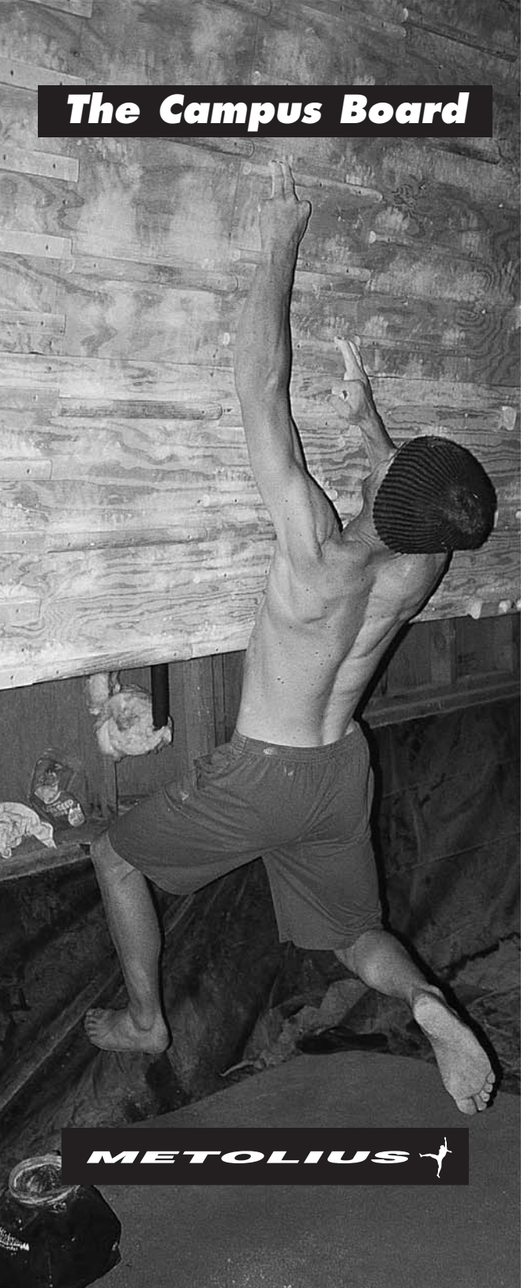
The Campus Board



The late Wolfgang Gullich installed the first "campus" board at a gym called The Campus Center (hence the name) in Nürnberg in 1988. His intent was to train specifically for his project, Action Directe, a route which required extreme finger power.

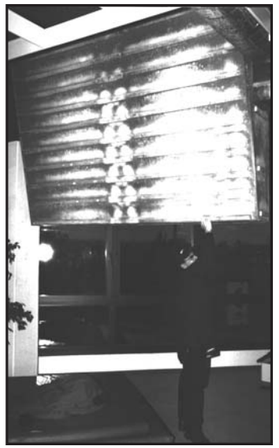
Using the board, he increased his one-fingered dynamics to previously unknown levels, culminating in his success on Action Directe in 1991, setting a new standard for hard free-climbing.

Gullich's route may still be one of the hardest in the world, but it is more important to note that, at the time, it was far harder than anything else Gullich had done, and he had to realize substantial gains in strength and power to achieve it. For a climber who was already enormously strong, that's an impressive accomplishment. We have the benefit of learning from his experience.

Gullich dedicated much of his life to redpointing hard routes, eventually realizing that no matter how sustained a route was, if he could do all the individual moves, he could eventually do the route. In order to succeed on routes that were harder than anything else in the world, he would have to train himself to be capable of doing harder moves.

Gullich designed his "campus" board to isolate his weaknesses and break through his redpoint plateau. Jerry Moffat, perhaps the world's most successful climber at that time, worked out with him. "I trained on [the Campus board] stacks that winter and got dead strong. I went out and climbed 8b+ [5.14a] straight away. I was doing them in a couple of tries."--an almost unheard of level of performance at that time.

Moffat stressed the importance of training strength and power, even in a case where falling off at the top might point to a lack of stamina. The physiologists can explain this with technical details about muscle contraction and blood supply, but Moffat said it best, "If the hard moves at the bottom of a route start to feel easy, you're going to be less pumped by the time you reach the top."



The original campus board in Germany

Design and Construction

The Board

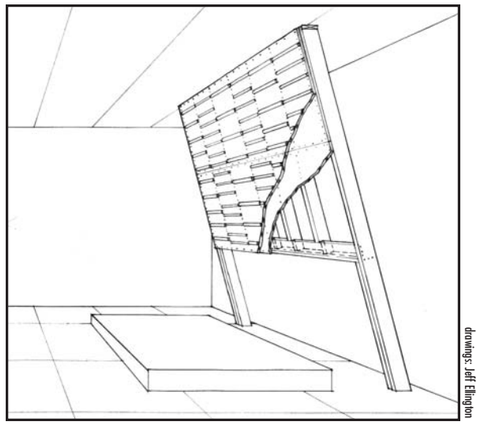
First, select a spot. A good campus zone should have adequate height (8' is enough, but more is better) and width, a clear landing zone and plenty of light. Good candidates are a basement or garage with exposed framing to tie in to, or part of your existing climbing wall might be modified to accomodate your campus board. Anywhere will work as long as you have a solid structure to support the board. Consult an engineer if you have structural questions. Plan your board around your space; don't build a board and then try to make it fit.

We recommend that the board angle be 15 degrees from vertical, just steep enough to keep your lower body from dragging, although we have used boards anywhere from 12 degrees to more than 20 degrees. Lower angle boards concentrate more on contact strength and pulling strength while steeper boards put more emphasis on body tension and swing control.

The bottom of the board should be about 4' off the ground. It is possible to start with less than 4' if you are really cramped for space, but it can get awkward. More than 4' is nice for the starting moves, but on a long board it can put you way off the deck on the final rung. There should be at least 2' of open space behind the board.

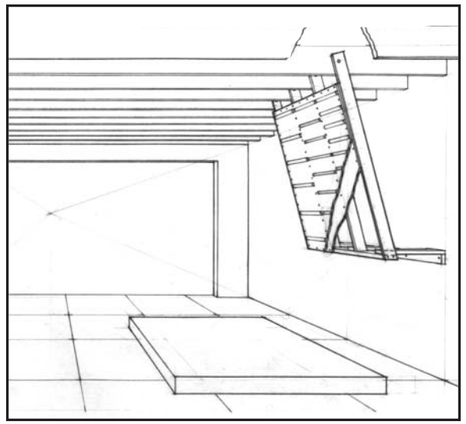
Board size is totally up to the individual needs and space constraints. Keeping the width of the board in 4 foot increments works well with 16" rungs (three rungs end to end per 4' of board width) although there is no reason why you couldn't go with 32" or 64". A 4'x4' board will offer excellent training potential in a very limited space, although a 6' tall board can make a big difference when laddering or doing big dynos or locks. If space is unlimited, an 8' tall board with as much width as desired will offer endless possibilities.

Your board should be built with "standard framing techniques" (top and bottom plates with studs every 16"). Small boards can get by with 2"x4" lumber for the frame work; large boards will require 2"x6" framing. We highly recommend 2 layers of 3/4" plywood on the face. With only one sheet you might pull the rung attachment screws right through - ouch! Run the sheeting to the outside edges of the framework. It's a good idea to lay out a grid with vertical lines at 16" and horizontal lines at 1" or 2" intervals, to help you with rung placement. The grid will serve as a starting point, but remember, you're working with wood and there will be some variation, so be sure to use a level when hanging the rungs.
No finish is necessary, although you may want to paint the board itself (never paint the rungs). If so, use an interior/exterior latex paint. Do not use any kind of textured paint, unless you're running from the law and want to remove your fingerprints.



drawing: Jeff Elington

There are too many possibilities to discuss attachment of the board to your structure. Refer to the illustrations for a couple of ideas, and consult an engineer or contractor if you have questions.



The Rungs

Wood is the choice of the world's best climbers for good reason. Although premade plastic rungs are available, there is no need to try to simulate real rock on a campus board. Plastic rungs will wear out your skin long before your workout is complete. Wood is far more absorbent of sweat than plastic, so for a similar degree of friction, it can be made much smoother and more friendly to train on. Another benefit is that wooden rungs can be made consistently smooth and uniform which is crucial when doing moves near your limit. Plastic rungs suffer from warping during construction, which results in a wavy hold of inconsistent width and uneven upper surface.

Don't paint or treat your wooden rungs in any way. Plain wood and chalk yield the best friction and feel.

Rung size can vary from about ¾" to as much as 1 ¼" in thickness. Any smaller and finger-tip bruising becomes more of an issue than strength. Large holds are required for warming up, and for various exercises, but anything more than 1 ¼" is probably unnecessary.

16" is an ideal rung width. There is no need for wider rungs, as each rep moves you toward the center of the rung, and 16" is more than enough for matching and double dynos. It's better to fit sets of different sized rungs side-by-side, than to be limited to fewer sets because of their width.

It is absolutely crucial to have user-friendly rung shapes or you just won't be able to give a maximum effort. The edges need to be well rounded, with each size requiring a different radius of curve relative to its depth.

Whether you want your holds to be incut slightly or flat depends on what exercises you want to train, how good you are, and the angle of the board. Flatter holds tend to be slightly harder to use at first because they force you to control swing more carefully, but the advantage is that they are super-friendly and force you to use good technique. Incut holds, however, are good for getting started, for doing pull-ups and lock-offs, and are necessary on steep boards.

We recommend spacing the rungs 4"-12" apart. Spacing is totally arbitrary, but closer spacing allows you more control of your training. If a move is slightly too hard or easy the next increment of difficulty will be closer. The downside is that you will have to use a greater number of rungs to cover your board. We recommend spacing each set of rungs on your board differently to keep as much variety in your training as possible; after all, the moves on rock aren't in even 8" increments. Small rungs should be closer together than large ones. Leave about 4" of slap space above the top of the last rung. You can also cap or tape the top of the board for use as a finishing jug.

Metolius Rungs
After extensive testing, we chose spruce wood for our rungs due to its desirable combination of hardness, workability, finish characteristics, and friction properties.

The rungs come in three sizes, ¾", 1" and 1 ¼". Each rung has a flat side and an incut side, providing options for every angle, ability, and exercise. Their rounded edges have smooth radii carefully chosen to suit each rung size. The ideal curves cannot be found ready-made, so we designed custom tooling to produce them.

Metolius rungs are 16" wide, an ideal width for training, which also allows you to place three sets side-by-side on a standard 4' plywood board or all three sizes with both flat side up and incut side up (that's six sets) across an 8' wide board.

Attaching Metolius Rungs
Do not pre-drill the plywood. The included #9 x 2 ½" decking screws are self-drive. Drive the screws so the screw head sits just below the surface of the rung's face. Don't over-drive the screws into the rungs, as this will weaken them!

We recommend the following spacing, although these are only guidelines:

size	spacing	strength
small (¾")	4" to 8"	1675 lbs.
medium (1")	5" to 10"	1735 lbs.
large (1 ¼")	6" to 12"	1820 lbs.

Metolius Climbing (541) 382-7585 **metoliusclimbing.com**
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Training

The principal reasons for "campusing" are to train upper-body power and muscle fiber recruitment. To understand what we're talking about, let's make a few distinctions. While strength is the ability to maintain muscle contraction against a maximum load, power is the ability to generate a maximal contraction rapidly. Strength, then, is more of a static force, while power is dynamic.

A campus board is an excellent tool for training strength, but its greatest asset by far is its ability to train power. If a hold on a climb can't be reached under static strength, you need to move towards it explosively and that's where power comes in.

We define recruitment as the ability to fire as many of the fibers in a given muscle as possible at once. You need to increase your recruitment, not just for initiating a dynamic move, but also for "sticking" the target hold. While catching the target depends on timing and coordination, if you can't contract enough muscle fibers rapidly enough, you won't be able to hang on to it. Recruitment, then, especially forearm recruitment, is the key to sticking hard deadpoints, and "campusing" is the best way we know of to improve it.

In the normal course of campus board training, you will also realize huge gains in dynamic technique: timing, coordination, confidence, etc., as well as static strength. "Campusing" will improve all aspects of your climbing.

How much you should emphasize campus board training depends on your goals. Those wanting to improve their on-sight climbing should use it sparingly and concentrate on doing more climbing mileage, while those interested in succeeding on hard redpoints or boulder problems should use it as a primary training method.

The board should be used in conjunction with other forms of training, for spells of 4 to 8 weeks, not continuously throughout the year. Gradually increase usage, from once a week to as much as 2 or 3 times a week, and then taper back down, as you re-emphasize other forms of training. As top climbers know, power takes a long time to gain, but once you have it, you retain it for much longer than endurance.

Fresher Is Better
When campusing, the general approach is different than when training for endurance. On the campus board, the idea is to do the hardest exercises that you can, in perfect style. You should only train on a campus board after a rest day or when you are completely recovered from your last climbing or training session. Additionally, you must rest after every exercise within your campus routine long enough to recover completely. Three to five minutes is the norm, but you can rest as much as 10 minutes if necessary. Power can only be trained on a totally fresh muscle.

How Much Is Too Much?
You're determined to see an improvement, so you want to keep at it for hours, but you're playing with fire. On a campus board, more work does not equal more gain; it equals injury. Never train to exhaustion on a campus board. Do the hardest moves you can in good style and come back two or three days later. Be patient and remember: so long as you don't get injured, you will get stronger.

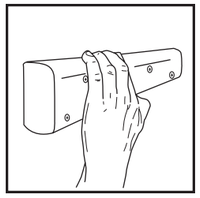
As a general rule, it's okay to do one to four sets of any given exercise. As long as you are improving or maintaining from one set to the next, it's okay to continue with that exercise. As soon as you are weaker on one set than the last, it's time to move on to another exercise or call it a day. Several exercises are described below; you cannot train all of them in the same session. Choose a couple of exercises each time and concentrate on those. Stop your session and begin your warm down when your muscles have lost their "snap".

Rest
Resting is perhaps the best thing about campusing because you get to do more of it than with other types of training. Rest, rest and rest some more. Although well-conditioned campus addicts may rest for only about two full days after every session, if you push yourself hard, take three or four days off. Don't expect quick results. If you feel like you're resting too long, not doing quite enough, that's good; that's how you should feel.

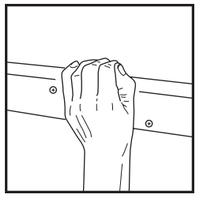
Warm Up, Warm Down
It is critical to warm up thoroughly; much more so than with other forms of training. You can start by climbing, bouldering or doing easy pull-ups and dead hangs, along with gentle stretching. Make the first fifteen minutes ridiculously easy and gradually increase the intensity until you're at full power. Reverse this process at the end of your session to prevent injury and speed up recovery. The warm down should be even easier than the warm up. It should feel as if your doing almost nothing. The idea is just to keep the blood flowing for 15 or 20 minutes after the high intensity part of your workout.

A typical session might involve up to an hour of pull-ups, stretches and climbs up and down the board on the larger holds, with all of the high-intensity exercises done in the next 20 to 30 minutes, followed by 15 to 20 minutes of warm down.

Stretching
Stretching is simply insurance against injury. Stretch regularly and you'll wonder why you bother, but don't stretch and one day you'll suffer. It's a good idea to stretch between sets and critical to stretch after the session, but be careful about stretching before your workout. Never stretch a cold muscle.



Open-Hand



Crimp

How To Grasp The Grips
You want to use an open-handed grip as much as possible. Most climbers are weaker open-handed than crimped, so you may find this hard at first, but you'll get used to it. Training open-handed will increase your crimp strength (but not vice-versa), and it is essential for holding pockets, slopers and certain edges, as well as making moves at maximum stretch, and catching dynos. Most importantly, however, using an open hand lowers the potential for injury. As you adapt to campus training, you can incorporate a little crimp training to increase your maximum edge-holding power, but keep it to a minimum.

What's The Point?
The deadpoint is an instant in time, at the apex of any dynamic move, when you are neither rising nor falling. In all dynamic moves, large dynos or short snatches, the goal is to be in perfect position to grasp the target hold during the deadpoint. As you perfect this technique, the deadpoint will begin to feel like an instant of weightlessness. As you continue to improve your timing and coordination, the deadpoint will seem to get longer and longer.

"Campusing" is one of the best ways to improve your all-around "deadpointing" skill. Because you train movement between holds at varying distances, you learn how to generate the precise force and timing required to catch holds accurately and consistently. It cannot be overstressed how fundamental dynamic moves are to good climbing technique. A well-executed dyno is often more efficient than a static move, even when it's not strictly necessary.

Alternate Your Leading Hand
You should do most sequences as pairs, first leading with one hand, then with the other. This avoids over-training your strong side and keeps you balanced.

Making It Easier
If you find some of the moves or exercises suggested here too difficult to start out on, put your feet on a chair or on the wall behind the board, to take off as much weight as necessary. Be sure to have ample padding under your board, as landing on your back is a distinct possibility.

Exercises

Power Throws
This fundamental exercise trains forearm recruitment, upper-body power and deadpoint accuracy through explosive upward moves between rungs at various levels. Each sequence involves two moves plus matching at a hold.

Number the rungs 1, 2, 3 on up, starting with the lowest. With your feet hanging free and both hands on the lowest convenient rung, launch for another rung with one hand, then reach for an even higher rung with the other, match, and you're through. For example, match and hang on rung 1. Throw with your right hand to rung 4, then pull through to rung 6 with your left. Match on rung 6 and drop.

Try to complete the same exercise by using every possible sequence of holds between the lower and upper chosen rungs, for example: 1-2-6, 1-3-6, 1-4-6, 1-5-6. Different push-pull forces, as well as different timing, are required with hands at different levels and although the moves in the middle range will feel easy, those at the extremes will not. Also, try going all-out for the maximum total distance, say 1-4-8 or 1-5-9. *Remember to lead with alternate hands.

Doubles & Plyometrics
Moving both hands at the same time is a great way to improve overall coordination. It also builds recruitment and confidence. Begin by doing the easiest moves to feel this out. Just jump from one rung to the next.

Eventually, increase your range and stack a series of doubles together, climbing up the board and down again. An advanced version of this is the "two steps forward one step backward" routine: 1-3-2-4-3-5-4-6 etc.

A related exercise is plyometric campusing, which involves dropping both hands from a higher hold to a lower one (a reverse double dyno), then jumping up again as fast as possible. The key is absorbing the downward motion and reversing the force into an upward motion as rapidly and smoothly as possible.

Be careful not to overdo it. This is a very advanced exercise, and the potential for injury is very high. Never catch a hold with your elbows locked or extend all the way to a locked elbow on the negative contraction. Feel out your tolerance with some easy moves on large holds the first few times. Introduce this exercise gradually, a little more each week for a few months. Even when you've adapted to high intensity campus training, don't do hard plyometric sessions more than once a week.

Static Moves & Lock-Offs
Any kind of campusing will improve your static strength as a spin-off, but you can train it specifically by doing small "power throws" slowly and as statically as possible. Also try "laddering" up and down the board a rung or two at a time, without dynoing. Static lock-offs can be trained by putting your feet on the wall behind the board or on a chair, to take as much weight as necessary.

As with all campus board exercises, make the moves hard enough to keep the total number of repetitions low (3-5 on each arm). The idea is to train maximum force, not endurance.

Variations
When you feel like you've adapted to full hand training, you might want to try isolating fingers. Two fingers is the norm here, but don't be afraid to mix it up. As with everything, build up slowly. You might want to start by doing dead-hangs and pull-ups with various combinations of three, two, or one finger. Again, use the wall or a chair to take weight as necessary.

It is important also to realize that different sized holds will train different muscles. If you've been focusing your training on small holds, forearm strength may no longer be your limiting factor. You should also train longer moves on larger holds for a while, to increase the recruitment of your upper arms and torso.

Incut or flat holds will slightly alter the muscles used and it's worth experimenting with as many types as possible. The more you vary your training, the more effective it will be.

What Works For You?
While we are not sports physiologists, we do have a lot of hands-on experience and have learned from some of the best climbers in the world. However, exercises that work for us may not work for you and vice-versa. Experiment with your own program and figure out what works best for you. Always remember to warm up thoroughly, start small, and take plenty of rest days.

Don't Forget To Go Climbing
Finally, of course, the whole point is to improve your climbing. "Campusing" is a powerful tool for improvement, but any gain made on the board will require a period of adaptation on the rock for you to see its full value. So go climbing, have fun, and remember, all it takes to succeed is a modicum of talent and a lot of dedication. In the words of Sheffield's master boulderer Richie Patterson: "Be good, and if you can't be good, be strong."