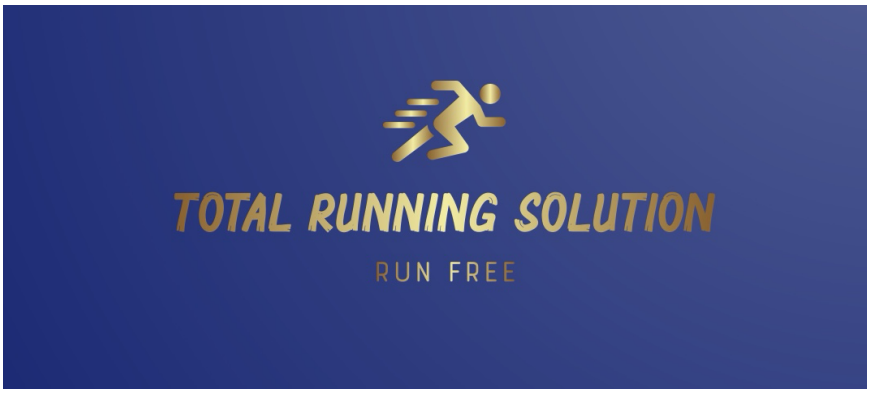
Strength Training for Runners

A Comprehensive Guide to Building Strength, Power, and Mobility



Prepared by:

Total Running Solution

Coach Mark Manske

Why Low Rep, Heavy Exercises Matter for Runners

Runners often believe that higher-rep, lighter weight training is best for endurance. However, research and practice show that incorporating low-rep, heavy resistance exercises is especially beneficial for distance running performance.

Key reasons include:

1. Improves maximal strength, allowing each stride to use a smaller percentage of available strength, which delays fatigue.
2. Enhances neuromuscular efficiency, improving stride power and running economy.
3. Strengthens tendons, ligaments, and connective tissues, reducing injury risk.
4. Builds resilience for hills, sprints, and late-race fatigue when muscles are taxed.

Section 1: Plyometrics (Explosiveness & Elasticity)

Split Squat Oscillations

Purpose: Develops reactive single-leg strength and reinforces hip/knee stability.

Benefits:

1. Mimics mid-stance loading in running.
2. Builds quad and glute endurance.
3. Improves balance and neuromuscular coordination.

How to Perform:

1. Begin in a lunge position.
2. Lower until the front knee is at ~90°.
3. Pulse up and down in short, quick movements (2–6 inches).
4. Keep chest upright and knee stable.

Recommended Reps/Sets: 3x5 per leg

Single-Leg Pogo Hops

Purpose: Trains ankle stiffness and lower-leg reactivity for efficient running economy.

Benefits:

1. Builds calf–Achilles spring.
2. Improves turnover and ground contact time.
3. Reduces shin splint and Achilles injuries.

How to Perform:

1. Stand on one leg.
2. Perform small, quick hops, minimizing ground contact.
3. Keep knee slightly bent and drive from the ankle.

Recommended Reps/Sets: 2–3x15–20 per leg

Box Drop Jumps

Purpose: Improves eccentric control and power absorption — key for hills and speed work.

Benefits:

1. Strengthens tendons and joints.
2. Builds landing mechanics and resilience.
3. Enhances stretch–shortening cycle efficiency.

How to Perform:

1. Step (not jump) off a box.
2. Land softly on both feet, knees bent, hips back.
3. Immediately absorb force and stick the landing, or rebound into a quick hop.

Recommended Reps/Sets: 3x5

Section 2: Strength Lifts (Power & Stability)

Bulgarian Split Squats

Purpose: Builds unilateral strength and control, mimicking the demands of running.
Benefits:

1. Strengthens glutes, quads, and hamstrings.
2. Improves stride power.
3. Reinforces hip/knee stability.

How to Perform:

1. Place one foot on a bench behind you.
2. Lower into a controlled lunge until the front thigh is parallel to the ground.
3. Drive back up through the front heel.

Recommended Reps/Sets: 3x5 per leg

Nordic Hamstring Curls

Purpose: Strengthens hamstrings eccentrically to prevent injuries.
Benefits:

1. Protects against hamstring strains.
2. Improves sprint finishing power.
3. Enhances posterior chain durability.

How to Perform:

1. Kneel with ankles secured (by partner or under a heavy object).
2. Slowly lean forward, resisting with hamstrings.
3. Catch yourself with hands and push back up.

Recommended Reps/Sets: 3x3

Reverse Nordics

Purpose: Strengthens quadriceps eccentrically and improves knee health.
Benefits:

1. Improves quad resilience for downhill running.
2. Enhances eccentric knee control.
3. Reduces risk of patellar tendon issues.

How to Perform:

1. Kneel on a soft surface with torso upright.
2. Lean backward slowly, keeping hips extended and core tight.
3. Lower until you feel tension in the quads, then return to start.

Recommended Reps/Sets: 3x10–12

Hex Bar Deadlift

Purpose: Builds total body strength with emphasis on glutes, hamstrings, and quads in a runner-safe hinge pattern.
Benefits:
1. Develops maximal lower-body strength for powerful stride mechanics.
2. Strengthens posterior chain for hills and sprints.
3. Safer for runners' lower backs compared to conventional deadlifts.

How to Perform:
1. Stand inside a hex bar with feet hip-width apart.
2. Grip the handles firmly, brace core, and push through heels.
3. Stand tall without leaning back, then lower under control.

Recommended Reps/Sets: 3x5

Straight-Leg Calf Raises

Purpose: Strengthens the gastrocnemius for push-off power.
Benefits:
1. Improves running economy.
2. Builds lower-leg durability.
3. Prevents Achilles issues.

How to Perform:
1. Stand tall on both feet or one leg.
2. Raise onto toes, hold, then lower slowly.
3. Keep legs straight.

Recommended Reps/Sets: 3x5

Bent-Leg Calf Raises

Purpose: Targets the soleus, crucial for long-distance running endurance.
Benefits:
1. Improves fatigue resistance in calves.
2. Supports late-race mechanics.
3. Reduces Achilles and shin injuries.

How to Perform:
1. Stand with knees slightly bent.
2. Rise onto toes, hold briefly, then lower slowly.
3. Focus on controlled range of motion.

Recommended Reps/Sets: 3x5

Sit-to-Stand

Purpose: Trains glute and quad activation through a natural running pattern.
Benefits:
1. Builds functional strength for running posture.
2. Reinforces hip drive and stride mechanics.
3. Simple, effective bodyweight option.

How to Perform:
1. Sit on a chair/bench.
2. Stand up without using arms.
3. Slowly sit back down under control.

Recommended Reps/Sets: 3x5

Section 3: Core & Stability Work

Copenhagen Plank

Purpose: Strengthens adductors and hip stabilizers.
Benefits:
1. Reduces groin/hip injuries.
2. Supports pelvic alignment in running.
3. Complements glute and core training.

How to Perform:
1. Side plank with top inner thigh resting on a bench.
2. Lift hips, keeping body in a straight line.
3. Hold for time.

Recommended Reps/Sets: 2–3x8–10 per side

Standing Clamshell

Purpose: Activates glute medius for hip stability.
Benefits:
1. Prevents knee collapse while running.
2. Improves stride alignment.
3. Strengthens lateral hip control.

How to Perform:
1. Stand with mini-band above knees.
2. Push one knee outward against resistance.
3. Keep hips level, repeat both sides.

Recommended Reps/Sets: 2–3x10–15 per side

Band Walks

Purpose: Strengthens lateral hip muscles and stabilizers.
Benefits:
1. Improves knee tracking.
2. Reduces IT band syndrome risk.
3. Builds hip strength for hills.

How to Perform:
1. Place band above knees.
2. Take small side steps, keeping knees bent.
3. Stay low and controlled throughout.

Recommended Reps/Sets: 2–3x8–12 steps each direction