately.

### **6** stay on marked trails

In pathless terrain, the risk of losing your orientation, falling from heights and rockfalls increases. Avoid shortcuts and return to where you last knew your position in case you did lose your way. Never underestimated the dangers of steep old snow patches! It is not uncommon for shortcuts or alternative routes to end in rough and difficult terrain. Falling from heights, losing your way or a sometimes life-threatening bivouac night may be the consequence. Accident statistics show that these emergencies occur particularly frequently in the autumn when days are already noticeably shorter. At this time of year, it is also important to keep an eye out for icy and slippery trails - especially in the shade.

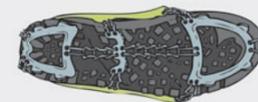


#### Be extra-careful on old snow patches

There is acute danger of slipping, sliding and falling! If the snow surface is soft enough, kick steps into the snow to create footing. Hiking traction devices (e.g. "Spikes") - quickly and easily mounted on the hiking boots - reduce the risk of slipping. Be careful: Snow is more difficult to descend and traverse than to ascend.



mini-spikes



### **7** make regular breaks

Regular breaks give the body time to relax, allow you to enjoy the landscape and socialise with your buddies. Food and drink are necessary to keep up your performance and concentration. Isotonic drinks are ideal for quenching your thirst.

Hiking is not a competitive sport. Outperforming and competition, a hectic pace and stress have no place in the mountains! Taking short breaks for rehydrating every hour or so keeps your circulation "at hiking speed" while enjoying the wonders of nature.

Treating yourself to a muesli bar every second break prevents a drop in performance due to hypoglycaemia. To relax and keep up your concentration, take short breaks at regular intervals on your descent, too.

#### Nutrition for mountain hikers

A carbohydrate-rich and easily digestible breakfast with plenty of fluids (not just coffee) is the best start to a hike. Do not eat a heavy meal immediately before the tour.

While hiking, eat mostly healthy carbohydrates (up to 75 % of the total food intake) such as dried fruit, bananas, fruit, muesli or energy bars and wholemeal bread.

The motto for ordinary mountain hikes is: "Eat what you find appealing".

Eat the first "small meal" after 2 hours at the very latest. Afterwards, eat and drink (isotonic beverages) every 1 to 2 hours. Pure dextrose is not recommended as it is quickly metabolised and causes a dip in your blood sugar (hypoglycaemia). Make sure you drink enough to keep up your performance. Depending on how long you are hiking, pack a minimum of one to two litres of fluids.

Drink before you feel very thirsty, ideally a small drink of approx. 1/4 litre is best. Remember: Thirst is a signal from your body, indicating that it needs fluids (water) now. Do not suppress your thirst - or your performance will drop.

Low-sugar, mineral-rich beverages (potassium-rich fruit and vegetable juices) are best for quenching thirst.

### **9** hike in small groups

Small groups are more flexible and make helping each other easy. Let responsible people know where you are going, the trail(s) you intend to hike and when you expect to be home. Stay with your group. Be aware, solo hikers: Minor incidents can turn to major emergencies. The ideal group size for mountain hiking is 4 to 6 people. Mountain hikes in groups of far more than 8 people quickly become chaotic outings. The sense of experience and recreation also suffers when hiking in large groups. Staying together in your group, consideration of weaker members and the willingness to turn around if necessary should come naturally on the mountain.

### **8** responsible hiking with children

Keep in mind that for children, variety and playful discovery have priority. In sections presenting risk of falling, one adult can look after only one child. Very exposed tours requiring sustained concentration are not suitable for children.

It is not our children who accompany us to the mountains, but it is us who accompany our children. This is the formula for a day full of wonderful moments. Do plan enough time for activity & play breaks and wayside discoveries. For children, forest roads are boring! Look for interesting, not too demanding trails - ideally, try to find a circular hike with options to cut the hike short. A favourite snack and the teddy bear riding along in the kid's rucksack are just as important to boost motivation.

Make sure toddlers in a child carrier sit comfortably, have enough to drink and are protected from wind, cold and sun (!).



### **10** respect nature & environment

Protect the alpine environment: Do not leave any waste behind, refrain from making noise, stay on the trails, do not disturb wild and grazing animals, leave plants untouched and respect protected areas. Use public transport or car-share to get to the trailhead. "The Alpine Associations advocate the right of access to nature and backcountry to be preserved and that restrictions be imposed after due consideration of interests only. Consideration, prudence and a willingness to turn back in justified cases are necessary to avoid conflict." (Basic policy of AVS, DAV, ÖAV on environmentally friendly mountaineering.)