

# Training for the NEW ALPINISM

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A MANUAL FOR THE CLIMBER AS ATHLETE

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Steve House | Scott Johnston

FOREWORD BY MARK TWIGHT

The background of the cover is a photograph of a high-altitude mountain range. The peaks are covered in snow and partially shrouded in mist. A climber in a red jacket is visible on a rocky outcrop in the middle ground. The sky is a deep blue.

Training for the

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Steve House and Scott Johnston

**patagonia**  
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Mark Twight exiting the Col Fourche bivouac near Mont Maudit, France. *Photo: Ace Kvale*

## The Edge of the Map

I consider myself a charter member of the first generation of alpine climbers who trained intentionally using artificial means.

For me, training was born of failure. When I failed—and it happened a lot—it was because ambition outstripped ability. I narrowed that lack of ability to physical issues often enough that I decided to do something about it. Chasing the first half of Brian Eno’s motto, I pushed myself to “the most extreme limits” and reaped rewards, but it took years to fulfill the second half of that motto which is “retreat to a more useful position.”

My approach to training echoed how I climbed. The romance of climbing didn’t interest me. I didn’t seek harps and wings. I heard no opera up there. Instead, my mountains had teeth. The jagged edge we walked up there dragged itself across my throat, and the throats of my friends and peers. I took the mountains’ indifference to life as aggression, and fought back. I armored myself against that indifference; with training, with thinking, with attitude. I trained with friends who shared a similar approach. Our mantra was dark, but it motivated us.

When we ran we breathed in rhythm—no matter the speed—and that beat had words: “They are dead.” We inhaled and exhaled the great alpine epics—like the tragedy that befell Walter Bonatti’s party on the Freney Pillar—to push ourselves to a place where we would never come up short physically.

The consequences of falling short made training important. I realized early that controlling the things that I could control gave me greater freedom to address the things that I could not control. And the mountains offered those in spades.

Unfortunately, I had no idea how to use the gym, and without someone to ask, I made many mistakes. I tried to mimic climbing in the weight room, but didn’t comprehend how best to use this valuable tool, and wasted my time. The gym is useful as a means of overloading the organism in a way that can’t (safely) be done in the real environment of alpinism.

Later, my training sessions began by pre-fatiguing my body on a Stairmaster, or treadmill, and then lifting because that’s how alpinism looked to me: approach and then climb. It took years to learn that doing the opposite sent hormonal signals more appropriate to physical development for alpine climbing.

Then I read that some rock climbers used hypertrophy-style training to increase muscle mass and push limit-strength higher. So we did that until I realized that mass had to be carried whether it was being used or not. I had misused a specific training idea based on the mistaken premise that alpine climbing is the same. It isn’t. Limit-strength was never an issue in the mountains but we wanted it to be, so that we could do that style of training.

Eventually I trained in a way that emphasized maximum recruitment of existing muscle. I had to carry my own engine so it made sense to increase my power-to-weight ratio; to extract the maximum from existing resources. Then, I reasoned, if the engine is still inadequate, I could increase its horsepower—as long as that doesn’t affect fuel economy.

The engine analogy produced an accurate description of our training objectives, which allowed us to think and plan in coherent terms. We decided that the ideal “engine” for alpinism could go forever

produce explosive force on demand and keep delivering 50 to 60 percent of peak force without “overheating.” Tuning such diverse characteristics into an engine requires much of the mechanical skill, the foremost of which is an understanding of the overall objectives.

In *Extreme Alpinism: Climbing Light, Fast and High*, I described the goal of physical training for alpinism with the phrase “to make yourself as indestructible as possible.” In short: resilience. For too long I thought this concept was solely contingent on physical capacities, but eventually realized that these influence mental capacities. In fact, I think we revere the physical too much when it is the mind that imagines the goal, solves the problem, and achieves it—using the body as its engine.



Mark Twight climbing the Chere Couloir, Mont Blanc du Tacul (13,937', 4,248m), France in 1990.  
Photo: Ace Kvale

If physical training is a tool, it's a hammer. Often we swing it to the exclusion of all other tools because it feels like an easy fix: it features nearly immediate positive feedback as well as rapid progress, especially if you've never used one before. But increased physical capacity doesn't guarantee improvements to climbing. Often strength blinds us to the benefits of technique and efficiency. We close our eyes and pull, but alpinism rarely rewards raw strength—successful alpinists appear to be those who multiply physical force with the lever of creativity, confidence, and psychological resilience.

Undertaken correctly, physical training is a useful means of psychological manipulation: goals set in the gym are achieved, and surpassed in the gym—whether they are specifically transferable or not—stimulating psychological development we can express in the mountains. Constantly overcoming difficult training challenges and examining ourselves along the way improves self-assurance. That confidence frees the imagination. It opens doors to new, more difficult projects, and expands our problem-solving repertoire.

To attempt the impossible demands a high order explosion of confidence, sustained by the discipline

fueled physical capacity to back up that hubris. Neither capacity is powerful on its own but a whole well-trained mental-physical system is practically unstoppable. In this sense we can bring our unrealistic ambitions within reach by figuratively changing the length, and functionally increasing the strength of our arms.

The really big routes I climbed didn't happen because I trained harder. Rather they happened as a result of having trained better and climbed more. Frequency and consistency and accumulation allowed me to go harder, higher, and for longer. Increasing the intensity of the "artificial" training was never critical. Intensity played a minor role: it could not shortcut experience or efficiency. Twenty years of consistent training squeezed wretched mental weakness out of me and built a vast foundation of accumulated fitness. The resulting deep physical tank and huge psychological reserve opened up terrain and timing that I could never have imagined without it. Training was one of the keys to my success as a climber, but not in the way I believed it would be when I hit the weight room that first time.



Mark Twight and Scott Backes approaching the south face of Denali and the Slovak Direct Route.

*Photo: Steve House*

These days physical and mental training is my bread and butter. Strength training directly benefits the athlete who plays a sport in which the strongest always wins. That's not climbing. So we work indirectly: When we increase an athlete's work capacity, we improve that person's ability to recover, then climbing-specific training frequency can be increased, which means more climbing. A great volume of quality sport-specific effort leads to improvement. This is training but it is also lifestyle and managing it wholesale.

To achieve this we need a certain quantity and quality of knowledge. Unfortunately, much of what passes for fitness knowledge is actually marketing, or confined to the controlled conditions of a lab with no regard for biochemical or temperamental individuality. Steve and Scott have collected the vast data relevant to training and preparation for alpine climbing and are presenting it here in a practical, user-friendly manner. They back their thesis with their own remarkable experience. And reinforce it with unique points of view contributed by climbers whose practice has had enormous influence on the evolution of the sport. On its own the book is invaluable. Combined with the routes and adventures that it will surely inform, its impact on the evolution of the generations of future climbers will be great.

I often say that greater fitness leads to more opportunity. This holds true for knowledge as well. When we acquire new skills, when we develop ourselves as human beings, we uncover new potential. The map gets bigger. We increase the scope of our world and the opportunities available in it. *Training for the New Alpinism* might well take you right off the edge of the world as you know it.

**MARK TWIGHT**

*Salt Lake City*

*June 2013*



Mark Twight riding the cobbles in Sofia, Bulgaria, after finishing the work day training actors and stunt crew for the Warner Brothers movie: *300: Rise of an Empire*. Photo: Clay Enos



Swiss alpinist Stephan Siegrist climbs the Difficult Crack pitch of the 1938 Route on the north face of the Eiger (13,024', 3,970m) in Switzerland. *Photo: Thomas Senf*



## The Old Becomes New Again

It was a close, warm, breezeless summer night,  
Wan, dull, and glaring, with a dripping fog  
Low-hung and thick that covered all the sky;  
But, undiscouraged, we began to climb  
The mountainside.

— WILLIAM WORDSWORTH, *The Prelude* (1799–1805)

Physical exploration of the world was growing rapidly during the Romantic Period, the time of Wordsworth. Early mountaineers were upper class and well educated: poets, photographers, geologists, painters, and natural historians.

In 1895 the Englishman and alpinist Albert Mummery and four men undertook the first attempt to climb one of the Himalaya's giant peaks, the 26,660-foot (8,126-meter) high Nanga Parbat. Mummery and two of his men lost their lives in an avalanche during the attempt. Thus climbing entered the twentieth century with artistic grace tainted by extreme tragedy; this began the greatest period of growth in alpinism, particularly in the Alps.

Technical standards rose rapidly. In 1906, 5.9 was first climbed in the Elbe Sandstone Mountain. Around this same time Austrian Paul Preuss trained himself to do one-armed pull-ups and climb (and down climb) alpine rock routes in the Dolomites to a modern grade of 5.8, solo and with hobnailed boots. By 1922 the top grade was 5.10d. Climbers of the time climbed many beautiful and difficult routes in the mountains. To modern climbers, they seem to have been driven by an innate curiosity to ascend, explore, and observe what would unfold in the process.



Tom Hornbein on the summit of Mount Everest (29,029', 8,848m) at 6:15 p.m., May 22, 1963, after making the first ascent of the west ridge. He and Willi Unsoeld also completed the first ever traverse of a mountain over 8,000 meters. *Photo: Willi Unsoeld*

The great wars twisted everything; the conquest of the world's fourteen highest peaks after World War II became surrogate battlegrounds to reinforce superiority, or symbolize rebirth, depending on whether your country had won or lost: Annapurna to the French, Everest to the British, Nanga Parbat to the Germans, K2 to the Italians. Ascent was transformed into conquest; summits became symbols of nationalistic pride. The climbing of mountains was changed forever. This ended symbolically in 1980 when Reinhold Messner was asked why he did not carry his country's flag to the top of Everest and he replied: "I did not go up for Italy, nor for South Tyrol. I went up for myself." Though his comment angered many at the time, the line was drawn.

In the information age all must be measured. For climbing, an emphasis on difficulty and speed emerged. Hardest, highest, fastest. In the age of social media all must be shared. The resulting cocktail of cameras, danger, and testosterone are all too often tragic. Rarely graceful.

The new alpinism comes full circle as small teams of fit, trained athletes emulate Mummery, aspire to Preuss, climb like the young Messner. Because those pioneers knew that alpinism—indeed all mindful pursuits—is at its most simple level the sum of your daily choices and daily practice. Progress is entirely personal. The spirit of climbing does not lie in outcomes—lists, times, your conquests. You do keep those; you will always know which mountains you have climbed, which you have not. What you can climb is a manifestation of the current, temporary, state of your whole self. You can't fake a sub-four-minute mile just as you can't pretend to do an asana. Ascent too is an expression of many skills developed, refined, mastered.

Training is the most important vehicle for preparation. Constant practice begets examination and

refinement of technique as well as fitness. It is not our natural tendency to value struggle over success, a worldview that climbing sternly enforces. Embracing struggle for its own sake is an important step on your path. Incremental vacillations in your self—your physical and mental selves—are exquisitely revealed in practicing ascent. There is no end to your progress or your process. For the two of us the pursuit of climbing mountains has been among the most powerful personal experiences we have known. Nothing else has come close to the blunt power of climbing to inform us about ourselves.

We don't presume to tell anyone what the new alpinism will actually become; no one can know this. But we do think that we have earned the perspective to point in the right general direction. Structured, progressive training will be a big component, perhaps define, the future of alpine climbing. But not because it will help you climb harder, faster—though it will. Training prepares your body and, most important, your mind for ascent through consistent, hard, disciplined practice.

Go simply, train smart, climb well.



Hayden Kennedy leading a difficult mixed pitch high on Baintha Brakk (The Ogre, 23,901', 7,285m) during the first ascent of the south face. *Photo: Kyle Dempster*

## Training for the New Alpinism

“What advantages do we hope to gain (from climbing mountains)? Naturally, there is the pleasure we get from the climbing process itself and from our victories, but as well as the delights of exercise in a mountain environment, there is also the process, coming every time as a surprise, of self-discovery, deepening a little further with every climb: who we are, how far we can go, what is our potential, where are the limits of our technique, our strength, our skill, our mountaineering sense: discoveries whose acceptance means that, if necessary, we may turn back and return another time, several times if need be—‘Tomorrow is a new day.’”

— **GASTON RÉBUFFAT**, from *The Mont Blanc Massif: The Hundred Finest Routes*

Most of what climbers describe as training today happens as a substitute for climbing. You can climb because you’re far from the mountains, so you train; common examples include the lunchtime run or an after-work visit to the climbing gym. As soon as alpinists have time and access to mountains, they stop training because they can go climbing instead. This is the wrong approach if you want to progress your climbing, and has contributed to the dead-end standards of alpine climbing.

Standards in rock climbing have skyrocketed since 1978, from 5.13 to 5.15. It’s no coincidence that during this same period we’ve seen the emergence of climbing gyms and youth competitions. Today standards in alpinism languish. Steve attempted an unclimbed line on the west face of Makalu three times between 2008 and 2011, and was unable to match the high point established by Voytek Kurtyka and Alex MacIntyre in 1982. New routes established in alpine style on 8,000-meter peaks with sustained technical difficulties are so rare that, by our accounting, this has been accomplished only five times in history (1984 by Nil Bohigas and Eric Lucas on Annapurna, 1991 by Marko Prezelj and Andrej Štremfelj on Kanchenjunga South, 2005 by Vince Anderson and Steve House on Nanga Parbat, 2009 by Boris Dedeshko and Denis Urubko on Cho Oyu, and 2013 by Ueli Steck on Annapurna).

Structured coaching in competitive sports, and recently in sport climbing and bouldering, helps athletes learn how to train. This is not a part of alpine climbing’s culture. Alpinists climb. We have been brought up to believe that to get stronger we must simply climb a lot. And with climbing, fitness will follow.

If you aspire to climb difficult routes on Patagonian spires and you have only been rock climbing for a short time, then you are best advised to spend a majority of your time climbing granite cracks—and do so as much as possible. No book can teach you how to lead a runout pitch. No story can show you how to bivouac. You can read a thousand accounts of leading a steep, difficult hand crack far above the Patagonian ice cap, but that will bring you no closer to actually doing it.

The fact is that you will gain the strength and endurance to climb a hard pitch much, much more quickly with a training regime plus climbing than by climbing alone. After learning the physiology explained in the early chapters of this book, you will also understand that the majority of your climbing is best done below your top limit. This is for endurance, as well as technique, and psychological progress. This knowledge will help you gain the strength and endurance, and from that strength and endurance the disciplined mind and the correct technique will flow more easily.

One of the fundamental concepts of training for any sport is that event (climbing) specific training

must come on top of a very well-established base of conditioning. We acknowledge that climbing, and particularly alpine climbing, is a very highly skill-dependent sport requiring a broad range of knowledge, experience, and ability. It is exactly this need for climbing skill that tends to push alpinists (and all climbers) to “just climb” for training.

Consider that in the sport of running, the explosive power of a 100-meter sprinter and the dogged endurance of the ultra-marathoner are both running; yet the two are vastly different events. The surprise to many is that training for both of these events starts with the same general strength and conditioning to enhance basic physical qualities. As the 100-meter runner and the ultra-marathoner progress through their training plan, and through their careers, each will benefit from more and more specific training. This means that each will spend more and more time running distances and paces closer and closer to what they hope to achieve during their race. They know that the higher their level of basic fitness at the time they commence their event-specific training, the higher their performance will peak in their ultimate event.

For conventional endurance sports, such as running, the event-specific training makes up a small percentage of the total volume of training than you might imagine, both on an annual basis as well as during a lifetime. Depending on the development stage and the nature of the goals, specific training (meaning running a distance and pace approaching race distance and pace) can range from less than 1 percent of total training volume for young people and beginners up to a maximum of about 30 percent for world-class athletes.

Athletes commonly lose sight of the distinction between supportive basic training and the event-specific training and begin to overemphasize more event-specific training. The event-specific training and actual performances are the sexy stuff that makes impressive YouTube videos and exciting headlines that create the urban myths surrounding champions. Is there an alpinist who has not been inspired by the video of Ueli Steck soloing the 1938 Route on the north face of the Eiger in two hours and forty-eight minutes? One would have to be soulless not to feel motivated while watching the video of David Rudisha crushing his competition in the 800-meter Olympic final in the 2012 London Olympics as he set (yet) another world record. What you do not see as you watch these masters perform at the peak fitness of their lives are the countless hours of basic, non-event-specific supportive training that went into their record breaking.

To shed more light on how conventional sport can inform training for climbing, we'll use some analogies. Take the sport of cross-country ski racing, which Scott has an extensive background in as both an athlete and a coach at the World Cup level. These events demand that the athletes be able to sustain power levels between 95 percent up to 120 percent of their  $VO_2$  max for durations of up to several minutes at a time on gently rolling terrain to long, steep uphill. Then they need to recover quickly during the fast and often technically demanding downhill sections so that they can repeat their maximal efforts again many times over during a race lasting up to, or a little over, two hours. Technique is critical to success due to the large contribution economy of movement plays in determining speed. For the best skiers in this sport, approximately 80 percent of training volume is made up of non-event-specific training in such a way that the event (a ski race in this case) is broken down into its component parts and the training is focused on improving the athlete's abilities specific to those components. We can and will teach you how to apply this with climbing. In cross-country ski racing these components can be represented by strength and power training, various intensities and modes of aerobic base conditioning, technique drills, etc. Only 20 percent of their overall yearly training volume is spent doing training that specifically models the demands of an actual race.



The long duration of Nordic ski races and the full-body nature of this sport are physiologically similar to climbing long technical routes. *Photo: Ian Harvey*

For the climber training for the Disappointment Cleaver Route on Mount Rainier the training will be fairly simple since the principal quality required for that event is aerobic endurance and technique is not a major factor. The non-climbing-specific work will include strength training but will mainly consist of hiking and running in the mountains. As the training progresses, it will include climbs of nontechnical peaks with snow or glaciers. It is easy to see how the nonspecific training of hiking up and down hills lends support to the more demanding Mount Rainier climb.

This translation to climbing becomes more complicated when the event becomes a technical alpine route, possibly at altitude. Start to think like a coach and it should quickly become apparent that the basic supportive training will encompass all of the Rainier climber's training with the addition of technically demanding routes of various lengths and difficulties that challenge several of the physical and mental qualities needed to succeed at the main goal. To extend the analogy, you wouldn't train on climbs that encompass all aspects of your goal, but rather component parts. It can happen that some of these nonspecific training climbs may be admirable accomplishments in their own right. Just as a conventional athlete racks up an impressive résumé of jaw-droppingly difficult workouts and races and wins on his way to setting a world record or winning an Olympic gold medal.

One challenge for the alpinist with lofty goals is coming up with event-specific training. In other words, finding routes that combine components of the traits needed on the goal route. Alpinism has traditionally given lip service to this notion without fully understanding the context within which

fits. Climbers in North America have progressed from their home range to the Canadian Rockies to the Alps with perhaps a stint in the Alaska Range thrown in before heading to the Himalaya. Gaston Rébuffat in fact gave a step-by-step guide to this progressive approach in 1973 when he published *The Mont Blanc Massif: The Hundred Finest Routes*, which leads aspiring alpinists one step at a time through a progression of the skill-acquisition aspect of becoming an alpinist. But the message was not fully conveyed in terms of how this progression fits into the big picture of physically and mentally training for alpinism.

Steve has used the approach we advocate in this book by spending a prodigious amount of time on basic, supportive, non-event-specific training. He has then successfully built upon that with progressively more event-specific training on more and more demanding alpine routes. At the elite level it will be necessary to travel far and wide and plan long and hard to find appropriate event-specific training climbs.



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