

Knee Strengthening & Injury Prevention Exercise Protocol (No equipment needed!)

This protocol focuses on building strength, stability, and flexibility/mobility to reduce the risk of knee injuries. It is suitable for anyone, from elite athletes, active individuals, to weekend warriors or even those recovering from knee injuries.

Dynamic Warm-Up: Walking or Stationary Bike: 5-10 min.

Mobility Drills:

1. Hurdler's Stretch (heel to butt), 3 sets of 30 seconds, each side.
2. ATG (deep) Squat, sustained at bottom, 3-4 reps 30-60 sec, or until tolerance.

Quadriceps Strengthening

1. **Wall Sits:** Hold for 20–60 seconds, 3 sets.
2. **Step-Ups:** Use an 8–12" step (or stairs), drive through heel, 3 x 10 reps per leg.
3. **Split Squats (Stationary Lunges):** Focus on proper alignment, 3 x 10 reps/leg.
4. **VMO Setting:** With one knee bent while seated, extend other knee to full extension with toes turned out slightly, lift 3 x 15 reps.

Hamstrings and Posterior Chain

1. **Standard Bridge:** 3 x 15 (both feet flat on ground).
2. **Single-Leg Bridge:** 3 x 8/leg (one leg fully extended)

Glute Activation

1. **Side-lying hip abduction:** 3 sets of 10-15 reps on each side.
2. **Fire Hydrants:** 3 x 12/leg. (on all 4s, mimic a dog peeing on a fire hydrant).

Calf Strength

1. **Double-Leg Calf Raises:** 3 x 15 reps.
2. **Single-Leg Calf Raises:** 3 x 10 reps/leg.

Balance and Proprioception (Essential for Injury Prevention)

Single-Leg Stance: Standing on one leg, with other raised 90 degrees, hold 30–60 sec per leg. Progress to unstable surfaces (e.g., foam pad, BOSU ball). Do 3 reps.