DANTHECOACH
Strength & Endurance Coaching

THE RUNNER'S INJURY PREVENTION & POWER PROGRAM

A twice-weekly strength and power program built from the research on why runners get hurt and what actually holds up under load: targeted work for the knees, shins, hips and lower back, layered with plyometric and ballistic power training to help you put more force into the ground every stride.

The Logic: Running is a repeated single-leg impact, thousands of times per run, and most running injuries trace back to the same handful of weak links: hip abductors that let the knee cave in, calves and shins that can't tolerate the load, and a core that can't stabilize the spine under fatigue. A 2014 meta-analysis (Lauersen et al.) found strength training cut overuse injury rates nearly in half. This program targets exactly those weak links directly, and adds plyometric power work on top — research shows heavy strength and plyometric training both improve running economy, meaning you cover more ground for the same effort.

WEEKLY OVERVIEW — 2 SESSIONS

Day	Session
Mon	Easy run
Tue	Session A — Lower Body Strength & Power
Wed	Easy run or rest
Thu	Quality run (intervals / tempo)
Fri	Session B — Posterior Chain, Core & Power
Sat	Rest or easy run
Sun	Long run

This is a supplement to your running, not a replacement for it — the sample week above shows how the 2 strength sessions slot in around typical running training. Place them on easy days or right after an easy run, and keep at least a day of separation from your hardest quality session and your long run, so leg fatigue from lifting doesn't blunt the workout that matters most that week.

KEY PRINCIPLES — WHY THIS WORKS

Why Runners Need to Lift	Lauersen et al. (2014), a meta-analysis of RCTs across sports, found strength training nearly halved overuse injury rates and reduced overall sports injury risk by roughly two-thirds. Running is a repetitive-load sport — most injuries (runner's knee, shin splints, IT band pain) are overuse injuries, which is exactly the category strength training helps most.
Hips & Knee Pain	Patellofemoral pain ("runner's knee") is strongly linked to weak hip abductors and external rotators, which let the knee drift inward on every stride. Multiple systematic reviews (Nascimento et al., 2018; JOSPT meta-analyses) found hip-focused strengthening programs outperform knee-only rehab for reducing this pain. This program trains the hip abductors directly, alongside unilateral leg work that mimics the single-leg demand of running.
Shins & Calves	Medial tibial stress syndrome ("shin splints") is an overuse injury of the tibia and surrounding musculature. A 2024 RCT found adding hip abductor training reduced the pelvic drop and knee valgus associated with MTSS, and calf/soleus strengthening is a standard part of evidence-based rehab. This program pairs hip abductor work with direct calf and tibialis strengthening to build tolerance in both the muscles that absorb impact and the ones that decelerate your foot on landing.
Lower Back	Dr. Stuart McGill's decades of spine biomechanics research point to core *stability*, not raw ab strength, as what protects the low back — the ability to brace and resist unwanted movement of the spine under load. His "Big 3" (curl-up, side plank, bird dog) each train a different plane of stability (anti-extension, anti-side-bend, anti-rotation) while keeping spinal load low, and form the backbone of most evidence-based back rehab programs.
Power for Performance	Running demands large forces produced in very short ground contact times — often under 250 milliseconds. Heavy strength training alone doesn't fully train that speed of force production. A 2022 meta-analysis found heavy resistance training improved running economy more than plyometric training alone, but other meta-analyses show plyometrics still produce meaningful economy gains, and combined approaches tend to perform best — which is why this program includes both.
Exercise Order	Power and plyometric work comes first in each session, right after the warm-up, while your nervous system is freshest — jump quality (and the injury-prevention benefit of landing well) drops off fast once you're fatigued. The heavy compound lift comes next, and the more targeted, lighter injury-prevention accessory work is saved for last.
Sets, Reps & Rest	Heavy compound lifts: 3-4 sets of 4-6 reps, 2-3 RIR, 2-3 minutes rest. Power/plyometric work: low reps (5-8) with full recovery (90 seconds-2 minutes) between sets — the goal is quality and speed, not fatigue. Unilateral and injury-prevention accessories: 2-3 sets of 8-15 reps, 60-90 seconds rest. More sets isn't better here; this program is intentionally low-volume so it adds to your running instead of competing with it for recovery.

Key sources: Lauersen et al. (2014) Br J Sports Med — strength training and injury prevention. Nascimento et al. (2018) JOSPT — hip vs knee strengthening for patellofemoral pain. Hip abductor RCT for MTSS (2024). McGill — spine stability and the "Big 3". Eihara et al. (2022) Sports Med Open and related meta-analyses — heavy resistance vs plyometric training for running economy.

COMMON RUNNING INJURIES & THEIR FIXES

The table below maps the 4 issues you asked about most to their most common underlying cause and the specific exercises in this program that target them. It's a quick-reference summary of the research covered on the previous page.

Issue	Usual Cause	Key Exercises In This Program
Runner's Knee (patellofemoral pain)	Weak hip abductors/external rotators let the knee drift inward under load.	Standing Cable Hip Abduction, Bulgarian Split Squat, Single-Leg Romanian Deadlift
Shin Splints (MTSS)	Calf and shin muscles can't yet tolerate repeated impact load.	Standing Calf Raise, Tibialis Raise, plus the same hip abductor work above
Hip Imbalances	One side compensates for the other; strength deficits between legs go unaddressed by running alone.	Bulgarian Split Squat, Single-Leg Romanian Deadlift — both trained unilaterally, one leg at a time
Lower Back Pain	Poor core stability lets the spine move too much under fatigue, late in a run.	Bird Dog, Side Plank, Curl-Up (McGill's "Big 3")

None of this replaces a diagnosis — if you're currently in pain, see a physio or sports doctor first. This program is built for prevention and for runners returning to full training, not for training through an acute injury.

SESSION A — LOWER BODY STRENGTH & POWER

TUESDAY

Power, heavy compound, hips, calves/shins

~45-55 minutes, after a 10 minute warm-up

Exercise	Sets	Reps	Intensity	Rest
Pogo Hops	3	8-10	Fast, light ground contact	90 sec
Box Jump	3	5	Maximal, full recovery	2 min
Trap Bar Deadlift	4	4-6	Heavy, 2-3 RIR	2-3 min
Bulgarian Split Squat	3	8/leg	Moderate, 1-2 RIR	2 min
Standing Cable Hip Abduction	3	12-15/side	1-2 RIR	90 sec
Standing Calf Raise	3	12-15	0-1 RIR	90 sec
Tibialis Raise	2	15-20	0-1 RIR	90 sec

Pogo hops and box jumps come first, while you're freshest — these are about training your legs to produce force fast and absorb landings well, and that quality drops off once fatigue sets in. The trap bar deadlift is the heavy strength anchor of the session (a safer, more upright bar path than a conventional barbell deadlift). Everything after it is unilateral or targeted: the split squat and hip abduction train single-leg strength and the hip abductors specifically implicated in runner's knee, and the calf raise and tibialis raise build tolerance in the exact muscles that take the repeated impact load behind shin splints.

SESSION B — POSTERIOR CHAIN, CORE & POWER

FRIDAY

Power, heavy compound, hamstrings/glutes, core

~45-55 minutes, after a 10 minute warm-up

Exercise	Sets	Reps	Intensity	Rest
Skater Jump	3	5/side	Maximal, full recovery	2 min
Standing Broad Jump	3	5	Maximal, full recovery	2 min
Back Squat	4	4-6	Heavy, 2-3 RIR	2-3 min
Single-Leg Romanian Deadlift	3	8/leg	Moderate, 1-2 RIR	2 min
Side Plank	3	30-45 sec/side	Controlled	60-90 sec
Bird Dog	3	8-10/side	Controlled	60-90 sec
Curl-Up	2	8-10	Controlled	60 sec

Skater jumps train lateral and rotational power — a plane of movement running itself never trains, but one your hips and ankles still need to control on every uneven step or turn. The broad jump is a simple, general measure of lower-body power that's easy to track over time. Back squat is the heavy strength anchor here; the single-leg RDL then trains the hip hinge one leg at a time, directly addressing any side-to-side imbalance running alone won't fix.

The last three exercises are Dr. Stuart McGill's "Big 3" for spine health: side plank resists your spine bending sideways, bird dog resists it rotating, and the curl-up (not a full sit-up) trains the abs without repeatedly flexing the spine under load — the combination covers the main directions the low back needs to stay stable in.

As with any strength work, progress the load slowly and only once technique is solid — the goal here is durability for your running, not turning these sessions into their own max-effort workout.