

THE

DOWNHILL

KNEES

GUIDE

The 30-minute routine that took a knee with no ACL up and down Kilimanjaro. Take the ache out of descents, downhill hikes, and stairs. [Gym or garage, with a swap for every movement.](#)

From Connor Clayton: four ACL tears, no ACL in my right knee. In September 2026 I summited Kilimanjaro (Uhuru Peak, 19,341 ft) and walked down 14,000 feet in two days with no knee pain. This routine is what got the knee ready.

DOWNHILL IS A BRAKING PROBLEM

Going uphill is mostly a lungs problem. Coming down is where knees complain, and here's why: every step of a descent, your quads have to catch your bodyweight plus your pack, lengthen under that load, and slow you down. Then they do it again a few thousand times before you reach the bottom.

It's the same reason stairs bother your knees more going down than up, and the same load skiers feel in their legs on a long descent day.

Strength coaches call this **eccentric loading**: muscle working while it lengthens. It's the hardest thing you can ask of a muscle, and it's the part most training skips. Squats, lunges, and leg press all train the push. The catch barely gets trained. Then a big downhill day asks for hours of catching, and the knees pay the bill.

The fix isn't avoiding descents. It's building brakes strong enough to handle them. The routine in Part 2 trains your quads, calves, shins, and hips to absorb load, so the knee joint doesn't have to. It's the descent work I ran before Kilimanjaro, and it carried a knee with no ACL down 14,000 feet in two days without a complaint.

The knee is usually the victim, not the problem. When the muscles above and below it can't absorb impact, the joint takes what's left over.

WHAT'S IN THIS GUIDE

- The 30-minute routine: 11 movements, twice a week, gym or garage
- The on-mountain playbook: 5 tactics that spare your knees on descent day, and how they held up on Kilimanjaro
- The 24-hour rule, so you always know if you did too much

BUILD THE BRAKES

Run this for the 4 to 6 weeks before a big hike, or year-round if stairs and descents bug you now. It's the descent-specific cut of the training that got my knee ready for Kilimanjaro: 11 movements, about 30 minutes, twice a week. Gym or garage. Every movement has a swap if you train at home, and every one links to a video demo. Whether you're coming back from an injury or getting ahead of one, the strength is built the same way.

01

BACKWARD SLED PULLS

3 ROUNDS OF 1 MIN

Why it's here: Builds the quads with almost zero stress on the joint itself. Your quads are the brakes on every step down, and this is the most knee-friendly way to make them stronger.

How to do it: Lean back slightly and pull the sled toward you with smooth, driving steps. No sled? Walk backward on a turned-off treadmill and push the belt with each step, or do 3 sets of 15 banded TKEs per side.

[▶ WATCH THE DEMO](#)

02

BACK SQUATS

3 SETS OF 6

Why it's here: Raw quad strength you can keep adding weight to for years. Stronger quads make your bodyweight plus a pack feel lighter on every step of a descent.

How to do it: Bar on your back, feet about shoulder width, sit down until your thighs hit parallel or lower, then stand. Control the way down. That's the half that matters for descents. Home swap: goblet squat with the heaviest dumbbell you've got, or a heavy wall sit.

[▶ WATCH THE DEMO](#)

03

CURTSEY LUNGES

3 SETS OF 8 PER LEG

Why it's here: Single leg strength on uneven ground. A trail never gives you two feet on flat rock, and the curtsy loads the knee and hip at the angles a scree slope does.

How to do it: Step one foot back and across behind the other, like a curtsy, and lower until the back knee is just off the floor. Drive up through the front heel. Bodyweight first, then hold a dumbbell at your chest. Same move at home, nothing needed.

[▶ WATCH THE DEMO](#)

SHINS AND CALVES

Hours of walking at an incline live below the knee. Get the shins and calves ready and the knee stops picking up their slack.

04

TIBIALIS RAISES

3 SETS OF 20

Why it's here: The muscle on the front of your shin controls your foot on every downhill step. When it fatigues, the knee absorbs what it misses.

How to do it: Lean your back against a wall, heels about a foot out, and pull your toes up as high as they'll go. Slow on the way down. Any wall at home works exactly the same.

► [WATCH THE DEMO](#)

05

STRAIGHT-LEG CALF RAISES

3 SETS OF 15

Why it's here: The big calf muscle takes the first hit every time your foot lands, and hours of walking at an incline wear it out. Strong calves keep the knee from covering for them late in the day.

How to do it: Stand on the edge of a step with your knees locked out and drop your heels below the step until you feel the stretch. Drive up onto the balls of your feet and pause at the top. Any stair at home works. Hold a dumbbell once 15 feels easy.

► [WATCH THE DEMO](#)

06

KNEES-OVER-TOES CALF RAISES

3 SETS OF 15, SLOW

Why it's here: Your soleus (the deep calf muscle) is the biggest shock absorber below the knee, and it only works hard when the knee is bent. That's the exact position you descend in.

How to do it: Push your knees forward over your toes and keep them there the entire set. Pause in the bottom stretch, then drive up through the big toe. Slow both ways. Works on a step or a flat floor at home.

► [WATCH THE DEMO](#)

NOW TRAIN THE DESCENT

Step ups for the climb, step downs for the descent, and a wall sit so your legs know the burn before the mountain shows it to them.

07

WEIGHTED BOX STEP UPS

3 SETS OF 10 PER LEG

Why it's here: For the climb. This is the summit push one rep at a time, and the weight gets your legs used to hauling a pack uphill for hours.

How to do it: Knee-height box, dumbbells at your sides or a pack on your back. Whole foot on the box, stand up through that leg without pushing off the back foot, then step down with control. Home swap: stairs with a loaded pack, two steps at a time.

► [WATCH THE DEMO](#)

08

POLIQUIN STEP UPS

3 SETS OF 10 PER LEG

Why it's here: Targets the VMO, the inner quad muscle that keeps your kneecap tracking straight when the downhill steps start piling up.

How to do it: Stand on a low step with your heel raised on a slant board or plate. Lower the other heel to the floor with control, tap, then press back up through the elevated leg. Home swap: a book under your heel on the bottom stair.

► [WATCH THE DEMO](#)

09

ECCENTRIC STEP DOWNS

3 SETS OF 8 PER LEG, 3 TO 5 SEC DOWN

Why it's here: For the descent, where your knees take most of the load. This is downhill hiking one controlled rep at a time, and the single most specific exercise you can do for descents.

How to do it: Stand on a low box or step. Lower the free heel to the floor over 3 to 5 seconds, tap, then drive back up, knee tracking over the toes the whole way. Level up: once 8 slow reps feel easy, raise the box, or go lateral to build the control you need on switchbacks and uneven ground. The bottom stair at home is all you need.

► [WATCH THE DEMO](#)

► [LATERAL VERSION](#)

THE LAST PIECES: **BURN AND HIPS**

10

WEIGHTED WALL SIT

2 HOLDS TO FAILURE

Why it's here: So your legs get used to the burn. Late in a long descent they feel exactly like this. Long holds also calm a cranky knee down, so keep this one in rotation during heavy hiking weeks.

How to do it: Thighs near parallel, back flat against the wall, whole foot on the floor. Hold until your legs give out, rest two minutes, go again. Start with bodyweight. Once you're past a minute, hold a plate or wear the pack you'll be hiking with.

► [WATCH THE DEMO](#)

11

BANDED SIDE STEPS

2 SETS OF 15 EACH WAY

Optional finisher. Do it anyway.

Why it's here: Your hips steer your knees on uneven ground. When the glutes fade late in a descent, the knees start caving inward, and that's when they start barking.

How to do it: Band around the knees or ankles, stay low, keep tension the whole set. No band? Side-lying leg raises, 2 sets of 15 per side.

► [WATCH THE DEMO](#)

Put it together: run 1 through 11 in order, twice a week. Sled, then squats. Curtsy lunges on their own. Tibialis raises and the two calf raises as a circuit. Box step ups paired with Poliquin step ups, then the eccentric step downs. Wall sit to finish the legs, then the side steps if you've got the hips left. The whole thing fits in about 30 minutes.

PRACTICE THE DESCENT In the 2 to 3 weeks before a big hike, get one or two real descents in: a shorter downhill hike, a long stair session, or 10 to 15 minutes walking down a decline on the treadmill. Do the last one wearing the pack you'll carry. One exposure to that kind of loading protects the muscle from soreness and damage the next time, and the protection lasts for weeks. Sports scientists call it the repeated bout effect. It's the cheapest knee insurance there is, and almost nobody does it.

5 THINGS THAT SPARE YOUR KNEES



1 SHORTEN YOUR STEPS.

Quick, small steps mean less braking per stride. Big drops off rocks and tall steps are what light knees up.

2 USE POLES ON THE WAY DOWN.

They take a real share of the braking load off your legs every step. Even if you skip them going up, use them coming down.

3 KEEP YOUR KNEES SOFT.

A locked-out knee sends impact straight into the joint. Land with a slight bend and let the muscles do the catching.

4 ZIGZAG THE STEEP STUFF.

Cutting angles across a slope beats dropping straight down it. Pick the longer line and your quads will thank you.

5 WARM UP AT THE TOP.

Two minutes of backward walking and ten step downs per leg before a long descent wakes the brakes up.

THE 24-HOUR RULE Sore the next day? Normal. That's the tissue adapting. Pain that's sharp, or still hanging around more than 24 hours later, means you did more than the knee was ready for. Cut the volume for a few days, then build back.

HOW IT WENT

Summit day took us to Uhuru Peak, 19,341 feet. Then two days of walking down, 14,000 feet of descent, on a right knee with no ACL. Poles out the whole way down, short steps, soft knees, and the five tactics above on repeat. No knee pain, up or down. Everything in Part 2 is what earned that.

19,341 FT

Uhuru Peak, the summit

14,000 FT

of descent in two days

ZERO

knee pain, up or down



Single leg strength, tested on the mountain that needed it.

THIS IS THE SIMPLE VERSION.

The full system, the one that got this knee up and down Kilimanjaro, is **The Strong Knees System**. It's live now. Five programs in one app, every exercise filmed, and the order that got this knee up and down the mountain, so you can fast-track your knees on a follow-along app instead of a PDF.

SEE THE SYSTEM

thekneehaber.com