

10 Must-Do Exercises for Climbers



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Introduction

Climbing is an extremely complex sport with its intricate technical demands, multifaceted cognitive challenges, and physical rigors. So while the narrow focus of this eBook is on improving your physical fitness, I must start off by stressing the importance of becoming a complete climber. Therefore, your quest for climbing mastery and the higher grades must be grounded on a desire for constant, never-ending improvement (what the Japanese call *Kaizen* or “change for the better”) in all aspects of our game.

While I have written several training books over the last 30 years—detailing literally hundreds of exercises and training protocols—this eBook presents a distillation of this massive knowledge base in the form of 10 simple, yet effective exercises that every serious climber should include in their training program. Of course, these “10 Must-Do Exercises” represent just the tip of the training-for-climbing iceberg—there are dozens of other beneficial exercises you should consider and, importantly, the structuring of an effective day-to-day training program, that addresses your unique weaknesses, is the magic that brings about excellent results. No eBook or downloaded training program can replace the sage advice and program design of a veteran climbing coach, so I recommend engaging such a coach if you have the opportunity.

I’ve written this eBook to be a quick read with maximum impact. Its three Parts address strength training exercises for: 1.) the important, but commonly ignored, rotator cuff and scapular stabilizer muscles, 2.) the core muscles, and 3.) the climbing-specific muscles of upper torso, arms, and fingers. This may not be the most sexy (or pumpy) selection of exercises, but there’s a method to my coaching madness...with the ultimate goal of this eBook being to open your eyes to the wide range of important exercises a serious climber should be employing. (You can’t just hangboard, run, or climb your way to the elite grades—it takes a smart, comprehensive, and progressive program to get you there.) Use these exercises two or three days per week, as a supplement to a few days of actual climbing, and you’ll become a stronger, more physically sound and injury-resistant climber.

A final comment before we get training: Consider subscribing to my monthly training for climbing podcast on Apple Podcasts, Spotify, or your favorite podcast App, and do check out a few of my books as a way of tapping into my decades of climbing, coaching, and research experience. There are certainly many other sources of training information out there to explore as well—but do recognize that there’s a stark difference between simply “accumulating information” and, the more empowering act of “discovering and applying real difference-making information”. While the former may make you feel smarter, it’s the latter that will actually help you train more effectively and climb harder.

So with that final word of wisdom, I wish you many happy days of effective training...and a life full of wondrous, glorious days at the boulders and crags!

"Performing in the vertical extreme requires strength, power, and endurance; vast technical skills; and the ability to focus and manage fear in potentially dangerous situations. In aggregate, these factors make climbing one of the most complex sports on this third rock from the sun."—Eric Hörst

PART 1 - Rotator Cuff, Scapular Stabilizer, and Antagonist-Muscle Exercises



The rotator cuff is arguably the most stressed group of muscles in the body of a climber. While the forearms get all the attention—and pump—the rotator cuff and scapular stabilizers are the real heroes as a climber repeatedly pulls with his/her arms from a wide range of angles, both statically and dynamically applying force of varying intensity.

Climbing on overhanging walls, at times with jumping, lunging, and campus moves, challenges the rotator cuff muscles to keep the humeral head in its place; similarly the scapular stabilizers must work hard to move the scapula into the proper position for each given arm position in climbing. Even in vertical climbing, the crimp grip and the chicken-wing arm position stress the rotator cuff, and not surprisingly, shoulder pathology will weaken your grip. Hence, dysfunction anywhere along the chain of force application—fingers, wrist, elbow, or shoulder—will negatively affect performance of the entire system.

If you still aren't motivated to train the rotator cuff and scapular stabilizers, roll this over in your mind: Weak rotator cuff muscles are a common, yet unrecognized, limiting constraint in your maximum pulling strength, lunging power, grip strength, and contact strength. So if you're a hard-training climber frustrated by a lack of strength/power gains on the rock, it may be that your central governor is limiting power output due to afferent feedback from your weak, unstable shoulder joints. This is why it's essential to train *stability before strength, and strength before power*—make this one of your guiding principles and you'll be training smarter than most other climbers.

Anyway, I trust you'll agree that the shoulder is a truly wondrous and remarkably dynamic joint, and, therefore, it's essential that you are proactive in training (and addressing weaknesses in) the many muscles involved. Through regular use of both strength training and mobility exercises, you will improve movement patterns, posture, and joint function that hold up even when climbing in a state of high fatigue (when injury risk is highest).

In PART 1, then, I'll present three exercises that you can add to your training program to isolate and strengthen the rotator cuff and scapular stabilizers. Consult chapter 6 of *Training for Climbing* to learn many more shoulder mobility and rotator cuff strength exercises.

Exercise #1: Dumbbell External Rotation

The infraspinatus and teres minor are the primary external rotators, although they get some help from the deltoids. Many climbers are surprised to discover that they have weak external rotators and thus may be able to lift only about half as much weight as when doing an internal rotation exercise (not shown). Strengthening the external rotators should be a high priority, as this will provide additional protection of the rotator cuff when grabbing the rock with the stressful overhead Gaston positions common to hard climbing.



How to do it:

1. Lie on your side with your bottom arm in front of your waist and a rolled-up towel under your head to support your neck. Alternatively, you can bend your bottom arm and use it as a headrest.
2. Hold a 5- to 10-pound dumbbell in the hand of your top arm. Rest the upper arm and elbow on the top side of your body, and then bend at the elbow so that the forearm hangs down over your belly and the weight rests on the floor.
3. Keeping your elbow and upper arm fixed, lift the weight upward toward the ceiling and stop as your forearm approaches a vertical position.
4. Return the weight to the starting position, and continue for twenty to twenty-five repetitions.
5. Do two sets on each side, with a 3-minute rest in between. Increase weight in 2- to 5-pound increments.

Training tip:

Initially, you may need to use as little as 5 pounds (~2.5 kg). With long-term training, however, you should be able to improve to using a 10-pound dumbbell; especially fit climbers may be able to use up to 15 pounds. This is a difficult exercise, and using proper technique is essential for isolating the external rotators. Err on the side of using too little weight, rather than too much.

Alternate exercise:

If you don't have access to dumbbells, you can use a rubber exercise band as an alternative training method. Stand with your arms bent at 90 degrees, elbows by your side and hands extending forward holding a taut exercise band with a palms-up grip. Now pull your hands apart while keeping your elbows fixed by your side—think about pinching your scapula together as you separate your hands. Adjust your grip on the exercise band to regulate tension. Do twenty repetitions.

Exercise #2: Shoulder Press

The shoulder-press motion is almost exactly opposite that of pulling up while climbing—therefore, no exercise is more central to antagonist-muscle training. Although you can execute this exercise with a common health club overhead-press machine, performing dumbbell shoulder presses provides a more complete workout, including some extra work for the rotator cuff and scapular stabilizers.



How to do it:

Sit on a bench with good upright posture and feet flat on the floor. Begin with bent arms, palms facing forward, and the dumbbells positioned just outside your shoulders. Press straight upward with your palms maintaining a forward-facing position. As your arms become straight, squeeze your hands slightly inward until the dumbbells touch end-to-end. Lower the dumbbells to the starting position. The complete repetition should take about two seconds. Continue this motion for fifteen to twenty-five repetitions. Strive for smooth, consistent motion throughout the entire set. Rest for 3 minutes and perform a second set.

Training tips:

If you're new to weight training you may need to start training with 5-pound dumbbells and advance to 10- and then 15-pounders when you can do twenty solid repetitions. Stronger climbers may be able to begin training with 20-pound dumbbells and then progress to 25 and 30 pounds when able to do twenty repetitions. Over the long term it's best not to progress beyond about 40 percent of your body weight (total weight lifted), since frequent use of heavier weights may build undesirable muscle bulk.

"Weak rotator cuff and scapular stabilizer muscles are a common, yet unrecognized, limiting constraint in your maximum pulling strength, lunging power, grip strength, and contact strength."

Exercise #3: Sling Trainer “Y”s

A sling trainer, such as TRX (shown), is an excellent training tool for climbers, as it enables a variety of beneficial upper-body exercises using your body as the resistance. If there’s one sling trainer exercise that all climbers should do, it’s the “Y”—a motion that targets the often-overlooked lower trapezius muscle group. The lower traps produce scapular depression and rotation, which is essential to avoid shoulder impingement when doing overhead movements. Among climbers the lower traps are commonly a weak link (one factor contributing to the hunchback “climbers’ posture”) and thus are a potential contributing factor to shoulder injury. If you frequently engage in campus training and lunge moves, then a strong mid and lower trapezius are vital for maintaining proper scapular position (to avoid trashing your shoulders).



Alternate exercise:

You can also do the Y exercise lying prone on a bench with just arm weight or a 1- or 2-pound dumbbell in each hand. Begin with your arms straight and hanging down under the bench below your face. With a stiff core and tight glutes, lift your straight arms up into the Y position with your hands about 50 percent wider than shoulder width. Do two sets of ten to twenty repetitions with a 3-minute rest in between.

How to do it:

You can do “Y”s in a standing position with a sling trainer or prone on a bench (see alternate exercise below). Using a sling trainer, grasp the handles with straight arms extended forward and palms facing down and slightly inward. Now contract your core, glutes, and leg muscles and lean backward to weight the sling trainer; you can also walk your feet a bit forward increase the resistance. Maintaining a tight torso and straight arms, pull your hands apart and upward in a smooth motion to form a “Y”. Stop pulling when your arms come in line with your body—at this top position your hands should be about 50 percent wider than shoulder width. Be sure to contract your core, glutes, and legs to maintain rigidity throughout the range of motion. Think about drawing your scapula down and inward as you approach the top of the Y position. Do two sets of ten to fifteen repetitions with a 3-minute rest in between.

Bonus exercises:

Do a set of sling trainer “T”s and “I”s to more completely work the middle and lower traps. Set up as in doing “Y”s, but pull the handle out to the side to form a “T” or straight overhead to form an “I”. Maintain straight arms and a stiff core throughout.

PART 2 - Total Core Exercises



In climbing, the core muscles play a key role in enabling your arms and legs to maximize leverage and transfer torque from hand to foot and vice versa. Furthermore, the core muscles are what provide body tension when you're trying to make a long reach or twisting body movement. In fact, every full-body climbing movement calls the core muscles into action. Consequently, a lack of core strength makes executing climbing moves harder—a performance overcharge—especially when venturing onto steep terrain. So if you frequently struggle on vertical to overhanging routes, it's a safe conclusion that your difficulties are due to a combination of poor technique and insufficient upper-body and core strength.

So what's the best method of training these muscles? Sit-ups or abdominal crunches are the obvious choices; however, these exercises target only a small portion of your core muscles. Other popular options are yoga and Pilates classes, which bring all the muscles of the torso into play. Despite the rigors of these classes—which are excellent for developing body awareness, flexibility, and general conditioning—they will fail to develop a high level of climbing-specific core strength. So while participating in yoga or Pilates classes is a worthwhile endeavor, there remains a need to engage in supplemental core training that activates the core muscles in more strenuous and climbing-specific ways.

Toward this end, PART 2 presents two effective core exercise that are often overlooked or, perhaps, even unknown to some climbers. The first exercise focuses more on the anterior core, while the second isolates the posterior core. Certainly there are many other excellent (and also not-so-excellent) core exercises used by climbers, and you'll get the best results by using a half-dozen or so different exercises to target your core—consult *Training for Climbing* for a comprehensive study of core muscle training.

Exercise #4: Windshield Wipers

This is a fantastic—and relatively difficult—anterior core exercise that targets the abdominals, obliques, and all the muscles of the upper torso and shoulders. Initially, it may take a few workouts to get the hang of this exercise, but motor learning and strength gains will come quickly!



How to do it:

Begin hanging palms away from a pull-up bar, and then lift your legs upward until your back is nearly parallel to the ground and your shins are near the level of the bar. Now lower your legs to one side, then immediately return to the top position and lower to the other side. This motion is like windshield wipers tracking from 9 o'clock to 3 o'clock and back again. Continue for six to twelve (hard) side-to-side repetitions, trying to maintain a flat back position that's roughly parallel to the ground throughout. Do two or three sets with 3 minutes rest in between.

Training tip:

It helps to bend your arms slightly and think about trying to “bend the bar” with your hands throughout the entire exercise—this will better active your rotator cuff and scapular stabilizers, making the exercise a bit easier and less stressful on the shoulders.

"A lack of core strength makes executing climbing moves harder—a performance overcharge—especially when venturing onto steep terrain."

Exercise #5: Deadlift

It took me until almost age 50 to discover the benefits of deadlifting. As an aging climber with a “bad” lower back, I began a slowly progressive program of deadlifting, stretching, and foam rolling in hopes of erasing decades of abuse. My posterior chain muscles awoken from a decade-plus of amnesia, and I’m now nearly pain-free and climbing much harder than a couple of years ago—talk about a win, win, win!



How to do it:

Setup with your feet parallel and a bit less than shoulder width apart (~12 inches for most people). Position the bar over the middle of your feet and about one and a half inches from your shin, and then push your rear end back and flex at the hips and knees in order to grab onto the bar with an opposing grip. At the starting position your arms are just outside of your legs, your scapula are above the bar, and your knees are over the bar. Now think about squeezing your chest out/up by engaging the muscles in the mid-back and then letting the contraction continue down into the lower back until it is tightened into contraction too. Take a deep breath and hold, tightening your core down, and drive your feet into the floor—think about dragging the bar up your shins. Focus on driving your hips forward and then pulling shoulders back (and scapula together) as you approach the top position—your lower back must be kept in extension throughout the lift (not over-extended or rounded). Finish standing tall, like a soldier at attention, but do not hyperextend your back and do not shrug your shoulders. Lower the barbell by pushing your rear end back and bending at the hips (maintain a straight back) and then at the knees. Pause at the bottom for a brief moment before beginning the next repetition—it’s not a Deadlift if you bounce the bar off the platform!

Protocol:

Begin with light warm-up set of six reps at 60% of your training weight. Now do two sets of 3 to 5 reps with the heaviest weight you can handle with good form (as described above). Take a three-minute rest between sets. Do this twice per week and you’ll be amazed at how strong you get while gaining little or no muscle mass. **Warning:** This is a technical lift, and I recommend consulting a coach if you’re uncertain about proper form/technique.

Alternative Exercise: If you don’t have access to the equipment needed to Deadlift (and even if you do!), the Weighted Plank exercise is a worthy of regular use. Simply wear a 10- to 20-weight belt and proceed through a 3- to 5-minute sequence of front, side, reverse, and one-arm/one-leg plank positions. Whereas the Deadlift builds maximum strength, this plank sequence develops improves strength-endurance—important for sustained steep boulders and routes.

PART 3 - Climbing-Specific Exercises



While the first five exercises covered in this eBook might be considered the “supporting cast”, the final five exercises detailed in PART 3 are, what you might call, the stars of the show. These exercises address all the climbing-specific muscles groups from the large pulling muscles of the arms and torso to the much smaller finger flexor and wrist stabilizer muscles.

As pointed out earlier, the exercises I’m presenting here are just a small selection from a much larger family of exercises that you should pull from in developing your current and future training regimens. Keeping your program progressive and somewhat variable month over month is important to make annual gains and to avoid a long-term performance plateau. Consult *Training For Climbing* for details on more than 100 exercises you can pick and choose from to develop the best training program to address your needs, limitations, and goals. Let's roll!

Your training priorities:

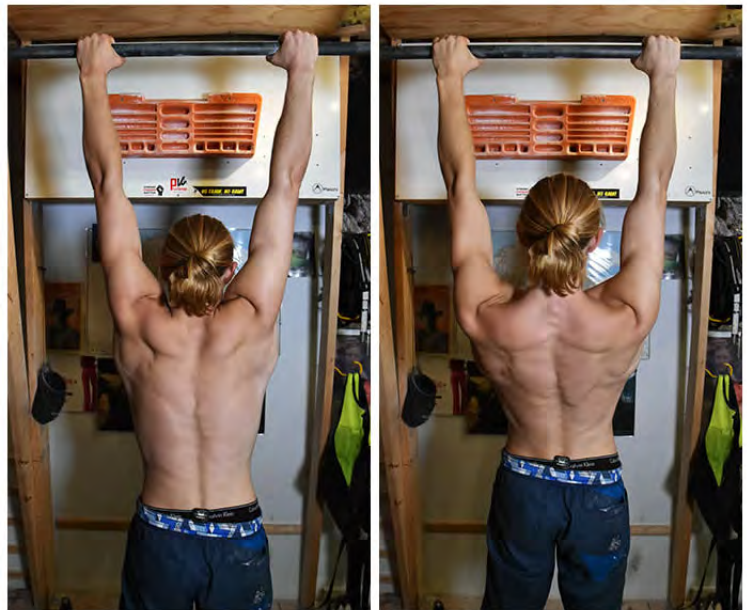
***"Develop stability before strength,
strength before power."***

Exercise #6: Scapular Pull-up

The scapular pull-up is a training essential in the Hörst gym! Keeping your shoulders healthy and developing proper movement patterns in pulling motions demands the ability to forcefully depress, rotate, and retract the scapula. Regular use of this isolation exercise will develop better kinesthetic awareness of your scapula position and enable you to climb harder and longer with good form, despite growing fatigue. Furthermore, being able to quickly and forcibly engage the lower trapezius and latissimus muscles will empower you to keep your scapula in proper position when pull-up training, campusing, or lunging.

How to do it:

Begin in a normal pull-up position with a palms-away grip and hands shoulder-width apart. From a full hang, with just slightly shrugged shoulders, draw the scapula down and together, thus raising your body slightly but without bending your arms and pulling as in a regular pull-up. The best learning cues are: Try to “bend the bar” and think about doing a reverse shrug (i.e. shoulders drawn downward). Do this, and you’ll feel your head shift backward and your chest raise upward, as your scapular pinch together. Hold the top position for a moment, then return to the starting position. The range of motion is only a few inches to a foot or so (when you get really strong!).



Do six to twelve repetitions, keeping nearly straight arms and tight spinal erectors and glutes throughout. At first you may find this to be a difficult exercise (a sign that you’ve found a critical weakness to correct!), but resist the urge to overdo it. Add a second and third set to your workout only after you’ve master the exercise.

Training tip:

Advanced climbers can increase difficulty by making the scaption more powerful (photo), thus raising your body higher and higher (you might think of this as pulling into a 1/4 or 1/2 Front Lever) without bending your arms.



Exercise #7: Weighted Pull-up

Do you perform regular pull-up training, yet seem to never get much stronger?

Stop doing body weight pull-ups (except as a warm up exercise), and begin doing weighted pull-ups—there's a good chance you'll add about 20 percent to your pull-muscle strength in just the first ten weeks of weighted pull-up training!

Therefore, my rule for climbers is this: Once you can do eight to ten solid body weight pull-ups, it's best to switch to doing mostly weighted pull-ups for developing maximum pulling strength. (Note: Doing many sets of body weight pull-up intervals is good for improving pull-muscle endurance.)

Add the training weight by clipped a loading pin (with free weight plates) onto the belay loop of your harness or via a weight belt or vest (photo).



Pull-up with 60-pound weight vest.

How to do it:

After doing a throughout warm up, including doing a sub-maximal set of body weight pull-ups and scapular pull-ups, the maximum-strength-training protocol is to do three to five sets of weighted pull-ups with enough added weight to make doing five pull-ups challenging. Select a training weight that would allow you to do about seven repetitions if you did a set of pull-ups to failure—but your working sets will consist of just five reps. Perform the upward phase of the pull-up as fast as possible (think *power!*), but lower in a slower, more controlled fashion and stop just short of a straight-arm hang position (which must be avoided when training with added weight).

Do five repetitions per set with three minutes of rest between each. I recommend using this program twice per week, with the goal of adding five pounds to your training weight every third or fourth workout.

Training tip:

If you are new to weighted pull-ups, you will discover that adding just ten or twenty pounds makes for a much more difficult pull-up—you will also discover remarkable gains in pull-up strength in just a few weeks of training! Long term, the amount of weight you need to add may approach 50 percent of body weight in order to make doing five pull-ups a near-maximal exercise. At this point, it becomes more practical (and perhaps more effective and fun) to do assisted or unassisted one-arm pull-ups as your maximum strength training.

Exercise #8: Weighted Hangs “7-53” Protocol

Since its advent in the mid-1980s, the fingerboard has become the most used type of training equipment among climbers—and for good reason: The straight-armed, weighted hang is the single most effective isolation exercise a climber can do. What’s more, the fingerboard is economical, and it can be mounted in just about any apartment or home.

The obvious strengths of fingerboard training are its ease of access and the ability to isolate a wide variety of grip positions (crimp, open-hand, and various pocket grips). While not appropriate for beginners, experienced climbers can progressively add weight to their body to train maximum grip strength with a series of brief, high-intensity hangs, as described in my “7-53” protocol below. Training finger strength-endurance demands a different approach—lighter training loads, a greater number of hangs, and far less rest in between hangs (consult *Training for Climbing* for a variety of fingerboard training protocols and programs.)

Being able to vary the training load is an important aspect of effective fingerboard training. While you can indeed adjust intensity up and down by using smaller and bigger holds, respectively, it’s also important to be able to adjust resistance while training on a specific hold such as the common 20mm (3/4-inch) edge or a one-pad-deep two-finger pocket. To increase resistance, simply wear a weight belt or hang free weights from the belay loop of your climbing harness. For resistances less than body weight, you can employ a pulley system with counterweights.



Do weighted hangs on edges and pockets that are at least 14mm deep; whereas smaller holds are best trained on at body weight or less.

***"All other things being equal,
stronger fingers equals better climbing!"***

How to do it:

I developed the “7-53” protocol with the primary goal of increasing maximum finger strength and the secondary goal of fostering more aerobic power in the finger flexor muscles, as the 53-seconds of recovery is just long enough for the fast phase of phosphocreatine resynthesis to play out (a wholly aerobic process). It involves doing hangs of exactly 7 seconds in duration, using a combination of hold size and added weight to create resistance force that you can barely hold for 10 seconds with maximum effort (therefore you end each hang with just a few seconds in the tank). Now, rest for exactly 53 seconds before commencing with the next 7-second hang. Rest another 53 seconds and then do a third hang and rest. This way each hang-rest couplet takes exactly 1 minute, and each group of three hangs makes for one set.



After doing the first set of three hangs, rest for 3 to 5 minutes before doing a second set of three hangs. Initially focus on training the half-crimp and open-crimp grip—one set each. Advanced climbers can do a second set for each half- and open-crimp grips, or do additional sets that target two-finger pockets. Be sure to rest at least 3 minutes between sets. Limit yourself to a maximum of six sets. Use this training protocol no more than twice per week, and do not train in this way within 96 hours of performance climbing (due to the nervous system fatigue it causes).

Record the details of your hangs, including hold size, weight used, and the number of hangs and sets, in a training notebook, Excel spreadsheet, or training app. In the months and years to come, you’ll undoubtedly document some significant gains in finger strength!

Hörst's "7-53" Hangboard Protocol					
Duration of Each Hang	Rest between Hangs	Hangs per Set	Intensity (scale of 1 to 10)	Number of Sets (aggregate of all grips trained)	Rest between Sets
7 seconds	53 seconds	3	9.0	2 - 5	3 - 5 minutes
Note: Your training weight should be heavy enough to cause failure in 9 or 10 seconds, although all hangs must terminate at 7 seconds.					

Training tip:

It’s important to always train with good hangboard technique—maintain moderate tension throughout your shoulders and upper torso by engaging your scapular stabilizers; relax from the hips downward and avoid lifting your knees excessively; and most important, do not relax your shoulders and allow them to elevate into an extreme shrug position near your ears. Also, it’s vital to do preparatory and concurrent training of the scapular stabilizers and rotator cuff muscles—see Part 1 of this eBook!

A word of caution:

Misuse of the fingerboard has contributed to finger tendon and shoulder injuries in countless climbers. Weighted fingerboard training should be limited to just two days per week and, ideally, as a supplement to climbing rather than a replacement for actual climbing. A gradual warm-up is essential beforehand, including a general activity to elevate heart rate, followed by various mobility exercises and some self-massage of the fingers and forearms. Complete your warm-up with some pull-ups on large holds and/or climbing.

Exercise #9: Wide Pinches

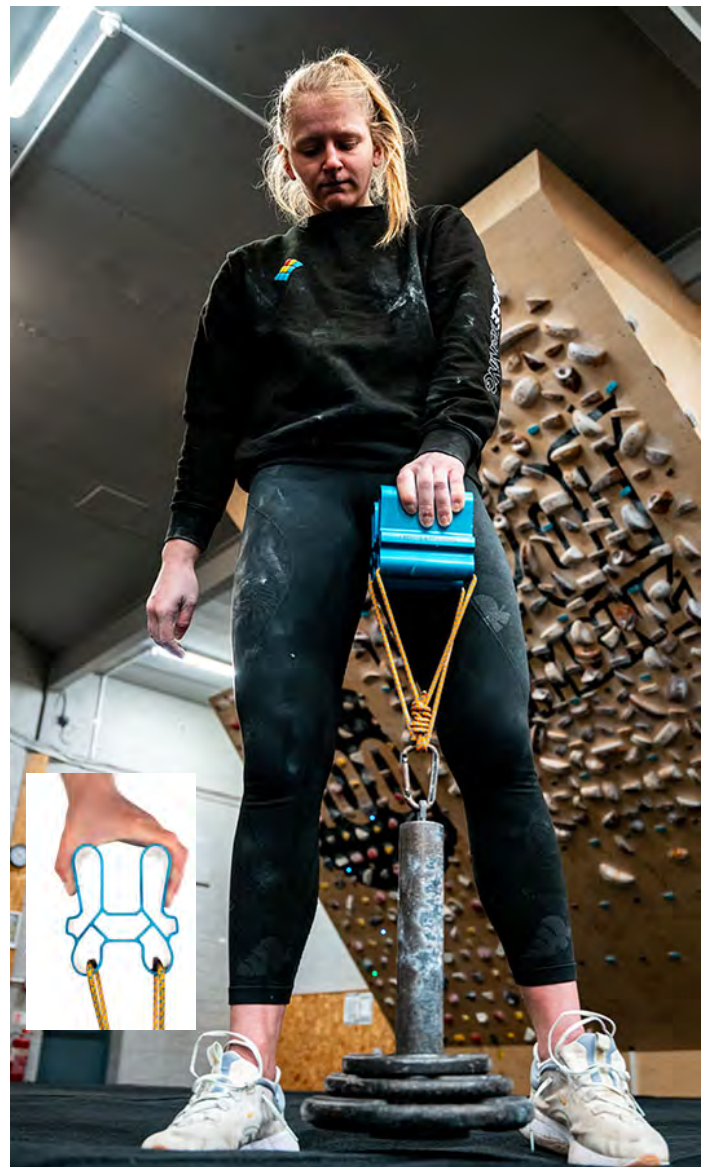
This is a must-do exercise, as it trains two critical aspects of your grip strength. First, this pinch exercise obviously trains the small muscles of the hand that control the thumb and enable pinching. Just as important, however, the wide pinch grip strengthens the finger/wrist extensor muscles with the fingers fully extended—critical for improved wrist stability and injury prevention. Shown in the photo below is the Quad Block by Lattice UK, although you can kludge a pinch block by lag bolting three short pieces of a 2x4.

How to do it:

Stand upright with good posture and level shoulders. Pinch the wood blocks with a straight arm and extended wrist; hold this position for 10 to 15 seconds. Repeat the exercise on the other side. Do a second and third set with at least 2 minutes rest in between.

3 Important Training tips:

- Pinch only with the first pad of the thumb—this is critical to target the flexor pollicis longus muscle. (Cheat with a deeper thumb grip and your pinch strength won't improve as much.)
- Initially, I suggest training with a lighter weight that allows a full 15-second hold. Longer term, consider using a heavier weight that allows only a 7- to 10-second hold; do up to six sets with 2 minutes of rest in between each.
- To train pinch strength-endurance, you can do 7"/7" x 6 Repeaters. That is, do six 7 second pinches with each hand, alternating sides with each successive pinch. Do two sets with at least 3 minutes rest in between.



Pinch only with the first pad of the thumb, per inset photo. Maintain engaged and leveled shoulders and hips. Photo: Lattice UK "Quad Block"

Exercise #10: Campus Board “Switch Hands”

Contact strength is your ability to quickly grab a hold and stick it—some people call this finger power, although the contraction is nearly isometric, unlike traditional expressions of muscular power. This trait is directly related to the speed at which you can recruit the forearm muscle’s motor units and summon peak force, a capacity called “rate of force development.”

While maximum-strength training, such as the “7-53” hangboard protocol, will yield some improvement in contact strength, the best power-training exercises emphasize rate of force production and movement speed, rather than absolute force production. Since fast, dynamic movements are fundamental to effective power training, the resistance used (training load) must be significantly less than in the maximum-strength exercises. For some climbers the resistance will need to be less than body weight (achieve by campus training “feet on”) to allow for the rapid movement and turnover (change in direction) that’s essential for effective reactive training. More advanced climbers with no recent history of finger, elbow, or shoulder injury can partake in the more difficult feet-off exercises that are generally classified as “campus training.” If in doubt as to your readiness to engage in campus training exercises, err on the side of excessive prudence and begin with the tamer feet-on exercises (less than body weight) detailed in *Training For Climbing*.

Whereas many other campus board exercises involve advancing only one hand at a time (such as in “laddering” or “bumping”), the Switch Hands exercise escalates to moving both hands simultaneously, albeit for just a small distance of about 10 inches (~25cm). Still, this dynamic movement demands an even higher rapid rate of force development in the finger flexors to successfully re-grasp the rungs after the double release move. The switch hands exercise, therefore, is a good segue toward eventually performing the most difficult double-dynos exercise (consult TFC). Perform switch hangs on medium-sized rungs (~1.25 inches or 30mm in depth) and with an open-hand grip.

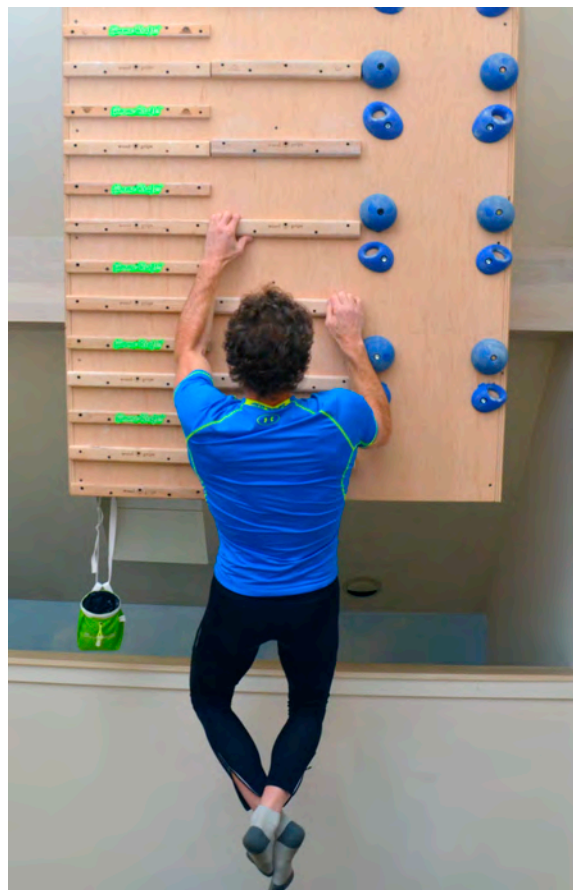
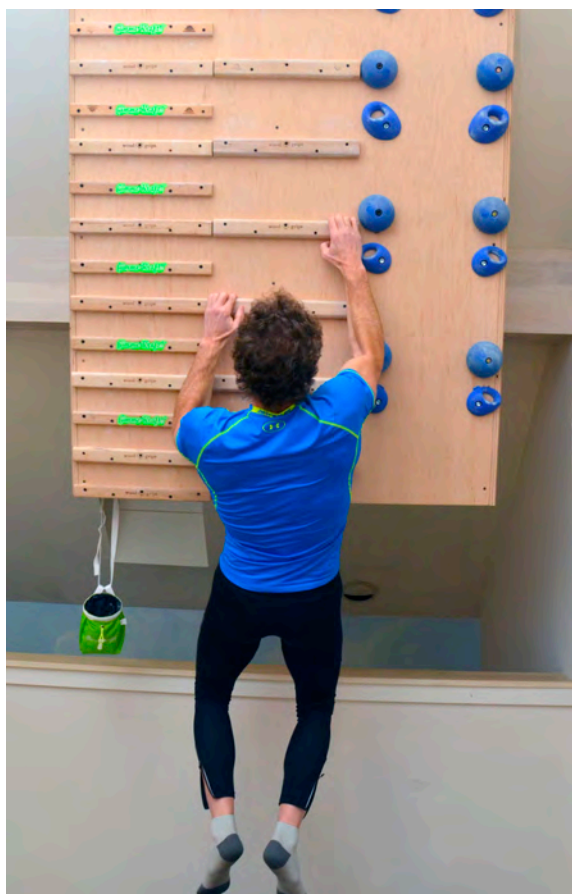


Campus training at the legendary Café Kraft gym in Nürnberg, Germany.

"Effective campus boarding is a matter of quality of training, not quantity of training."

How to do "Switch Hands" campus training:

1. Begin with your hands on successive rungs (either the first and second, or the second and third), then tighten down your scapula (cue: *chest out!*) and bend your arms slightly to gain a good starting position before lifting your feet off the floor.
2. Initiate the exercise with a short but sharp pull—only a few inches—to create upward momentum, and then, at the deadpoint, quickly switch hands to the opposite rungs. You'll latch back onto the rungs as your center of mass begins to descend, so you'll need to momentarily absorb this energy with your pulling muscles before initiating the next upward pull and hand switch.
3. Continue switching hands as fast as possible, for up to ten or twelve total hand switches.
4. Rest for 3 minutes before doing another set. Begin by doing just two sets per workout; advanced climbers can do up to five sets.



Training tip:

There's a little bit of timing involved in doing this correctly, but if you're strong enough to rightfully employ this exercise you'll quickly acquire the skill and be able to do eight to twelve successive switches in only 4 or 6 seconds. This is a bang-bang exercise that, if done correctly, involves very little upward and downward movement of the torso. The exercise itself is pure anaerobic (alactic) power.

Word of caution:

Constantly remind yourself that it takes just a few sets of campus training to impart the necessary stimuli for gains in contact strength. Resist the urge to do an excessive amount of campus training which, while fun and perhaps gratifying, provides little added stimuli and increases your injury risk.

About The Author

Eric J. Hörst (pronounced “Hurst”), an internationally renowned author, researcher, climbing coach, speaker, inventor, and accomplished climber of more than 45 years. A student and teacher of climbing performance, Eric has coached hundreds of climbers, and his training books and concepts have spread to climbers in more than 50 countries.

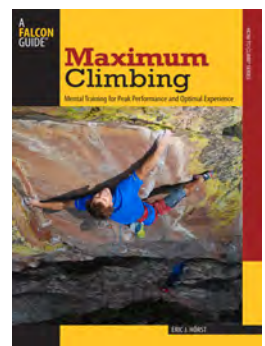


Eric is widely recognized for his innovative training techniques and comprehensive approach to enhancing climbing performance, and he is author of eight books (with many foreign translations) with worldwide sales of over 500,000 copies. His best-selling book *Training For Climbing*, now in its third edition, has sold more than 200,000 copies, and it is used by climbers around the world to help guide their training. Eric’s other popular texts include *Maximum Climbing*, *The Rock Climber’s Exercise Guide*, *How to Climb 5.12*, and the gym climbing book *Learning to Climb Indoors*.

Eric has written hundreds of magazine articles, appeared on numerous TV broadcasts, and his techniques have appeared in many publications including *Rock & Ice*, *Climbing*, *Outside*, *Men’s Health*, *Fortune*, *Men’s Journal*, *Muscle Media*, *Muscle & Fitness*, *Paddler*, *Urban Climber*, *Parents*, *Wall Street Journal*, *Experience Life*, *Outdoor 4X*, and *National Geographic Adventure*, well as European magazines such as *Escalar*, *Alpen*, *Climax*, and *Climber*. He has co-authored one research paper ("Behavior Analysis and Sport Climbing", *Journal of Behavioral Health & Medicine*, 2010). In 2000 Eric launched **TrainingForClimbing.com**—the Internet’s original climbing performance sites.

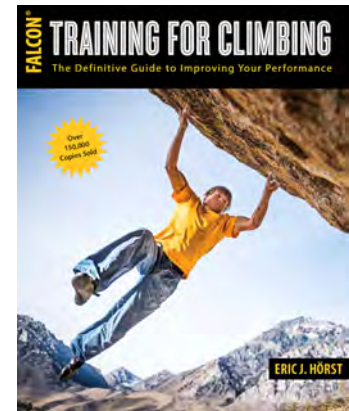
A self-professed “climber for life”, Eric remains active at the cliffs, traveling widely with his wife, Lisa, and sons, Cameron and Jonathan (both of whom climbed 5.14a/8b+ at age 11). Driven by his passion for adventure and challenge, he has established over 400 first ascents, primarily on his home cliffs in the Eastern states. Still pushing his personal climbing limits deep into his 50s, Eric’s focus is now on sharing his knowledge with new climbers, and coaching the next generation of elite climbers. In December 2018, Eric founded **PhysiVantage**—science-based nutrition and supplements for climbers. Learn more at PhysiVantage.com.

Maximum Climbing presents a climber’s guide to the software of the brain, based on the premise that you climb with your mind—your hands and feet are simply extensions of your thoughts and will. Becoming a master climber, then, requires that you first become a master of your mind. In this breakthrough book, Hörst brings unprecedented clarity to the many cognitive and neurophysical aspects of climbing and dovetails this information into a complete mental-training program. He sets forth three stages of mental training that correspond to beginner, intermediate, and elite levels of experience and commitment—the ideal template to build upon to personalize your goals through years of climbing to come.



Other Books by Eric J. Hörst

Training for Climbing (3rd edition) is the most comprehensive and advanced text ever published on the subject of climbing performance. Building on decades of experience and the latest climbing research, this voluminous tome presents a unique synthesis of leading-edge strength and power-training methods, tried-and-true practice strategies, and powerful mental-training techniques that will empower you to climb better, regardless of your current ability. Now in its third edition, *TFC* remains an international best seller with more than 200,000 copies sold worldwide!

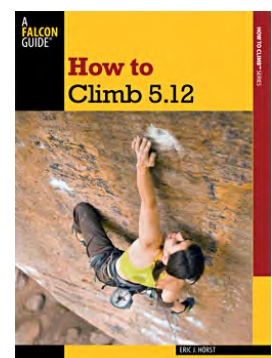


Some of the vital topics explored in detail:

- * Energy system training to develop greater strength, power-endurance, and aerobic endurance—invaluable for nuancing advanced- and elite-level training programs for maximum effectiveness.
- * “Training zones” for climbers—the secret to truly effective training of the crucial forearm flexor muscles.
- * Five new hangboard training protocols for developing maximum strength and strength-endurance in the finger flexors.
- * Power-endurance training protocols for increasing anaerobic capacity (critical for steep, powerful boulders and routes).
- * How to execute and nuance submaximal (volume) climbing to strengthen the local (forearm) aerobic energy system.
- * How to execute a proper training taper to create a peaking effect for a project redpoint day, roadtrip, or competition.
- * Recalibrating the brain’s central governor for higher power output, increased stamina, and pushing your body to a new performance extreme.
- * Daily Undulating Periodization as a novel method of on-season programming (i.e. how to schedule weekday workouts to help, not hurt, performance when you’re climbing hard on the weekends).
- * Does running (and other generalized aerobic training) enhance climbing performance...and, if so, how much aerobic activity is beneficial?
- * How to accelerate recovery on-route, between climbings, and in between training/climbing days.
- * Comprehensive core training—how to build total core strength (not just strong abs)!
- * Stabilizer training to reduce risk of shoulder injury and improve your climbing power.
- * How to accelerate learning of climbing skills—learn the rules for truly effective practice and developing excellent technique.
- * How to control your mind and emotions in stressful situations—learn how to improve focus, manage fear, overcome adversity, and stretch your limits!

* *****

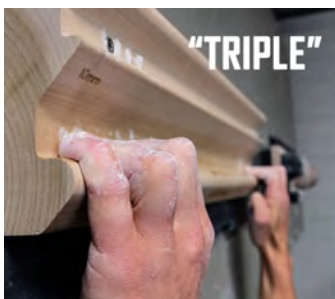
How to Climb 5.12 is a performance guidebook to attaining the most rapid gains in climbing ability possible, and it’s written specifically for intermediate climbers looking to break through to the higher grades. It provides streamlined instruction on vital topics such as accelerating learning of skills, training your mind and body, and becoming an effective on-sight and redpoint climber. *How to Climb 5.12* is the perfect manual to guide you on the road to mastery and to help make the trip as short and enjoyable as possible!



Lattice Training UK - Now Available in the USA!

PhysiVantage is proud to be the North American distributor of Lattice UK -- one of the world's leading training equipment and services companies!

Within USA & Canada, order at: PhysiVantage.com



Lattice "Triple" Training & Testing Board

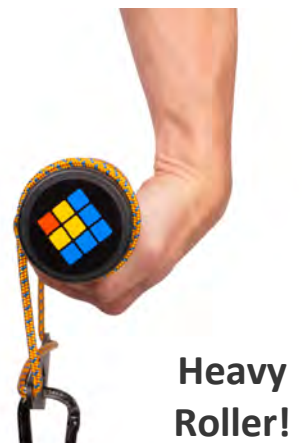


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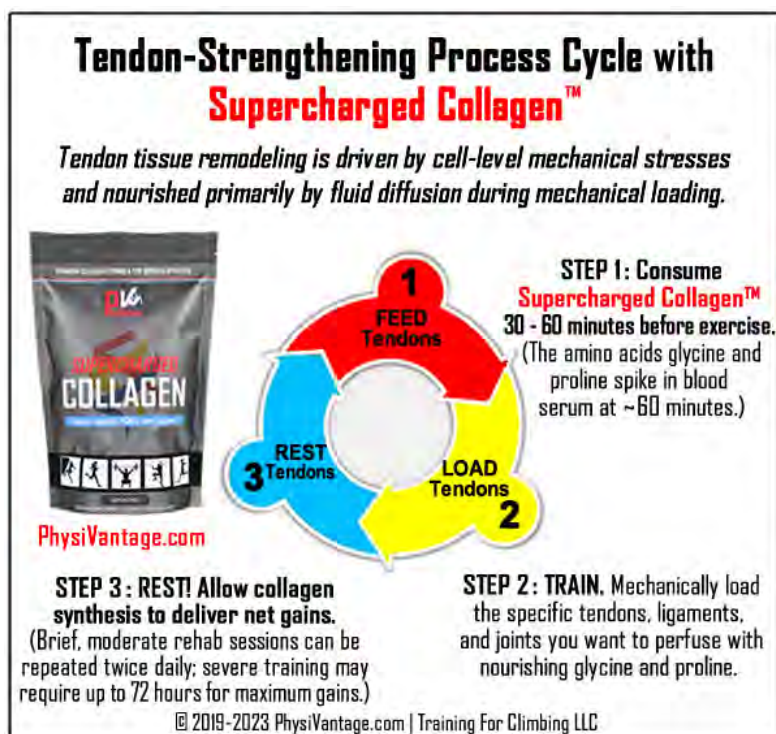
Shop at:
PhysiVantage.com

Sports Science Breakthrough!

Research-Based Training Protocol for Strengthening Tendons/Ligaments, Supporting Injury Rehabilitation, and Increasing Sports Performance

It's a rare climber that has never experienced finger, elbow or shoulder pain. In fact, if you're a hard-training climber fond of pushing your limits, then there's a good chance that at some point you've experienced pain and perhaps injury in all three sites. It's sad but true: rock climbing is hard on our connective tissues.

Now the good news: A growing body of recent research indicates that you can play an active role in developing healthier, stronger connective tissues! The figure below reveals the proven methodology.



Use This Process Cycle to:

- Increase exercise-induced collagen synthesis in connective tissues (such as finger flexor tendons, A2 pulleys, etc.). 1,2, 3
- Accelerate recovery from strenuous plyometric (power) training. 4
- Reduce joint pain both during exercise and rest. 5,6,7
- Improve clinical outcomes from injuries when combined with heavy isometric or eccentric training. 8,9,10

[Read the latest peer-reviewed research studies here >>](#)

This new technology is not a magic bullet, however. The benefits develop slowly via regular pre-exercise consumption of Vitamin C-enriched hydrolyzed collagen coupled with targeted training of the critical body parts. The Figure above depicts the process cycle that can help a disciplined climber improve connective tissue health, reduce joint pain, and recovery more quickly from strenuous exercise.

The science behind these recent discoveries is exciting, and it refutes many common criticisms of collagen supplementation. This is a classic example of how emerging research gradually supplants outdated science and dogma. If you're interested in learning more of the fascinating biochemistry and biophysics involved, visit the "Science" links at PhysiVantage.com to read about tendon/ligament plasticity, tendon structure and muscle matrix, tendon adaptations (and hypertrophy!), some of the causes of tendinopathy and injury, and how to best nourish your tendons and ligaments.

Based on this research, PhysiVantage developed **Supercharged Collagen™**, a proprietary formula that augments top-grade (grass-feed, non-GMO) hydrolyzed collagen with vitamin C and l-leucine to increase collagen synthesis and anabolic signaling. Rich in the collagen-building amino acids glycine, proline, and hydroxyproline, **Supercharged Collagen** is further enhanced with l-tryptophan, making it a “complete protein” source delivering all essential amino acids. In aggregate, **Supercharged Collagen** is the most advanced connective tissue support supplement available for hard-training athletes.



[Read the latest research here >>](#)

Who Can Benefit from Supercharged Collagen?

- Hard-training elite climbers in search of higher muscle efficiency and power...and the next grade!
- All climbers who desire to support/accelerate strengthening of tendons & pulleys, and reduce injury risk.
- Injured climbers committed to hastening rehabilitation and return to peak performance.
- Masters athletes wanting to accelerate recovery from climbing/training, support tendons and ligament health, reduce joint pain, and combat sarcopenia.

Learn more at: **PhysiVantage.com**

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As important as tensile loading is to collagen synthesis, recent work from our group (Shaw et al., 2017) and others (Clark et al., 2008; McAlindon et al., 2011; Oesser et al., 1999) suggests that collagen synthesis can be enhanced by supplementing the diet with gelatin or hydrolyzed collagen. Specifically, we have previously shown that providing 15 g of gelatin together with ~50 mg of vitamin C an hour before loading resulted in an increase in collagen synthesis relative to a placebo or 5-g dose of gelatin (Shaw et al., 2017). Therefore, for this case study, we had the athlete consume 15 g of gelatin within an orange juice slurry (containing ~225 mg of vitamin C) 1 h before the stress relaxation training. Even though we do not have a control group for this intervention, we have growing evidence that specific amino acids within the gelatin provide a stimulus to the cells of a tendon or ligament to increase collagen synthesis. Coupled with the directional tensile load, the added amino acids may be necessary to support the increase in collagen synthesis. However, much more work is needed before we can definitively understand the role of gelatin in the recovery described in this case study.

Get a Physical Advantage with PhysiVantage!



What's Your "X"?

SENDURE X™ will help you achieve your "X" by increasing your power endurance, stamina, and recovery between repeated efforts. Our novel pre-workout formula is comprised of all-natural ingredients (beetroot extract & citrulline malate) shown in studies to boost endurance via multiple ergogenic pathways. Whether you're a recreational or professional athlete SENDURE X gives you a performance edge in pursuing your goals. **Performance-enhancing benefits while climbing and training:**

- * Improves Power Endurance on Routes and Boulder Problems
- * Accelerates Recovery between High-Intensity Efforts
- * Supports Optimal Blood Flow, Mitochondria Function, and O2 Kinetics
- * Supports Performance at Altitude

CRUSH is a pre-workout supplement to increase energy, focus, and performance!

A novel ergogenic and nootropic supplement, CRUSH is comprised of a synergistic blend of L-theanine and caffeine, augmented with L-tyrosine and L-aurine. Our unique formula combines ingredients shown to increase alertness (without jitters or anxiety), improve cognition and mental performance, and enhance physical strength and endurance.

Numerous studies have shown that L-theanine and caffeine can improve attention span, enhance the ability to process visual information, and increase accuracy when switching from one task to another. By boosting levels of GABA (a neurotransmitter), L-theanine also enhances Alpha brain waves associated with a state of "wakeful relaxation", thus taking off the "edge" (anxiety and jitters) off the stimulating effects of caffeine. CRUSH includes a moderate dose of L-tyrosine, an amino acid shown to improve mental performance in stressful situations.



FLOW is formulated to support muscle function and performance throughout long days of climbing, running, biking, hiking, or just working out...and to help accelerate recovery when you're done!

Mix FLOW with water in a large bottle and sip throughout activity/exercise to: support muscle and nerve function, reduce cramping and fatigue, decrease soreness and recovery time, and help maintain proper hydration. The novel FLOW formula combines premium-grade ingredients including VEGAN branched-chain amino acids (BCAAs), L-glutamine, and electrolytes sourced from Coconut Water Powder, Himalayan Pink Salt, and Aquamin™ multi-mineral complex.

FLOW is sugar-free and flavored naturally, a mild Raspberry Lemonade perfectly balanced between sweet and tart.

REDUX HP™ - Natural Pain Relief & Recovery Aid

Potent and peerless, REDUX HP combines three clinically studied ingredients—Tart Cherry, Turmeric Curcuminoids, and Ginger—shown to:

- Reduce joint and muscle soreness (such as DOMS)
- Improve recovery from rigorous exercise
- Support healthy inflammatory response
- Combat muscle breakdown and increase performance

REDUX HP is formulated using the very best plant-based ingredients: Meriva® Curcumin Lecithin/SF, high-potency, organic CherryPURE® Montmorency Tart Cherry 50:1 concentrate, and Ginger Root Powder.



Learn more at: **PhysiVantage.com**

Get The PhysiVantage!



Superior Protein for Serious Climbers

The ultimate post-workout and bedtime protein powder, Weapons-Grade Whey® provides a dual-phase release of muscle-building amino acids for fast recovery and optimal strength gains. Phase One is a swift initial spike of amino acids into the blood stream as whey protein isolate rapidly digests. A more protracted second-phase release of amino acids results from more slowly digesting micellar casein protein. Combined, this long-lasting biphasic release of amino acids is ideal for supporting muscle protein synthesis during the critical recovery hours immediately after training/climbing and while you sleep.

The ingredients in Weapons-Grade Whey (WGW) have been shown in studies to:

- Stimulate protein synthesis
- Speed recovery & Increase lean muscle mass/strength
- Improve immunity

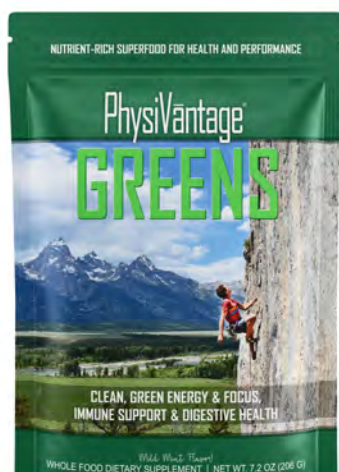
Contains 21 grams of protein per serving, including 10gms of Essential Amino Acids, as well as a micro-dose of creatine monohydrate to support power recovery. WGW contains NO cheap whey concentrate, NO added sugar, NO artificial sweeteners, NO gluten, and NO empty calories. Available in delicious: **French Vanilla**, **Chocolate Malt**, and **Strawberry Blast**!

POWERPLEX Plant-Based Protein Complex

POWERPLEX™ is the most advanced plant-based protein powder available. This 100% vegan protein complex is an 85/15 blend of organic pea protein and organic brown rice protein which in aggregate provide an optimal amino acid profile superior to any single plant protein source. Each serving contains 9 grams of Essential Amino Acids (EAAs) including more than 2 grams of Leucine—ideal for supporting muscle protein synthesis post-workout.

POWERPLEX is uniquely augmented to support connective tissue strength, recovery, and remodeling: With more than 3 grams of the collagen-specific amino acids Glycine and Proline, POWERPLEX is the closest thing there is to a “vegan collagen”!

Available in: **Chocolate**, **Vanilla Spice**, and **Cold Brew Coffee**.



Nutrient-Rich Superfood for Health & Performance

This is the "no BS" **Greens** powder you've been waiting for! This is not another "everything but the kitchen sink" greens supplement with trace amounts of myriad ingredients, nor is it a crazy expensive glorified daily multi-vitamin (like the "greens from down under"). Best of all, this product doesn't taste like grass clippings, as many other greens products do, but rather a pleasant mild mint flavor that's smooth to sip.

We developed **PhysiVantage Greens** to provide health-conscious and performance-minded individuals with a convenient and affordable nutrient-dense superfood. Our unique vegan formula contains 15 organic greens, as well as pro- and post-biotics, 2 grams of fiber and 3 grams of protein. Consuming one serving per day will support your immune system, aid gut and digestive health, increase energy and focus, promote hormone balance, support your body's natural detox process, and help maintain normal-range blood sugar and pH.

More Training For Climbing!



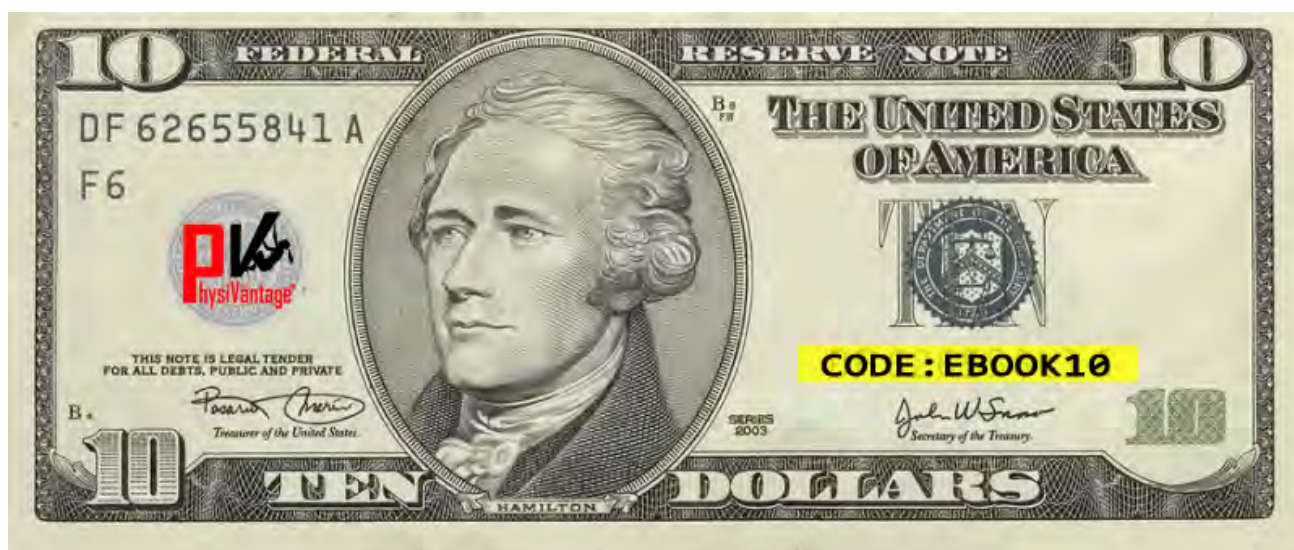
Micronutrient Multi-Vitamin for Hormone & Immunity Support

Whether you're a health and wellness enthusiast, a professional athlete, or anything in between, VITALIUM™ will help optimize your health, increase your energy, and elevate your performance in all you do!

VITALIUM is a novel combination of ten key vitamins and minerals commonly deficient among Western diets. Clinical studies show that consuming adequate amounts of these vital micronutrients helps:

- Optimize hormone levels and thyroid function
- Boost the immune system
- Promote bone strength and collagen synthesis
- Improve metabolic efficiency and cardiovascular health
- Support strength gains and accelerate recovery from exercise

Get a **\$10 Cash Discount*** on Your First
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More Training For Climbing!

Want to learn more about training for climbing? Check out these resources...

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- Follow Eric on Twitter **@Train4Climbing**
- Check out Eric's **T4C YouTube channel.**
- And on Instagram at: **Training4Climbing**



TrainingForClimbing



Eric Hörst's Training For Climbing Podcast



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