

THE ADAPT METHOD

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# Mountain Ultra Leg Strength

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Rebuilt From The Research.

The full progression: the hierarchy, the weeks, the descent sessions, and the taper.



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# The climb makes you tired. The descent takes your legs.

Nobody drops out of a mountain ultra because their legs were not strong enough on the climb. They drop because somewhere on the third big descent the quads stop absorbing, the stride turns into a controlled fall, and every step starts costing more than it should.

Mountain and trail running are eccentric events. You spend hours asking your quads to work as brakes, and braking is what tears muscle. On a climb you can slow down. On a descent the load arrives whether your capacity is ready or not.

## What happened at Moose Mountain

On September 12 I ran the Moose Mountain Marathon. I went in the fittest I have ever been, and I want to be specific about what that means, because it is the whole point.

My cardiovascular system felt excellent the entire day. I crossed the line with zero tiredness. I could have turned around and run another twenty six miles, and on the right day I think I had a hundred in me. The engine was never the problem.

I was flying into Temperance. Fastest I have ever been at that point in this race, and on track for 5:30 or better. Then on the descent off Temperance the quads started to tighten.

By mile fourteen, just past the Sawbill aid station, my legs were genuinely fried. I was still on pace for 5:45 at that point, which tells you the engine was still running fine. But I did the math on the last twelve miles and understood the number was not going to happen.

The job changed from chasing a time to running the best race I could with what I had left, which is its own kind of day and not a bad one.

It was a good day. I was happy with the time and I would take it again. But this was my fourth year on that course, and it came out as my third best run on it. The engine was in the best shape of my life and the clock did not agree.



*Moose Mountain Marathon,  
September 12.*

**“ Load above capacity equals pain. My load was a mountain marathon. My capacity was a year of roads.**

## Why it happened

Two reasons, and neither one of them is fitness.

The first is exposure. Life has been full this past year, some of it for very good reasons, and trail time was the thing that got cut. The last time I ran trail before that start line was the same race, one year earlier. Twelve months of roads, and then four thousand feet of descending in a single morning.

The second is harder to say out loud, because the work was there. My training was consistent. I did the hill sprints. My leg strength work existed. It just was not specific. Consistent is not the same thing as specific, and my legs had been trained to run, not to absorb thousands of feet of descending on technical ground.

If you have ever finished a race knowing your lungs had more left in them than your legs did, this guide is for you. It is the answer I built for myself afterward, checked against the research, and it is the same progression I give the runners I coach.

It is written for trail and mountain runners of any distance. The structure holds whether you are building toward a first trail half or a hundred miler. Where the numbers change with distance, I have said so.

### THE METHOD

## The five steps, and the two I got wrong.

ADAPT is the system I run every athlete through: **Assessment Driven Athletic Performance Training**. Five steps, in order, each one earning the next.



Figure 1. The five steps of ADAPT, applied to the descent.

### A • Assess

Find out what your legs can absorb, not just how fit you are. Training history, trail exposure, and a handful of honest self-tests.

**D • Decrease**

Clear what is blocking adaptation. Often this is not pain. It is habits: easy days run too hard, no descent exposure, thin fuel, short sleep.

**A • Activate**

Restore the motion a descent actually requires, and wake up what has gone quiet.

**P • Progress**

Build the capacity, in the right order, and progress it toward the demand rather than just adding load.

**T • Transfer**

Carry it onto real terrain and into race week, so the strength shows up when it is asked for.

## Where I got it wrong

I want to be specific about this, because "I did not train hard enough" would be the wrong lesson. The work was there. It was pointed at the wrong target. Here is my own scorecard against my own method.

| Step                | What I actually did                                                                                              | Verdict          |
|---------------------|------------------------------------------------------------------------------------------------------------------|------------------|
| <b>A • Assess</b>   | Audited my training honestly. I knew my mileage, my sleep and where I stood.                                     | Did this well    |
| <b>D • Decrease</b> | No pain to calm. What I cleared was habits: easy days run too hard, thin fuel, short sleep.                      | Did this well    |
| <b>A • Activate</b> | Mobility and activation were in the week. Ankles, hips, feet.                                                    | Did this well    |
| <b>P • Progress</b> | Added load. Never added specificity. Barely any single-leg loading, no real eccentric work, no descent sessions. | Got this wrong   |
| <b>T • Transfer</b> | Never happened. Not because I forgot it, but because Progress was aimed at general strength.                     | Lost as a result |

*Figure 2. Three steps landed. The fourth pointed the wrong way, and the fifth paid for it.*

That is the part worth taking from this. Transfer is not a step you bolt on at the end. It is what you get when Progress is aimed at the right target. Mine was aimed at general strength, and general strength is not what four thousand feet of descending asks for.

“Strength that never meets the specific demand is just strength.

## A · ASSESS

# What can your legs actually absorb?

Fitness and capacity are different questions. The first asks how much oxygen you can move. The second asks how much braking your tissue can take before it stops braking well. You can be excellent at one and exposed on the other, which is exactly what happened to me.

## The exposure audit

Answer these honestly before you touch a single exercise. Each red answer is a reason your descent is costing more than it should.

| What to audit      | What good looks like                             | Red flag                                      |
|--------------------|--------------------------------------------------|-----------------------------------------------|
| Trail exposure     | Regular time on terrain that resembles your race | Months of roads, then a mountain start line   |
| Descent volume     | Deliberate downhill running every 2 to 3 weeks   | Descending only by accident, inside long runs |
| Single-leg loading | Loaded single-leg work twice a week              | Everything trained on two legs                |
| Eccentric work     | Slow lowering built into the week                | Only concentric lifting and machines          |
| Calf capacity      | Bent-knee work, not just standing raises         | Standing calf raises only, or none            |
| Recovery & fuel    | 7 plus hours, eating enough to repair            | Short sleep, under-fuelled long runs          |

## Three self-tests

### 1. Single-leg step-down, slow

Stand on one leg on a 6 to 8 inch box. Lower on a strict five second count until the opposite heel just touches, then drive back up in one second. Stop when the tempo breaks, the knee dives inward, or the pelvis drops. Under 8 clean reps per side means your eccentric quad capacity is the limiter, not your fitness.

**Common cheat:** Rushing the lowering phase. The whole test lives in the five seconds down.

### 2. Bent-knee calf raise capacity

Seated, knee bent to ninety degrees, toes on a block, meaningful load across the lower thigh. Full range, two second hold at the top. Fewer than 15 quality reps and your soleus is undertrained for what a long descent asks of it.

**Common cheat:** Testing this standing. A straight knee recruits the gastrocnemius and hides the soleus.

### 3. The day-after test

After your next genuine downhill run, check the stairs the following morning. Mild soreness is adaptation. Legs that cannot control the descent of a staircase for two days means you exceeded capacity badly, and race day is not the place to find that out.

**Common cheat:** Treating severe next-day soreness as a badge. It is data, and it is telling you the gap is large.

## What to do with your answers

Count your red flags. Three or more and your limiter is exposure, not strength: the fastest gain available to you is getting on terrain and doing deliberate descent work, which costs nothing but planning. Two or fewer, and your limiter is capacity: the hierarchy in Progress is where your time should go.

If you failed the step-down test, start at Base regardless of how strong you feel in the gym. Bilateral strength hides single-leg deficits, and a descent is a single-leg event repeated several thousand times.

**“Fitness tells you what your engine can do. Assessing tells you what your legs can survive.”**

## Clear what is blocking the adaptation.

In a classic injury this step is about calming pain. In my case there was no pain to calm. What needed decreasing was a set of habits that were quietly stopping the work from landing.

Easy days run at medium effort so the hard days have nothing left. Long runs under-fuelled, so the session trains the stress and not the adaptation. Sleep short enough that tissue repair runs behind schedule. None of these hurt. All of them lower the ceiling on what Progress can build.

If you do have genuinely irritated tissue, that is a different job. Calm it enough to load it, and keep loading. Rest alone reduces pain and capacity at the same rate, which is why it keeps failing runners. In the clinic this is where focused shockwave, radial pressure wave and EMTT earn their place, with laser when tissue needs settling rather than stimulating. None of it replaces the loading. It shortens the runway so the loading becomes possible.

**“ Rest lowers the pain and the capacity together. Only one of those is the problem.**

## Restore the motion a descent demands.

Descending well needs range you may not currently own: ankles that bend under a loaded shin, hips that extend and control rotation, a big toe that works. Ten minutes before your loading sessions is enough.

### **Ankle dorsiflexion, loaded**

Knee-to-wall, front foot a few inches back, drive the knee forward over the second toe with the heel down. Ten slow reps per side. Aim for roughly a hand-width of clearance without the heel lifting.

**Common cheat:** Letting the arch collapse to fake the range.

### **Hip extension and controlled rotation**

Half-kneeling hip extension holds, then slow controlled hip rotations on the ground. Ninety seconds per side. Descending is a rotational event as much as a vertical one, and a hip that cannot rotate hands that job to the knee.

**Common cheat:** Arching the low back to create the feeling of extension.

## Foot and great toe

Toe splay, then great toe presses, then a short foot hold. Two minutes total. The foot is the first thing that meets the ground on technical terrain.

**Common cheat:** Curling the toes instead of pressing through the big toe.

**“ Motion first, then strength. Strength through a range you do not own is just tension.**

## P • PROGRESS

# The hierarchy, the protocol, and the weeks.

This is the engine of the fix, and the step I got wrong. Work top down. If you have twenty minutes a week, the first line is the one that matters. Nothing below the fourth line earns its place if the first is missing.

## Progress toward the demand, not just the load

Adding weight is progression. It is not the only axis, and on its own it is the trap I fell into. The work also has to move toward the specific demand: from two legs to one, from concentric to eccentric, from the gym to the hill, from fresh to fatigued. A runner who only adds load gets stronger at lifting. A runner who progresses toward the demand gets stronger at descending.

| Rank & movement                                          | Sets × reps                                             | Tempo               | Why it earns the slot                                                                                                                                                       |
|----------------------------------------------------------|---------------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1 • Heavy trap bar deadlift or back squat</b>         | 3–5 reps at 80–90% 1RM, 1 set to maintain, 2–3 to build | Controlled          | Recruits high threshold motor units. Improves running economy 2 to 8% with little added mass. Gains skew larger at faster paces and in runners who were not already strong. |
| <b>2 • Slow eccentric split squat or step-down</b>       | 3–4 × 6–8 per side                                      | 4–5 sec down        | Builds the eccentric capacity a descent spends. This is quad armour.                                                                                                        |
| <b>3 • Heavy seated soleus raise</b>                     | 3–4 × 8–10, or 45 sec loaded holds                      | 2 sec hold at top   | The soleus carries 6.7 to 8.7 times body weight per stride. A bent knee makes it do the work.                                                                               |
| <b>4 • Yielding isometrics (Spanish squat, wall sit)</b> | 2–3 × 30–60 sec                                         | Static, 70–90° knee | High tendon load with no eccentric damage. The one input you can keep in race week. It does not improve running economy, and it is not the pain eraser it gets sold as.     |
| <b>5 • Nordic curl and single-leg RDL</b>                | 2–3 × 5–8                                               | Slow eccentric      | Hamstring strength at long lengths. Protects the knee during rapid braking.                                                                                                 |
| <b>6 • Tibialis anterior raises</b>                      | 2–3 × 15–20                                             | Controlled          | Conditions the front of the shin for technical ground. Cheap insurance.                                                                                                     |
| <b>7 • Hill sprints and specific circuits</b>            | 5–10 surges of 15–35 sec                                | Explosive           | Bridges gym strength into the movement under grade and fatigue.                                                                                                             |
| <b>8 • Low-impact plyometrics</b>                        | 20–40 foot contacts, 1–2× weekly                        | Fast ground contact | Trains elastic return. Improves economy at 12 km/h and below, which is trail and ultra pace. Small alone, large stacked on line one.                                        |

Figure 3. The ranked hierarchy. Priority reflects mountain and trail demands specifically. It is an editorial weighting, not a measured score.

## What changed when I checked this against the research

After Moose Mountain I took this guide back to the literature and put every load-bearing claim under the light. Most of it held. Three did not survive contact in the form I had written them, and two of those moved movements in the table above. I would rather show you that than quietly edit the ranking.

| The claim                                                 | Verdict | What the research actually says                                                                                                                                                                                                                            |
|-----------------------------------------------------------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Submaximal loads, 40 to 79% of 1RM, build running economy | REFUTED | A 2024 meta-analysis found no improvement at all from this range. High loads worked. Plyometrics worked. The comfortable middle did not. This is the clearest argument for going properly heavy on line one.                                               |
| Isometrics improve running economy                        | REFUTED | They do not, on the same meta-analysis. Note the scope: that is a performance outcome in healthy runners. It says nothing about whether an isometric hold helps an irritable tendon accept load, which is a different question and still where I use them. |
| Plyometrics barely move running economy                   | REFINED | Pace dependent. The benefit showed up at speeds of 12 km/h and below, roughly eight minute miles, which is trail and ultra pace. Heavy lifting gained more at faster speeds. Do not skip line eight because someone told you plyos do not work.            |

Figure 4. Sáez de Villarreal et al., Sports Medicine, 2024. Full reference list in the article at craigpatane.com.

|                   |                     |                         |                      |
|-------------------|---------------------|-------------------------|----------------------|
| Base<br>Weeks 1–4 | Build<br>Weeks 5–10 | Specific<br>Weeks 11–14 | Taper<br>Weeks 15–16 |
| own the patterns  | heavy and eccentric | terrain and descent     | clear the damage     |

Figure 5. A 16 week progression. Compress to 12 by shortening Base if you are already lifting.

## What each phase has to deliver

**Base, weeks 1 to 4.** Two sessions a week. Own the movements before loading them. Bodyweight and light split squats, seated soleus raises, isometric holds, tibialis work. Exit when you can hold a five second lowering on a step-down for 8 clean reps per side.

**Build, weeks 5 to 10.** Two sessions. Line one goes heavy. Slow eccentrics carry real load. Nordics enter. Plyometrics begin only here, and only when fresh. Exit when your heavy lift is genuinely heavy for 3 to 5 reps and your step-downs are loaded.

**Specific, weeks 11 to 14.** This is the phase I skipped. Keep one heavy session, add descent running every 2 to 3 weeks on terrain like your race, plus hill circuits. Exit when a dedicated descent session leaves you sore for a day rather than wrecked for three.

**Taper, weeks 15 to 16.** Covered in Transfer.

## The two sessions, written out

Two days a week is the version that survives a real training block. Here is exactly what they look like in the Build phase.

| Day 1 · Force and isometrics               | Day 2 · Armour and power                    |
|--------------------------------------------|---------------------------------------------|
| Trap bar deadlift or squat, 1–2 × 5 at 85% | Slow step-downs, 3 × 6 per side, 4 sec down |
| Spanish squat or wall sit, 3 × 45 sec      | Nordic curls, 2 × 6                         |
| Heavy seated soleus raise, 3 × 10          | Single-leg RDL, 3 × 8 per side              |
| Tibialis raises, 2 × 15                    | Hill circuit or pogos, 20–30 contacts       |
| Ankle and hip activation, 10 min before    | Ankle and hip activation, 10 min before     |

Figure 6. The Build phase week. In Base, drop the load and remove Nordics and plyometrics.

## Scaling by race

| Race                       | Strength days                | Descent sessions                 | Notes                                      |
|----------------------------|------------------------------|----------------------------------|--------------------------------------------|
| Trail half or shorter      | 2 per week                   | 1 every 3 weeks                  | Base and Build carry most of the benefit   |
| Trail or mountain marathon | 2 per week                   | 1 every 2 to 3 weeks             | Full Specific phase matters most here      |
| 50k to 100k                | 2 per week, 1 in peak volume | 1 every 2 weeks, longer descents | Protect sleep and fuel or none of it lands |
| 100 mile                   | 1 to 2 per week              | 1 every 2 weeks, race-like vert  | Durability over maximum load               |

“ I progressed load. I never progressed toward the demand. That is the whole lesson.

## T · TRANSFER

# Get it onto the trail, and onto race day.

Transfer is what you get when Progress was aimed correctly. Two things deliver it: real descent exposure, and a taper that clears the damage without throwing away the strength.

## The descent session



*Controlled descending on technical ground.*

A descent session is a running session, not a gym session, and it needs its own recovery. Find terrain that resembles your race.

Warm up, then run 20 to 40 minutes of cumulative downhill at controlled effort, walking or jogging the climbs. Stay relaxed, keep the feet quick, and do not brake with a locked leg.

Run one every two to three weeks. The protective adaptation, called the repeated bout effect, is real and lasts weeks rather than days, which is why this does not need to be frequent to work. Note where the evidence sits: the clearest protection comes from repeating downhill running itself. Gym eccentrics are useful, but they are not a demonstrated substitute.

Put your last hard descent three to five weeks out from the race, so you keep the protection without carrying the damage to the start line.

**Common cheat:** Doing your first real descent session inside the final three weeks. That is damage you will still be paying for on race morning.

## The taper

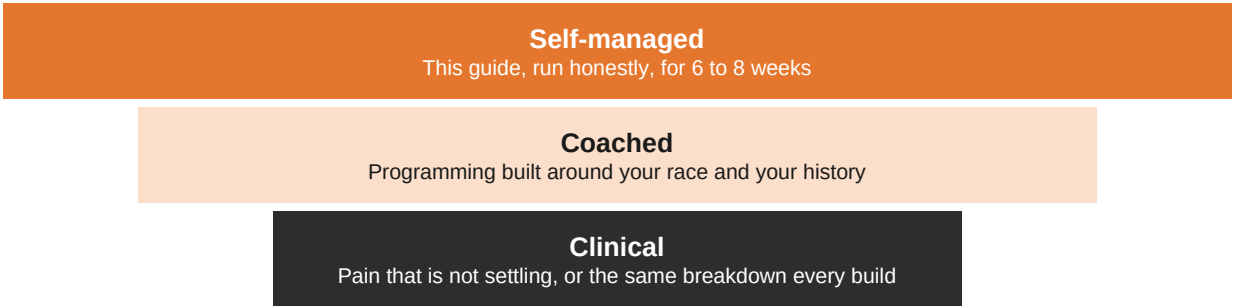
| When                       | Lifting                                         | Descent and plyometrics              | Why                                                  |
|----------------------------|-------------------------------------------------|--------------------------------------|------------------------------------------------------|
| <b>6 to 4 weeks out</b>    | Drop to 1 set per exercise, keep the load heavy | Last hard descent session lands here | Intensity maintains strength, volume creates fatigue |
| <b>3 to 2 weeks out</b>    | Heavy only, low volume                          | Stop plyometrics and slow eccentrics | These are the inputs that leave soreness in tissue   |
| <b>Final 10 to 14 days</b> | No heavy lifting                                | None                                 | Strength holds near baseline for about two weeks     |
| <b>Race week</b>           | Short isometric holds, 15 to 30 sec             | None                                 | Keeps the system switched on at no cost              |

Strength holds near baseline through roughly two weeks of reduced training and only declines meaningfully after four. A two week lifting taper costs you nothing and removes the soreness you cannot afford on race morning.

## The whole map on one page

| Phase           | Weeks | The job             | You are ready to move on when             |
|-----------------|-------|---------------------|-------------------------------------------|
| <b>Base</b>     | 1–4   | Own the patterns    | 8 clean 5-second step-downs per side      |
| <b>Build</b>    | 5–10  | Heavy and eccentric | Heavy lift is truly heavy for 3 to 5 reps |
| <b>Specific</b> | 11–14 | Terrain and descent | A descent session costs a day, not three  |
| <b>Taper</b>    | 15–16 | Clear the damage    | You feel springy and slightly impatient   |

# When to bring in help



| See someone now if                                 | Why it matters                                          |
|----------------------------------------------------|---------------------------------------------------------|
| Pinpoint bone pain you can cover with a finger     | Bone stress injuries need protection before progression |
| Pain at rest or at night                           | Not a loading pattern, needs assessment                 |
| Pain that worsens week over week despite deloading | The driver has not been found yet                       |
| Numbness, tingling or giving way                   | Needs a clinical exam, not a training change            |

“Transfer is not a step you bolt on at the end. It is what Progress earns when it is aimed correctly.

## ONE LAST THING

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I wrote this guide because I broke my own training method and my legs sent me the invoice at mile fourteen. I assessed, I decreased, I activated, and then I progressed load instead of progressing toward the demand. The trail is where that bill came due.

So I am back at the beginning of my own system, which is exactly where I should be. Assessing. Not much to decrease, because nothing is injured. Activating far more than I was. And progressing it the whole way to specificity this time: single-leg loading, real eccentric work, and descent sessions long before the next start line. That is the difference between knowing a system and running it on yourself. Run it on yourself.

**Take the free Runner's Root-Cause Assessment, or claim your ADAPT Assessment.**

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*This guide is educational and is not medical advice. It does not replace an examination. See a qualified provider for severe pain, pain at rest or at night, numbness or tingling, a suspected bone stress injury, or any known condition, and if you are unsure whether this progression is appropriate for you.*