

Preparation for an Alpine Ascents' Matterhorn Climb

Climbing the Matterhorn (14,687'/4478m) requires familiarity with rock, snow and ice skills, strength endurance, and strong cardiovascular conditioning. Your climbing skills will build gradually as you climb the Riffelhorn, Pollux, the Rimpfischhorn and finally the Matterhorn. Having strong alpine skill levels and top physical conditioning will both play an important role in your success in the mountains. Just because you exercise regularly (4-6 times per week) does not mean you have the conditioning needed to reach the summit of the Matterhorn. Plenty of people who have the endurance to run a marathon fail to summit high-altitude peaks. Pure cardiovascular fitness is simply not enough. Summit day alone requires stamina necessary to gain 4000 feet (1200 m). You should have conditioning necessary to ascend 3,000' elevation on successive days carrying up to 40 pounds.

Prioritize your training efforts in the following way, assuming that you are in good health and injury-free:

1. Climbing conditioning – pack-loaded uphill hiking, walking, and stair climbing
2. Strength training for the lower body and core
3. Cardiovascular training, including both aerobic and anaerobic workouts without pack weight
4. Flexibility training

Most people will need to train specifically for their Alps climb of the Matterhorn for at least 3-4 months. During your training, you will need to progressively ramp up your hike time, distance and elevation gain (at roughly 10% per week) to safely and effectively build your trekking-specific conditioning. Trying to rush this will increase the risk of experiencing some sort of training injury and not being ready for your trip. Below are more details of how to incorporate these four priorities into your program.

Climbing conditioning - Hike along outdoor trails, gradually increasing your pack weight until you are comfortable carrying a 40-pound pack. If you live where it is relatively flat, go up and down stairs or train on an inclined treadmill or stairmaster. Use whatever varied surface terrain (i.e. gravel beds, sand dunes, river banks) you have access to. A reasonable goal would be to ascend 3,000 feet carrying an average pack of 40 pounds in a 3 hour period, or roughly 1,500 vertical feet per hour. A good training option for pack weight is to carry water in gallon containers or collapsible jugs, so you can dump water at the top as needed, to lighten the load for the descent.

In early season, start with a hike that gains up to 2000' elevation over 5-7 miles round trip, and carry a 20-pound pack; each hike try adding 3-5 pounds until you are comfortable with a 40-pound pack, then begin increasing the total elevation gain and mileage. When you can gain 3,000 feet with a 40-pound pack, start decreasing rest breaks and increasing speed on each conditioning workout. A month from your climb, you should be comfortable hiking on successive days with a 40-pound pack on one of those outings.

Two training techniques that will be useful for high-altitude trekking are 1) interval training and 2) back to back training (discussed in more detail in *"Putting it all together"* below.) To include interval training, find a steep hill or sets of stairs that will allow you to climb steadily for several minutes. Push as hard as you can going up, then recover coming down, and repeat for anywhere from 20-45 minutes depending on how close to your climb you are. Gradually add weight to your pack (no more than 10% per week) until you can carry 40 pounds the entire time.

If possible, participate in as many hikes at altitude as you possibly can to learn how your body reacts above 13,000 feet elevation. If you have access to a climbing gym, try to include 1-2 weekly climbing sessions working on building strength and endurance in your core, forearms, calves and legs.

Strength conditioning - Training with free weights, bands, a backpack, bodyweight exercises, or gym machines will help you build overall strength, particularly in the core (lower back and abdominals), upper back and shoulders, and legs. Developing strength in your upper back and shoulders will help you with such tasks as carrying your pack and climbing rock and ice. The calves, fingers and forearms are all heavily involved in vertical ascending, and hip, core and quad strength endurance is required for descents.

Training primarily with free weights will give you the functional, trekking-specific strength that will help you most in the mountains. Free weight-training requires that you balance the weights as you would your own body, weighted with a pack, in three-dimensional space. When starting any strength conditioning program, complete two full-body strength workouts a week for 30-45 minutes each, focusing on compound exercises such as squats, lunges, step-ups, dips, pull-ups, rows, dead lifts, bench presses, pushups, and overhead presses. A well-designed gym climbing program can replace one of these suggested workouts weekly.

In the beginning phase of strength conditioning, focus on building a foundation for harder workouts; to that end, keep the weight light enough to concentrate on good form and complete 2 sets of each exercise for 8-10 repetitions. As you continue to train, you will shift focus to building strength (generally lower reps 5-8 with heavier weight). 4-6 weeks before your climb, shift your training to focus on strength endurance (higher reps 10-15 with light weight) to turn the newly gained strength into greater strength endurance. Each training phase should vary the weight used, repetitions completed, number of sets, and rest intervals. Regardless of training phase, always be sure you maintain proper form in order to prevent injury or strain.

Cardiovascular conditioning – Include spinal-loading aerobic training options 3-5 times a week. Appropriate options include trail running, walking on an inclined treadmill, doing stair stepping or step mill training, jogging, working on an elliptical machine, walking up and down hills, or participating in step aerobic classes. While biking, rowing and swimming are aerobic options for the earliest stages of training, be sure as you get closer to your trip that you include activities suggested above that load the spine and legs the same way that trekking will.

When first beginning a cardiovascular training program, begin with three weekly workouts of 30 minutes of sustained activity at a moderate intensity, and build to 4-5 aerobic sessions of sustained effort for at least 45-60 minutes. Be sure to include a 5-10 minute gentle warm-up before working at your target heart rate for the day (for most workouts, choose a level of exertion that allows you to connect a few words together in a phrase, but leaves you feeling comfortably tired at the end of the workout), and cool down with 5-10 minutes of appropriate stretching of the muscles you use most in your activity, including lower back, calves, hamstrings, hips and quadriceps.

Flexibility conditioning – Be sure to include at least 5-10 minutes of targeted stretching following every workout, specifically for the hamstrings, glutes, hips, calves, forearms, lower back and quadriceps. If you have any areas of concern early season, add emphasis to making sure you have normal range of motion about all your joints. This will become even more important as you add weight and distance to your conditioners.

Putting it all together --

Roughly a month before your climb, you should be at the conditioning level where you are comfortable hiking on consecutive weekend days, what is referred to as *Back-to-Back training*. This involves hiking with your target climb pack weight (40 pounds) on the first day for at least 3,500' gain, and a somewhat lighter pack (30 pounds) for greater mileage on the second day to simulate your approach and summit days of your trip. This will not only be helpful physically but also prepare you psychologically for the challenge of repeat high-effort days without any recovery days in between. A sample week of training *a month prior to your climb* might look like the chart below, in an effort to help you build as much stamina as possible.

Day	Climbing Specific	Strength	Cardio	Flexibility
Mon			30 min. no pack recovery level (<65% Max HR)	10-15 min. at the end
Tue	Hills, Stairs or inclined machine 35-45 min., 40 lb pack, Interval level (short bursts >85% Max HR)	Climbing gym 45 min.; Full body, 12-15 reps / 6-8 exercises, 30 min.		10-15 min. at the end
Wed			75 min. no pack distance level (65-75% Max HR)	10-15 min. at the end
Thu		Full body, 8-10 reps / set, 45 min.	45 min. no pack tempo level (75-85% Max HR)	10-15 min. at the end
Fri				
Sat	Hike 6-8 miles, 40 lb pack, gain 3,000 feet	(Opt) Climbing gym 75 min.		As needed to prevent stiffness
Sun	Hike 8-10 miles, 30 lb pack, gain 3,500 feet			As needed to prevent stiffness

Be sure to include at least one recovery day per week and listen closely to your body. Take the final week to taper or gradually reduce intensity and volume of training so that by the time you leave for your trip you are well rested and physically and psychologically up to the challenge.

You can find additional training resources at www.BodyResults.com for the following:

- Training Articles
- Training Books and DVDs
- Customized Online Mountaineering Specific Training

Special discounts are available for Alpine Ascents Customers at the page www.BodyResults.com/aai

This training information was provided by Wilderness Sports Conditioning experts Courtenay and Doug Schurman of BodyResults.com. They are the exclusive conditioning resource for Alpine Ascents. They oversee all client training, are co-authors of the book, The Outdoor Athlete (2009) and are creators of the Train To Climb Mt Rainier DVD.