

# LEG CONDITIONING PROGRAM

23 May 2026

**This program is designed to improve eccentric strength, joint stability, and reactive power in the lower body.**

For endurance athletes competing in trail running, performance is often limited not by concentric strength, but by the ability to absorb force efficiently. Downhill running places extremely high eccentric loads on the quads, knees, and connective tissue.

This program develops the ability to control that load, reduce fatigue, and improve speed and confidence on descents. The goal is activation and conditioning, not total fatigue.

It also builds:

- Knee resilience
- Ankle stiffness and elasticity
- Hip and glute stability
- Force absorption and reapplication

<p style="text-align: center;"><b>Session Structure</b></p> <p>3 rounds per exercise:</p> <ul style="list-style-type: none"><li>• Controlled tempo</li><li>• Minimal rest between exercises</li><li>• Total time: &lt;40 minutes</li></ul>	<p style="text-align: center;"><b>Key Coaching Principles</b></p> <ul style="list-style-type: none"><li>• Focus on control over load</li><li>• Maintain proper knee alignment</li><li>• Prioritise quality over fatigue</li><li>• Keep movements precise and intentional</li></ul>
<p style="text-align: center;"><b>Expected Results</b></p> <ul style="list-style-type: none"><li>• Improve downhill running performance</li><li>• Reduce quad fatigue and soreness</li><li>• Increase joint durability</li><li>• Enhance reactive strength and running efficiency</li></ul>	<p style="text-align: center;"><b>Progression</b></p> <ul style="list-style-type: none"><li>• Depth and control of movements</li><li>• Plyometric intensity</li><li>• Complexity (single-leg, unstable surfaces)</li></ul>

## Exercise Summary

Number	Name
1	Pogo Jumps (Activation & Elasticity)
2	Cossack Squats (Mobility & Lateral Stability)
3	Decline Heel Elevated Squat (Eccentric Quad Strength)
4	Reverse Nordic Curls (Knee & Tendon Resilience)
5	Eccentric Step Downs (Downhill Braking Control)
6	Single-Leg Romanian Deadlift (Balance & Posterior Chain Stability)
7	Drop Jumps (Force Absorption & Reactivity)
8	Tibialis Raises (Shin & Ankle Durability)

# Exercises

## 1. Pogo Jumps (Activation & Elasticity)

### How:

- Perform quick, small jumps with minimal knee bend.

### Why:

- Develops ankle stiffness and elastic energy return.

### Outcome:

- Faster, lighter ground contact and improved running efficiency.

### Tips:

- Stay tall through the torso and keep the knees only slightly bent throughout the movement.
- Think bounce off the ground rather than jump high. Ground contact should be quick and reactive.

### Reps:

- 30 - 50

## 2. Cossack Squats (Mobility & Lateral Stability)

### How:

- Move side-to-side with controlled descent into each rep.

### Why:

- Trail running requires lateral stability, not just forward motion.

### Outcome:

- Improved knee tracking and reduced risk of injury.

### Tips:

- Keep the heel of the working leg fully planted on the ground as you descend.
- Keep the chest tall and avoid collapsing forward into the hips.

### Reps:

- 6–8 per side

## 3. Decline Heel Elevated Squat (Eccentric Quad Strength)

### How:

- Elevate heels using a wedge or plate. Lower slowly for 4–5 seconds, then return to standing.

### Why:

- Loads the quads in a lengthened position, similar to downhill running mechanics.

### Outcome:

- Greater quad endurance and resilience under eccentric load.

### Tips:

- Allow the knees to travel forward over the toes while keeping them tracking in line with the feet.
- Control the lowering phase slowly and evenly instead of dropping into the bottom position.

### Reps:

- 8–10

#### **4. Reverse Nordic Curls (Knee & Tendon Resilience)**

**How:**

- Kneel upright and slowly lean backward while keeping hips extended. Return to start.

**Why:**

- Places a high eccentric load on the quads without compressing the spine.

**Outcome:**

- Stronger knees and improved tolerance to repetitive impact.

**Tips:**

- Keep the hips fully extended throughout the movement and avoid sitting back.
- Move as one straight line from knees to shoulders rather than bending at the waist.

**Reps:**

- 8–10

#### **5. Eccentric Step Downs (Downhill Braking Control)**

**How:**

- Stand on a box (20–40 cm). Slowly lower one leg toward the ground over 3–5 seconds. Lightly tap the heel and return to the start position.

**Why:**

- This directly mimics the braking forces experienced during downhill running.

**Outcome:**

- Improved control during descents and reduced quad fatigue.

**Tips:**

- Keep the working knee aligned over the middle toes and avoid letting it cave inward.
- Lower under full control and resist the urge to drop into the bottom position.

**Reps:**

- 8 per leg

#### **6. Drop Jumps (Force Absorption & Reactivity)**

**How:**

- Step off a box and land softly. Progress to quick rebound jumps.

**Why:**

- Trains force absorption and reactivity.

**Outcome:**

- Improved shock absorption and explosive response.

**Tips:**

- Land softly and quietly by absorbing force through the ankles, knees, and hips together.
- Keep the chest stacked over the hips and avoid excessive forward lean on landing.

**Reps:**

- 5–8

## 7. Single-Leg Romanian Deadlift (Balance & Posterior Chain Stability)

### How:

- Balance on one leg and hinge at the hips, lowering slowly over 3–4 seconds.

### Why:

- Improves posterior chain strength and stabilisation.

### Outcome:

- Better control, balance, and reduced injury risk on uneven terrain.

### Tips:

- Keep the hips square to the ground as you hinge backward.
- Maintain a soft bend in the standing knee and reach long through the back leg.

### Reps:

- 8 per leg

## 8. Tibialis Raises (Shin & Ankle Durability)

### How:

- Lean against a wall and lift toes upward, then slowly lower.

### Why:

- Strengthens the tibialis anterior, crucial for braking forces during downhill running.

### Outcome:

- Reduced shin splints and better foot control.

### Tips:

- Pull the toes as high as possible at the top of each rep for a full contraction.
- Lower slowly under control instead of letting the feet drop back down quickly.

### Reps:

- 15–20